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Cross-cutting exposure on social networking sites: The effects of SNS discussion disagreement on political participation

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ABSTRACT

Drawing on a national probability survey, this study explores the relationship between discussion disagreement on social networking sites and political participation by focusing on the intervening effects of political discussion and news use. The results revealed that discussion disagreement on SNSs inhibits off- and online political participation, and this relationship is partially mediated by the frequency of SNS political discussion. Furthermore, the frequency of news-related activities on SNSs is found to moderate the mediating effect of political discussion. The implications are discussed.

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Social networking sites (e.g. Facebook and Twitter) have been playing an increasingly important role in public life. A majority (63%) of Twitter and Facebook users consider each platform as a primary news source, particularly in the realm of national government and politics (Barthel, Shearer, Gottfried, & Mitchell, 2015b). Information-related activities on SNSs place individuals in a heterogeneous discussion network, which heightens one's likelihood of encountering political disagreement (Barnidge, 2015; Choi & Lee, 2015; Lee, Choi, Kim, & Kim, 2014).

The growing likelihood of cross-cutting exposure during SNS interactions necessitates a thorough investigation into its influence on political participation, as engagement in public affairs has long been revered as an essential aspect of a healthy and well-functioning democratic society (Held, 2006; Putnam, 2000). Previous research has extensively explored this relationship in the context of offline interactions, but come to conflicting conclusions. While some studies report a negative relationship between discussion disagreement and political participation (Mutz, 2006; Valenzuela, Kim, & Gil de Zúñiga, 2012), other scholars contend disagreement positively contributes to participatory behaviors (Kwak, Williams, Wang, & Lee, 2005; Scheufele, Hardy, Brossard, Waismel-Manor, & Nisbet, 2006; Song & Eveland, 2015). Our

study first reviews the literature (e.g., Klofstad, Sokhey, & McClurg, 2013) that attributes these mixed findings to the inconsistencies in the operationalization of discussion disagreement, and then explains why we stick closer to the former research line.

Individuals encountering disagreement on SNSs are less likely to participate in political activities, because the fear of isolation leads them to refrain from further political conversations (Gearhart & Zhang, 2015; Noelle-Neumann, 1974) that could greatly contribute to political engagement (Gil de Zúñiga, Molyneux, & Zheng, 2014). Previous studies have demonstrated that online reasoning activities, such as political discussion, could relay the effects of certain types of media use on political engagement (Cho et al., 2009; Ekström & Östman, 2015). In this sense, it is likely that SNS political discussion mediates the relationship between discussion disagreement and political participation.

Further, discussion disagreement could arise in various contexts on SNSs, including interactions via public news commenting and private chatting. Frequent SNS news users could easily discuss politics with others by leaving public comments underneath a certain news post (Gil de Zúñiga, Jung, & Valenzuela, 2012). For the politically inattentive who avoid news on SNSs, political discussion tend to come up incidentally during their SNS private chats where politics is not the central topic (Wojcