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ABSTRACT

Using the theoretical framework of the Reinforcing Spirals Model, we examine over-time relationships between partisan political discussion and affective political polarization using two three-wave datasets collected during the 2016 and 2012 US Presidential Elections. Our results during both election cycles indicated that higher levels of polarization at wave 1 were associated with an increased discussion with like-minded partners at wave 2, which was associated with higher levels of polarization at wave 3. In all, these findings demonstrate support that reinforcing spirals occur through partisan political discussion on affective partisan attitudes.

Political polarization is a growing democratic concern around the world, including the United States (US). Indeed, in 2013, Congress was unable to reach an agreement on raising the debt ceiling forcing the government to temporarily shut down. More recently in 2017, for the first time in US history, a cabinet appointee needed the Vice President to cast a deciding vote for confirmation. Both of the political parties in the US have also threatened to eliminate the filibuster in the Senate. As the US continues to govern from crisis to crisis, scholars have started to examine the factors that may contribute to partisan gridlock. Research has pointed to increasing levels of polarization among elected officials as one explanation for the current discord in the US capital. Indeed, research has shown that the ideological gap between Democrats and Republicans in Congress is the highest it has been in nearly a century (Hare, Poole, & Rosenthal, 2014).

This increase in polarization has led to a wealth of research focused on understanding this trend. Of particular interest is over-time increases in affective polarization (Iyengar, Sood, & Lelkes, 2012), and a turn to examining what factors contribute to this widening gap. Use of partisan media outlets has been identified as one culprit (Hmielowski, Beam, & Hutchens, 2016; Hopkins & Ladd, 2012; Knobloch-Westerwick, 2012; Levendusky, 2013; Smith & Searles, 2013; Stroud, 2010). Although these studies provide important information regarding how communication contributes to affective polarization, gaps remain.

In this study, we utilize Slater's Reinforcing Spirals Model (RSM) to examine the dynamic relationship between interpersonal discussion and affective polarization using two distinct sets of 3-wave survey data. Our study expands the literature on interpersonal communication and polarization in three ways. First, it examines what type of information more polarized individuals seek out. Consistent with selective exposure research, we propose those with higher levels of affective polarization will be more likely to discuss politics with those who are likeminded (Arceneaux, Johnson, & Cryderman, 2013; Bello & Rolfe, 2014; Knobloch-Westerwick, 2012; Stroud, 2011). Secondly, we examine whether discussing politics contributes to affective polarization. Past studies have examined the relationship between discussing politics and people's political attitudes and beliefs. This research has shown that discussion with similar others correlates with people holding strong, consistent political attitudes (Huckfeldt, Mendez, & Osborn, 2004; Mutz, 2006; | Wojcieszak, 2008, 2010, 2011). By contrast, hearing opposing information has been shown to weaken people's attitudes (Mutz, 2006). These findings suggest that discussing politics with a higher proportion of like-minded partners may increase affective polarization, while discussion with a higher proportion of dissimilar others may decrease affective polarization. Lastly, we combine these two perspectives and examine the reinforcing relationships between discussing politics and affective polarization. Specifically, we assess whether a reciprocal relationship exists between talking to a greater proportion of those who hold similar views and affective polarization, resulting in greater polarization.

Affective polarization

Scholars have become increasingly interested in polarization. Though many of these studies have focused on the US (Abramowitz & Saunders, 2008; Lelkes, 2016; Levendusky, 2013), scholars have also examined polarization in other countries (Garrett et al., 2014; Lee, 2005; Wojcieszak, Azrout, & Vreese, 2018). A number of related variables have been utilized within the literature examining the effects of exposure to different sources of communication. Some scholars have focused on attitude extremity (Gil de Zúñiga, Correa, & Valenzuela, 2012; Wojcieszak, 2010). Attitude extremity is the extent to which people hold a strong position on a particular topic (Binder, Dalrymple, Brossard, & Scheufele, 2009). For example, extremity would center on how strongly an individual holds a position on gun control or how strongly he/she identifies with a political party. A typical assessment of this concept would be to fold an attitude or ideology measure to assess the strength of people's attitudes or beliefs (Binder et al., 2009). One factor missing from this approach is the extent to which a gap exists between groups of people within a country. To address the weakness with this measure, scholars have assessed attitude or opinion polarization (Abramowitz & Saunders, 2008; Garrett et al., 2014; Levendusky, 2013). This conceptualization is different from attitude or opinion extremity in that it assesses the gap between different groups of people within a political system. From a US perspective, public opinion polls have focused on increasing attitude gaps between Democrats and Republicans toward a variety of issues, such as the social safety net, the environment, and immigration (Pew Research Center, 2014).

More recently, scholars have introduced the concept of affective polarization to the fields of political science and political communication. Affective polarization has been described as the gap in feelings between in- and out-group members. In terms of politics,

scholars have largely focused on the gap between how much you like your preferred party compared to how much you dislike the opposing party (Iyengar et al., 2012; Lelkes, 2016). Unlike a measure of attitude polarization, affective polarization includes feelings about a person's preferred in-group and their feelings toward an out-group. In this sense, it is similar to a measure centered on group identity strength. The difference for affective polarization is that it assesses a gap between the in-group and out-group feelings rather than just focusing on how strongly people identify with their preferred group.

Reinforcing spirals and interpersonal communication

Slater's (2007, 2015) Reinforcing Spirals Model (RSM) provides a framework to understand how communication could increase or decrease affective polarization during an election campaign. Slater introduced the RSM as a way to think about communication and attitudes as a dynamic process and bridge the research that has been done on selective exposure and communication effects. He proposed a model that suggests these relationships can be bi-directional and change over time. He posited that communication and attitudes often can be mutually reinforcing, such that communication will support attitudes individuals already have, and the attitudes individuals have will impact their communication choices. These relationships wherein communication and attitudes reinforce each other over time have been found in several contexts (e.g., Feldman, Myers, Hmielowski, & Leiserowitz, 2014; Schemer, 2012). In terms of affective polarization, the RSM would suggest that individuals with strong political beliefs would seek out discussion partners that would reinforce those beliefs, and those discussions would, in turn, strengthen pre-existing attitudes. Slater's follow-up article in 2015 expanded upon his earlier theoretical work clarifying that spirals do not continue to produce more extreme positions indefinitely, but rather typically reach a point of homeostasis, wherein attitudes and communication habits are relatively stable. This would suggest that if individuals' positions were already crystallized, then one may not see changes in their communication habits and beliefs. This is especially true in situations where political campaigns are operating from a "business as usual" perspective. However, Slater posited that political campaigns often include new information that may trigger identity threat. As a result, campaigns are a key time period where people's attitudes and communication behaviors may change. The recent elections in the US exemplify situations in which identity threat may be more salient due to the high use of identity politics by candidates (Sides, Tesler, & Vavreck, 2018).

Up to this point, most studies utilizing the RSM have focused on mediated communication. What has been given less attention by scholars is how this process applies to interpersonal communication. In Slater's work (2007, 2015), he outlines that the RSM can apply to all types of communication. When making this point, he emphasizes that scholars should examine this process in both mediated and interpersonal contexts. For example, Slater (2007) notes that "spiral selectivity and effects processes with respect to media may also be found with respect to interpersonal association" (p. 290). In his follow-up theoretical piece, Slater (2015) again notes "that while my focus has been on media content choice, choice of interpersonal communication activities … are equally relevant to such processes" (p. 372). Similarly, Donsbach and Mothes (2012) draw on political research from both mediated and interpersonal communication to build a polarization-

based RSM. In their comprehensive model of political polarization, political information is conceptualized broadly regardless of communication mode. In other words, the basic tenants of the RSM apply to all forms of communication. The lack of research on inter-personal sources within the RSM is consequential given that interpersonal communication is a key source of political information. Indeed, Beam and colleagues (2017) found that word of mouth was second only to local media as a source of political information during the 2016 election. Perhaps more importantly, scholars have found that the extent to which we talk to people who disagree with us has important consequences for our knowledge about politics and tolerance for out-groups (Mutz, 2006). Despite the potential importance of interpersonal communication, little is known about how attitudes and discussion partners impact each other over the course of an election campaign. To address the relative dearth of work applying the RSM to interpersonal sources, we test a reciprocal relationship between political discussion and affective political polarization within the context of a presidential election campaign and outline what would be expected given the two traditions that are incorporated into the RSM.

Selective exposure: Attitudes predicting communication

The first line of relevant research that motivates the RSM is the selective exposure litera-ture. Selective exposure is grounded in the idea that attitudes drive communication choices. The general premise is that people strive to hold a consistent attitude toward an object or engage in behaviors that reflect underlying attitudes and opinions (Festinger, 1957). From a communication perspective, people will seek out information that supports their views so they can hold a consistent attitude (Stroud, 2010). Moreover, they may avoid information that challenges their views so they can hold these consistent attitudes. For example, Garrett and Stroud (2014) found that conservative partisans had a stronger ten-dency to avoid opposing information in an experimental setting than others. Regardless of if the change is an increase in consistent information or a decrease in inconsistent infor-mation, the result would be consuming a greater proportion of attitude-consistent infor-mation in order to maintain their attitudes. The RSM takes a similar approach, though it places a greater emphasis on people's social identities. In essence, people will seek out identity-supportive information and avoid identity-threatening information (Slater, 2007; 2015), resulting in an increase in the proportion of discussion partners who hold similar views.

A great deal of research across the social sciences has shown evidence that people do indeed seek out supportive information (Arceneaux et al., 2013; Bello & Rolfe, 2014; Garrett et al., 2014; Hollander, 2008; Knobloch-Westerwick, 2012; Stroud, 2011; Taber & Lodge, 2006). Many of these studies have focused on mediated communication. For example, Stroud (2010) found an over-time relationship between selecting attitude-con-sistent information and polarized attitudes. More recently, Bou-Hamad and Yehya (in press) demonstrated that partisan viewers were more likely to select supportive program-ing. Scholars have also examined the relationship between political attitudes and political discussion. A number of political discussion studies have found that individuals tend to have larger numbers of discussion partners that agree with their views (Huckfeldt & Sprague, 1995; McPherson, Smith-Lovin, & Cook, 2001). Studies that have examined the causal linkages between initial attitudes and resulting discussion patterns have

shown evidence that the attitudes people hold predict the nature of political discussions. For instance, Binder and colleagues (2009) found discussion with like-minded others was associated with more extreme attitudes toward stem cell research. Similarly, Bello and Rolfe (2014) found an over-time relationship in which strength of party identification was associated with discussing politics with those who hold similar views. Based on this research, we propose the following hypothesis:

> H1: Higher levels of affective polarization will be associated with discussing politics with those who hold similar views.

Effects perspective: Communication predicting attitude change

In addition to examining how attitudes predict interpersonal discussion, the RSM also examines the effects of communication on people's attitudes. In particular, the RSM proposes that identity-supportive information will make a social identity more salient in memory, which should influence the "values and attitudes associated with that identity" (Slater, 2007, p. 291). From an affective polarization perspective, increases in the accessibility of a political identity should lead to increases in negative feelings toward the opposing political party or candidate of that party, along with an increase in positive feelings toward one's preferred political party or candidate. Many studies have focused on the media's contribution to polarization (Hmielowski et al., 2016; Iyengar et al., 2012), with a great deal of interest in partisan media's contribution to polarization (Bou-Hamad & Yehya, in press; Garrett et al., 2014; Levendusky, 2013; Stroud, 2010). Knobloch-Wester-wick (2012) found that consuming opinion-supportive news available on partisan media outlets increased the accessibility of supportive attitudes in memory. Consuming pro-attitudinal information has also been shown to strengthen existing attitudes (Levendusky, 2013; Smith & Searles, 2013). Smith and Searles (2013) discovered that watching and listening to Fox News increased positive attitudes toward conservatives' preferred candidate (McCain) and increased negative attitudes toward their out-group candidate (Obama). They found similar results for liberal programing. More specific to this study, research has also shown that exposure to supportive information is associated with increases in affective polarization (Garrett et al., 2014).

Research in small group communication and interpersonal communication suggests there could be similar effects resulting from discussing politics. Researchers have consistently found that small group discussions increase polarization (Brauer, Judd, & Gliner, 1995; Brown, 2001; Myers & Lamm, 1976; Sunstein, 2000). In these studies, polarization is assessed by having individuals report attitudes or opinions regarding a fictional choice prior to and following a group discussion. Research consistently finds confidence scores for the group are more extreme following discussion (Myers & Lamm, 1976), regardless of group composition. The rationale for this observed shift to extremity is that hearing supportive information increases confidence in one's own views, which leads to more extreme attitudes following discussion (Brauer et al., 1995). Research has also noted that group homogeneity and interacting with members of these homogeneous groups could also increase polarization. For instance, Sunstein (2000) argues that stronger attitudes as a result of discussion are more likely to occur when groups are comprised of like-minded individuals. Wojcieszak (2008, 2010) has tested some of the ideas outlined by Sunstein. Indeed, she found that homogeneity of one's social network and participating

in homogeneous online forums strengthens people's attitudes (Wojcieszak, 2008, 2010). Based on the research presented here, we believe hearing more supportive views via political discussions should increase affective polarization. Therefore, we propose the following hypothesis:

> H2: More frequent discussion with individuals who hold similar opinions will be associated with higher levels of affective polarization.

The reinforcing process: Polarization and depolarization

In the end, the RSM attempts to connect the selective exposure and effects-based literatures to understand the dynamic nature of communication. To test this dynamic relationship, we are proposing a reinforcing process. Slater (2015) argued that during election campaigns people could be more likely to feel a sense of identity threat, which would increase the likelihood of seeking out supportive information, resulting in higher levels of polarization. In recent elections in the United States, scholars have frequently asserted that identity politics have become more common, making the salience of political identities more likely (Sides et al., 2018). These increases in content that could trigger identity threat might increase the chance that this reinforcing process will occur. In other words, there will be reinforcing effects between affective polarization and exposure to a greater proportion of attitude-consistent information. Indeed, Donsbach and Mothes (2012) articulate a dynamic model of partisan polarization that specifically addresses a reciprocal model between attitude-consistent partisan information and polarization. The reinforcing process could begin with those reporting higher affective polarization increasing the frequency of interpersonal communication with similar others or decreasing their communication with dissimilar others, ultimately resulting in increased polarization. It could also be that changing the proportion of their discussion with similar and dissimilar others increases affective polarization, which results in increased communication with a greater proportion of those who hold similar views. Based on the processes we outline in this section of the paper, we propose the following hypothesis:

> H3: There will be a reinforcing effect between discussion with similar others and affective polarization.

Methods

Two three-wave panel studies were utilized to test our hypotheses. The data from 2016 were collected via an internet survey with a sample provided by the polling firm YouGov. YouGov utilizes a sample matching procedure, wherein they initially oversample and then create a final sample that matches national population characteristics. That is, initial interviews are completed by more individuals than are reported here, but researchers are provided with a final sample that meets demographic markers and completes all desired waves of the survey. The final sample is created from a sampling frame using benchmarks from large, high-quality probability samples. YouGov's sample matching procedure has been empirically compared to random sampling procedures and found to exhibit little to no selection bias (Ansolabehere & Rivers, 2013; Ansolabehere & Schaffner, 2014; Rivers & Bailey, 2009). Indeed, scholars empirically demonstrated that

sample matching procedures generate samples better than other internet panels, and are equivalent to the random methods used to create high-quality surveys such as the American National Election Survey. The 2016 data used here consist of 500 sample-matched participants that completed all three waves. Two participants who did not have values for all key variables were discarded from the analysis. The sample was created using a sampling frame that matched participants on gender, age, race, education, party identification, ideology, political interest, voter registration, and voter turnout. Weights were provided by YouGov based on propensity scores created via age, gender, race/ethnicity, years of education, and ideology. The demographic statistics provided are before implementing the weights. The first wave of data was collected 11–23 August 2016 after the major party conventions. The second wave was collected 21–28 September 2016 just before the first Presidential debate. The third and final wave was collected 24–30 October 2016, after the debates, but prior to election day. A correlation table of all focal measures used is available in the online appendix as Table A1.

The data from 2012 were collected in three waves from a national online panel of participants recruited by Qualtrics, an online survey software and sample provider. Panel members were sampled from quota groups that matched national census characteristics. While some scholars still question the use of quota groups because of the potential for higher levels of error (i.e., Yeager et al., 2011), other scholars have found their quality to be comparable to traditional methods such as RDD (Ansolabehere & Schaffner, 2014). A comparison between the demographic characteristics of both of our samples and national census data is located in Table 1. The first wave of data ($N = 1148$) was gathered on 1–3 October 2012, just before the first US Presidential debate. The second wave of data ($N = 669$, 58.28% of wave 1) was gathered on 25–27 October 2012 between the third and final US Presidential debate and the 2012 general election. The third wave of data ($N = 404$, 60.39% of wave 2) was gathered between 13–15 November 2012 in the week after the general election. The following analyses and descriptive statistics from 2012 utilize 401 cases for which we have complete data, any individuals who did not complete all three waves were dropped.[1] A correlation table of all focal variables used is available in the online appendix as Table A2. Given that our sample statistics were quite close to census reports, we are confident with the quality of our data. Furthermore, the results from these data closely align with the more rigorously collected 2016 sample, bolstering our confidence in the generalizability of the findings.

Table 1. Survey demographic and US demographic summaries.

Variable	2012 survey	2016 survey	US census
Sex: Female[1]	45.6%	51.4%	50.9%
Age[3]	47.63	46.23	45–64[4]
Hispanic[1]	6.5%	16%	12.5%
Race: White[1]	83.0%	77.8%	75.1%
Race: African-American/Black[1]	11.5%	12.8%	12.3%
Race: Asian American/Asian[1]	4.5%	3.4%	3.6%
Race: Native American[1]	0.8%	2.2%	0.9%
Race: Other[1]	2.5%	7.4%	5.6%
Education[2]	Associate Degree	Technical, trade or vocational	Some College
Income[2]	50–under 75k	30–under 40k	$45,467

Note: [1]Proportion, [2]Median, [3]Mean, 2016 $N = 500$, 2012 $N = 401$.

Focal variables

Political discussion

In 2016, **discussion with similar others** was measured by averaging responses to three items utilizing a (0) never to (6) very often scale. The items were: (1) In general, how frequently do you discuss politics with those you agree with, (2) In general, how frequently do you discuss politics with those you agree with face-to-face, and (3) In general, how frequently do you discuss politics with those you agree with online (wave 1: $M = 2.96$, SD $= 1.44$, $\alpha = .71$; wave 2: $M = 2.98$, SD $= 1.45$, $\alpha = .75$; wave 3: $M = 3.08$, SD $= 1.45$, $\alpha = .74$). Measurement invariance tests indicate that the similar discussion measure is both metric ($\chi^2 (4) = 3.66$, $p = .45$) and scalar ($\chi^2 (4) = 2.58$, $p = .63$) invariant. In 2012, discussion with similar others was measured with one item that asked respondents, "In the past week, how many days have you discussed the 2012 US Presidential election with individuals with whom you agree" on a scale of (0) no days to (7) every day (wave 1: $M = 3.04$, SD $= 2.44$; wave 2: $M = 3.32$, SD $= 2.45$; wave 3: $M = 3.27$, SD $= 2.47$).

In 2016, **discussion with dissimilar others** was measured by averaging responses to three items utilizing a (0) never to (6) very often scale. The items were: (1) In general, how frequently do you discuss politics with those you disagree with, (2) In general, how frequently do you discuss politics with those you disagree with face-to-face, and (3) In general, how frequently do you discuss politics with those you disagree with online (wave 1: $M = 2.23$, SD $= 1.45$, $\alpha = .77$; wave 2: $M = 2.27$, SD $= 1.38$, $\alpha = .74$; wave 3: $M = 2.27$, SD $= 1.36$, $\alpha = .75$). Measurement invariance tests indicate that the dissimilar discussion measure is both metric ($\chi^2 (4) = 3.11$, $p = .19$) and scalar ($\chi^2 (4) = .53$, $p = .97$) invariant. In 2012, discussion with dissimilar others was measured with one item that asked respondents "In the past week, how many days have you discussed the 2012 US Presidential election with individuals with whom you disagree" on a scale of (0) no days to (7) every day (wave 1: $M = 1.76$, SD $= 2.12$; wave 2: $M = 1.80$, SD $= 2.12$; wave 3: $M = 1.92$, SD $= 2.25$).

In our primary analyses we measure discussion as a proportion. To create our proportion of discussion measure we subtracted dissimilar discussion from similar discussion, therefore a positive value is reflective of a greater amount of similar discussion in comparison to dissimilar discussion, and a negative value would be suggestive of a greater amount of dissimilar discussion in comparison to similar discussion (2016: wave 1: $M = .74$, SD $= 1.30$; wave 2: $M = .71$, SD $= 1.30$; wave 3: $M = .81$, SD $= 1.25$; 2012: wave 1: $M = 1.28$, SD $= 2.04$; wave 2: $M = 1.53$, SD $= 2.30$; wave 3: $M = 1.35$, SD $= 2.18$).

Affective polarization

To create a measure of polarization, we combined measures that separately assessed people's negative and positive feelings toward the two major Presidential candidates (Donald Trump and Hillary Clinton in 2016, and Barack Obama and Mitt Romney in 2012). The use of split scales has been shown to be versatile. Kaplan (1972) argues that split scales allow scholars to calculate total affect, ambivalence, and polarization. Moreover, he contends that the different measures that can be calculated using these separate items actually assess different concepts. In 2016 we assessed positive feelings by asking respondents to report how hopeful, excited, and enthusiastic they felt about each candidate on a (0) not at all to (6) very scale (Trump wave 1: $M = 1.88$, SD $= 2.22$, $\alpha = .95$; wave 2: $M = 1.87$, SD $= 2.24$, $\alpha = .96$; wave 3: $M = 1.95$, SD $= 2.31$, $\alpha = .96$; Clinton wave 1: $M = 2.16$,

SD = 2.23, α = .96; wave 2: M = 2.18, SD = 2.22, α = .95; wave 3: M = 2.23, SD = 2.23, α = .96). Negativity was assessed by asking respondents to report how aggravated, angry, and irritated they felt about each candidate on a (0) not at all to (6) very scale (Trump wave 1: M = 3.69, SD = 2.19, α = .93; wave 2: M = 3.42, SD = 2.36, α = .96; wave 3: M = 3.66, SD = 2.34, α = .96; Clinton wave 1: M = 3.10, SD = 2.33, α = .94; wave 2: M = 3.09, SD = 2.35, α = .95; wave 3: M = 3.09, SD = 2.41, α = .95). In 2012, single items were used. Positivity was assessed by asking respondents how positive their feelings were toward a candidate on a scale of (0) not at all positive to (6) very positive (Obama wave 1: M = 3.04, SD = 2.21; wave 2: M = 3.11, SD = 2.24; wave 3: M = 3.01, SD = 2.32; Romney wave 1: M = 2.55, SD = 2.12; wave 2: M = 2.64, SD = 2.14; wave 3: M = 2.72, SD = 2.20). Negativity was assessed by asking participants to indicate how negative their feelings were on a scale of (0) not at all negative to (6) very negative (Obama wave 1: M = 2.98, SD = 2.25; wave 2: M = 2.96, SD = 2.26; wave 3: M = 3.01, SD = 2.35; Romney wave 1: M = 3.37, SD = 2.11; wave 2: M = 3.32, SD = 2.16; wave 3: M = 3.20, SD = 2.20).

Following the process outlined by Kaplan (1972), we used these items to create a measure assessing whether the respondent only held positive or negative feelings toward the candidates. For each candidate, we subtracted the positive feelings from negative feelings (e.g., NEGObama–POSObama). We then added 6 to the equation to eliminate negative numbers. The equation creates a measure of 0–12, in which 0 indicates the respondent only held negative feelings toward the candidate and 12 indicates the respondent only held positive feelings toward the candidate. In essence, these items created a measure similar to the feeling thermometers found in many national surveys. Because the positive and negative feeling measures mimic feeling thermometers, we used the measure of polarization used by Stroud (2010) that calculates the absolute value between the difference of the two feeling thermometer items. The resulting equation produced a scale of 0 to 12, with 0 indicating the individual held balanced affective responses toward the two candidates and 12 indicating the individual held polarized affective responses, favoring one candidate over the other (2016 wave 1: M = 6.40, SD = 3.78; wave 2: M = 6.47, SD = 3.99; wave 3: M = 6.83, SD = 3.99; 2012 wave 1: M = 6.69, SD = 4.14; wave 2: M = 6.85, SD = 4.01; wave 3: M = 7.04, SD = 4.18).[2]

Control variables

Additional demographic and political variables included in our statistical models as controls include *age, education, income, gender, ethnicity, political ideology,* and *political interest*. All the control variables were assessed during wave 1. *Age* was measured with a single item, asking participants for their age in years (see Table 1 for all demographic descriptive statistics). *Education* was measured with a single item asking, "What is the last grade or class you completed in school?" Ordinal response options were coded from 0 to 8 in ascending order from "none" to "post graduate training or school." *Income* was measured with one item using a 9-point scale that ranged from less than 10,000 dollars a year to more than 150,000 dollars a year. *Gender* was measured with one item asking respondents their biological sex. *Ethnicity* was measured by asking participants their race. They were instructed to select all that apply. We coded participants that selected any race other than "white" as a minority. *Political ideology* was assessed by asking participants to respond to the statement, "I would describe my political views as … " using a scale of

very conservative (0) to very liberal (2016, 6; 2012, 4) (2016 M = 2.94, SD = 1.67, 2012 M = 1.79, SD = 1.12). *Political interest* was assessed by asking participants to respond to the statement, "In general, I am very interested in politics." Response options ranged from strongly disagree (0) to strongly agree (2016, 6; 2012, 4) (2016 M = 4.37, SD = 1.58; 2012 M = 2.56, SD = 1.08).

To ascertain that any findings we observe were due to the unique relationship with discussion, we also included single items of liberal, conservative, and non-partisan media use in our models as control variables. Participants were asked to indicate how often they used various media sources using a never (0) to several times per day (5) scale. In 2016 general categories of news were utilized ("liberal" wave 1: M = 2.31, SD = 1.68, wave 2: M = 2.28, SD = 1.63, wave 3: M = 2.22, SD = 1.65; "conservative" wave 1: M = 2.14, SD = 1.67, wave 2: M = 2.02, SD = 1.64, wave 3: M = 2.03, SD = 1.61; "non-partisan" wave 1: M = 2.68, SD = 1.48, wave 2: M = 2.70, SD = 1.50, wave 3: M = 2.64, SD = 1.49), whereas in 2012 specific outlets were assessed ("MSNBC" wave 1: M = 1.44, SD = 1.66, wave 2: M = 1.44, SD = 1.63, wave 3: M = 1.48, SD = 1.68; "FOX" wave 1: M = 1.79, SD = 1.82, wave 2: M = 1.77, SD = 1.84, wave 3: M = 1.74, SD = 1.82; "CNN" wave 1: M = 1.63, SD = 1.70, wave 2: M = 1.69, SD = 1.70, wave 3: M = 1.76, SD = 1.76). Additionally, we included a measure of discussion frequency in our statistical models, consistent with the advice provided by Eveland and Hively (2009). *Discussion frequency* was measured at each wave with one item assessing how frequently they discussed politics. In 2016 they were asked about their frequency of discussion "in general", whereas in 2012 participants were asked about their frequency "in the past week" (2016 wave 1: M = 2.95, SD = 1.43, wave 2: M = 2.94, SD = 1.43, wave 3: M = 3.00, SD = 1.44; 2012 wave 1: M = 2.90, SD = 2.42, wave 2: M = 3.32, SD = 2.45, wave 3: M = 3.14, SD = 2.45).

Analysis strategy

In this paper, we use lagged path analyses,[3] modeled in Mplus 7, to examine the relationships between our discussion variable and polarization. When estimating each focal variable, we included a set of demographic (age, gender, income, education, and ethnicity) and general political variables (ideology and political interest) as controls that were all assessed during the first wave of our surveys. We controlled for general discussion and media use within each wave as well. The lagged models also controlled for the effect of the prior wave's measures of key endogenous variables. For instance, we controlled for proportion of discussion at wave 1, when predicting proportion of discussion at wave 2. Therefore, the analyses did not use calculated change variables, but rather used the raw scores and accounted for the prior wave's variance. The use of the lagged variables allows for any shared variance associated with our control variables, in addition to the influence of the same measure at the prior wave, to be properly accounted for in the models. We also correlated each of our endogenous variables with one another within each wave of data. That is, we correlated discussion and polarization with each other in each wave of the analysis.

Results

The lagged path model presented in Figure 1 shows the significant results from 2016, and Figure 2 shows the significant results from 2012. Complete tables showing all measured
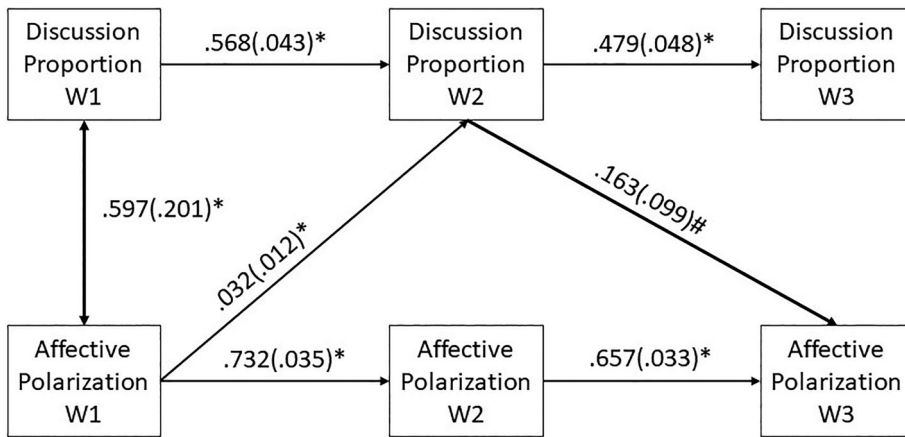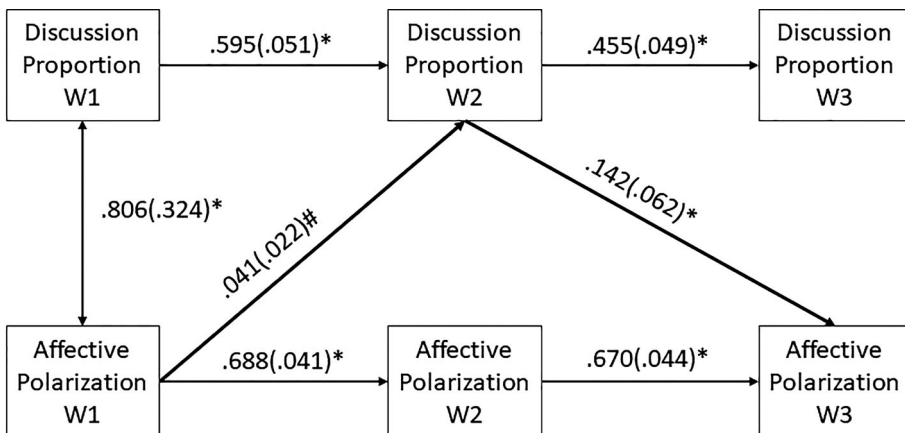
Polarization to Discussion to Polarization Indirect effect: .005 (95% CI: .000–.016)

Figure 1. *Lagged model of discussion and polarization in 2016.*
Note: Values are unstandardized estimates with standard errors in parentheses. Only values for significant paths are displayed.

relationships and variance accounted for in each outcome are included in the online appendix.[4]

Results were generally consistent across both datasets. Both figures provided partial support for H1. Results indicate that higher levels of affective polarization were associated with people discussing politics with a higher proportion of similar others between waves 1 and 2 of our survey in both datasets, whereas the paths between waves 2 and 3 were not

Polarization to Discussion to Polarization Indirect effect: .006 (95% CI: .000–.019)

Figure 2. *Lagged model of discussion and polarization in 2012.*
Note: Values are unstandardized estimates with standard errors in parentheses. Only values for significant paths are displayed.

significant. Therefore, early in the election cycles, those with higher levels of affective polarization (i.e., those who have a larger gap between positive feelings for their in-group and negative feelings for their out-group) were more likely to engage in discussion with individuals who hold similar views as themselves. This provides partial support for H1.

For our second hypothesis, we treated our measure of discussion as the independent variable. Our results showed partial support for H2. In both 2016 and 2012, we found that a higher proportion of discussion with similar others at wave 2 was associated with higher levels of affective polarization at wave 3. This relationship was not significant between waves 1 and 2 of our datasets.

In addition to examining the over-time relationships between our variables, we tested our proposed reinforcing processes. To test these reinforcing models, we estimated two indirect effects in each election. Our results consistently found one statistically significant indirect effect in both 2016 and 2012. In both cases, polarization at wave 1 was associated with an increase in the proportion of discussion with like-minded others at wave 2, which in turn was associated with higher levels of affective polarization at wave 3 (2016 point estimate = 0.005, 95% CI: 0.000–0.016; 2012 point estimate = 0.006, 95% CI: 0.000–0.019). As seen by the size of the confidence interval this relationship was not especially large, but is consistent. Our results did not find significant indirect effects starting with our measure of discussion. In the end, we find partial support for H3.

In addition to the results presented here, we also re-ran the RSM model separating out similar and dissimilar discussion as separate measures in the model.[5] While our primary analyses examined a proportional measure, we also looked explicitly at similar and dissimilar discussion. This allows us an alternative way to test our hypotheses to see if the observed results were due to an increase in similar discussion or a decrease in dissimilar discussion, as both would result in an increased proportion of like-minded discussion. Generally speaking, the results match the findings presented thus far in the manuscript (full models are presented in the online appendix Tables A7–10). Our results still only found one indirect effect. Specifically, the results showed that in 2016 higher levels of polarization were associated with higher levels of discussion with similar others (not with lower levels of discussion with dissimilar others). These increases in similar discussion then resulted in higher levels of affective polarization at wave 3 of the dataset. This finding did not replicate in 2012, however. In the end, this finding shows that affective polarization leads people to talk to those who hold similar views, not avoiding discussing politics with those who hold opposing views. Moreover, these increases in discussing politics with similar others result in higher levels of affective polarization.

Discussion

In this study, we used three-wave panel data to explore the relationships between polarization and discussion during both the 2016 and the 2012 US Presidential Election campaigns. In particular, we examined these relationships looking specifically at the proportion of discussion between similar and dissimilar partners. We found significant over-time relationships between these variables, replicating across two election cycles. In general, we found a pattern of results in which affective polarization early in the election campaign was associated with increases in discussing politics with like-minded individuals. Later in the election we found that higher proportions of similar discussion were

associated with increased affective polarization. Combining these findings, we consistently found a reinforcing indirect effect between polarization and discussion with similar others that replicated across the two different election campaigns.

Our study makes four contributions to the existing literature. First, our paper contributes to work focused on reinforcing spirals. Our paper assesses the reinforcing process of interpersonal discussion, which has largely been ignored in the communication literature (Slater, 2015). Moving forward, scholars should continue examining reinforcing processes across all modes of communication, not just mass media. This research shows that the RSM is a useful theoretical model to help us understand the impact of interpersonal discussion. Second, our study applies the reinforcing process to the study of politics, with a specific focus on affective polarization. Our findings show results consistent with what would be predicted in the RSM (Slater, 2015) and the comprehensive model of political polarization (Donsbach & Mothes, 2012). However, our lack of indirect effects starting with discussion suggests that identity threat may serve as an important starting point in this process. Much of the research on polarization points to partisans or ideologues as being the more polarized individuals. This research suggests that an individual's existing level of polarization is the critical factor when examining the relationship between discussion networks and affective polarization, which has been shown in online contexts as well (Beam, Hutchens, & Hmielowski, 2018). People's negative affect toward the out-party candidate may trigger people seeking out supportive information via their social networks, which reinforces people's feelings toward the two political candidates.

Third, our study extends the work on affective polarization and interpersonal discussion. In terms of affective political polarization, most studies up to this point have focused on mediated information, such as exposure to news media (Beam et al., 2018; Garrett et al., 2014; Iyengar et al., 2012) or access to the internet (Lelkes, 2016). Moreover, most of the work that has been done on interpersonal discussion has focused on attitude polarization or attitude strength as focal outcome variables. For example, Wojcieszak's (2010) research focused on how homogeneity and discussion strengthen attitudes. Our paper differs from these lines of inquiry by looking more generally at political discussion and also examining affective polarization.

Finally, our study contributes to the broader work on communication and polarization. While there is concern that the online environment creates echo chambers, recent studies have found social network websites do not increase polarization (Beam et al., 2018; Boxell, Gentzkow, & Shapiro, 2017). However, our results suggest that interpersonal communication could contribute to polarization. These differences in findings suggest that scholars need to continue looking at these various models across different modes of communication, particularly differences between media, social media, online discussion, and face-to-face discussion. One of the explanations for why social media may not increase polarization is that using outlets such as Facebook typically expose people to shared links of news stories through recommendations from personal contacts rather than actually engaging directly with those individuals (Gil de Zúñiga, Weeks, & Ardèvol-Abreu, 2017). Our results showing increases in affective polarization from interpersonal discussion provide additional evidence for this explanation, and suggest that engaging in these more in-depth discussions have different effects than simply seeing headlines or a declared opinion online.

The primary test of our hypotheses, in addition to our alternative test separating out similar and dissimilar discussion, suggests that increases in similar discussion, rather than changes to discussion with dissimilar others is responsible for the observed relationships with affective polarization. This is worth further exploration as some prior scholarship has determined that dissimilar discussion can drive these relationships (Bello & Rolfe, 2014; Hutchens, Hmielowski, & Beam, 2015; Kim, 2015). There are several potential explanations for the lack of relationships between polarization and dissimilar discussion over time. Research suggests individuals are more likely to have disagreements with close-ties, who tend to hold similar views of the world on a variety of issues (Morey, Eveland, & Hutchens, 2012). Additionally, the less frequent occurrence of discussion with dissimilar others means these conversations will have fewer opportunities to affect people's attitudes. Our results match those of other scholars who indicate that people are not systematically avoiding opposing information (Garrett, Carnahan, & Lynch, 2013). Instead, they are increasing the amount of supportive information they consume to maintain and strengthen existing attitudes and opinions rather than working toward holding accurate opinions (Garrett et al., 2014; Slater, 2007, 2015). Where we are seeing increases over time are with those who are more polarized early in the campaign becoming even more polarized through engaging in higher levels of similar discussion. This finding is consistent with the RSM's focus on identity threat. That is, strong ideologues whose political identities are more likely to be threatened by opposing viewpoints are the people we find to be susceptible to reinforcing communication spirals rather than showing homeostasis.

Future studies could further examine the lack of effects by adding additional moderators or mediators to our models. Slater's (2007) advice is to consider additional moderators to see if spiral effects are occurring among certain individuals. In our case, political efficacy, cynicism, emotions, argumentativeness, or need for closure could play a role in understanding which individuals are affected by discussion with dissimilar others. In addition, because of the importance of identity to this work, and in particular identity threat, it would also be important to assess accessibility of party identification. Indeed, political identity and ensuing identity threat could become more accessible as an election nears, which could moderate the reinforcing process outlined in our study.

While not able to assess accessibility, we did further address the impact of ideology. As a *post hoc* test, we examined whether political ideology and ideological strength served as moderating variables for the various estimated paths. Our analyses suggest that the significant results are not concentrated among those with a specific political ideology (conservatives or liberals) or among ideologues. The results indicated that in 2016 liberals were more likely to engage in similar discussion when they were more affectively polarized only between wave 1 and wave 2 of our dataset. We did not find similar results in the 2012 dataset. Moreover, in the 2016 dataset, we found that discussing politics with similar others increased affective polarization among ideologues only between wave 2 and wave 3 of our dataset. We once again did not find any interactions in the 2012 dataset.[6] Given the lack of consistent findings, it appears that these relationships do not vary by ideology or ideological strength. Future research should also address additional measures of polarization, and try to pull apart the difference between affective polarization and attitudinal polarization. Examining the means for our affective polarization measures show a small (and generally non-significant) but consistent increase in affective polarization over the course of both elections. Understanding what is driving the gap in the

affective polarization measure, and how it continues to increase even within an election, would also be a fruitful avenue for future research.

We would be remiss if we did not mention the weaknesses of our study. The first could be tied to measurement. We rely on individuals' reported perception of the similarity and dissimilarity of their discussion partners, which previous research has found to be inaccurate at times (Eveland & Hutchens, 2013). It is also possible that these perceptions of similarity or difference change during the election, without actual changes occurring. Regardless, even if we are observing perceptions and not reality, we do find a fairly consistent pattern of results. There are also issues with our use of single-item measures for our key variables in 2012. We did not have access to broader measures that could be used to create indexes in the 2012 dataset. However, we used multiple items to measure different forms of discussion in our 2016 data collection, and replicated the results. The reliability of these created indexes exceeded .7, but were not especially high. However, given the consistent findings across multiple datasets and multiple measurement strategies, we do not believe our measurement of these concepts should reduce the confidence in these findings. As mentioned above, additional variables could explain what we are observing. Therefore, as with any study, we cannot be certain our explanation is the only one that exists.

Another limitation could be our sampling methods. The 2012 data are from a diverse national population, and 2016 is from a survey firm whose samples are empirically consistent with nationally representative data. However, neither were collected via random sampling. As indicated in our method section, prior studies have found these samples to be of similar quality as random samples, particularly in the case of our 2016 YouGov panel. In addition, our sample statistics are similar to census data, and we find similar results across both datasets.

Additionally, we also are unable to explicitly discuss *change* in polarization tied to *change* in discussion due to the latent growth models not converging because of our sample size and model complexity. Therefore, while we are able to discuss these two concepts as being related, we cannot confidently say that the changes in these concepts are co-occurring. Scholar should examine this in the future with larger datasets.

Finally, there is potential for history effects within our study in the 2012 dataset. Because the election occurred between waves 2 and 3 of data collection in 2012 we acknowledge that this may have affected people's level of polarization and political discussion. Moreover, the nature of our voting system has made it more difficult to collect data around an election. News stories estimated that 35–40% of votes were cast before Election Day (Hartfield, 2012). Indeed, 25.4% of our sample reported that they had already voted when the third wave of data was collected in our 2016 panel, nine days prior to Election Day. This means early voting has created an additional historical threat to validity. In essence, collecting any data around an election will have a number of threats to validity. Of course, we cannot rule out Election Day as an explanation for our results in the 2012 dataset. But, we believe we still captured important relationships beyond what would be explained by these threats. We should also note that 2012 and 2016 presented unique opportunities for identity threats that may make our findings harder for others to replicate. The presence of an African-American candidate in 2012, and Donald Trump's frequent use of racially charged discourse on the campaign trail likely made identity especially salient during these campaigns.

Overall, our results speak to another important factor that contributes to polarization. In addition to partisan media, we show that discussing politics with other people may contribute to increasing affective polarization among the US electorate. This effect creates a potentially more difficult situation to fix than the problems associated with media. Although media use will continue to pose a problem, structural changes to political and media systems could trigger a shift in media coverage that may diminish the effects of partisan media use on polarization. However, it would be much more difficult to make changes to individual citizens' social networks. Moreover, research showing that people tend to get fewer divergent views from their social networks, leading them to polarize, compared to the views they receive from media (Barnidge, 2017; Mutz & Martin, 2001), suggests that polarization will continue to be a problem – one that could be quite difficult to overcome.

Notes

1. t-tests comparing 2012 wave 1 responses to those who participated in all three indicate that those who dropped out are younger ($t(1146) = 4.427$, $p < .005$), and had lower incomes ($t(1146) = 2.068$, $p < .005$) than those who completed all waves. However, there was not a statistical difference for education levels ($t(1146) = 1.445$, $p = .149$) reported interest in campaign information ($t(1146) = 1.384$, $p = .167$), how frequently they discussed politics in general ($t(1146) = −.316$, $p = .752$), or discussion with similar ($t(1146) = .870$, $p = .385$) and dissimilar others ($t(1146) = −.948$, $p = .343$). Our attrition rate is similar to what has been observed in other panel data, such as the ANES (Bartels, 2000).

2. While traditional measures of reliability cannot be provided for our key measures in 2012 as they only use single items, we were still able to calculate their over-time reliability using Jagodzinski and Kuhnel's (1987) formula, which assesses reliability for single item measures that are expected to change. Their calculation of over-time reliability utilizes the error variance and latent variable variances from a lagged simplex model for each construct. The value of the reliability estimate (ρ_t^2) is derived by subtracting the error variance (σ_ε^2) divided by the latent variable's variance (s_t^2) from one, which will create a reliability estimate for each wave of data ($\rho_t^2 = 1 − \sigma_\varepsilon^2/s_t^2$). This formula indicates that the reliability estimates are lower than desired, but near the accepted threshold (Similar discussion: .65, .66, .67; Dissimilar discussion: .67, .66, .71; Polarization: .63, .62, .64).

3. Many scholars would prefer the use of latent growth models rather than lagged models in order to be able to more accurately assess change over time. Unfortunately, the complexity of these models and the relatively small sample size resulted in the LGM not converging.

4. Table A3 provides the unstandardized coefficients for 2016 (and includes 95% confidence intervals on all coefficients), Table A4 provides the standardized coefficients for 2016, Table A5 provides the unstandardized coefficients for 2012 (and includes 95% confidence intervals on all coefficients), and Table A6 provides the standardized coefficients for 2012. It should be noted that overall variance accounted for is above 30% for all variables with the exception of wave 1 affective polarization. The standardized coefficients suggest that general discussion frequency, in the case of the discussion items at wave 1, and the prior wave of the variable in question for all wave 2 and 3 measures, accounts for the most variance.

5. 2016 models were also run as hybrid SEM models using latent variables for similar and dissimilar discussion. This analysis replicates what was found with the path model presented in the paper. In order to maintain consistency between the two years of data collection, the path model is presented in the manuscript.

6. Note: The analysis looking at ideological strength as a moderator using the 2012 dataset did not converge.

Disclosure statement

No potential conflict of interest was reported by the authors.

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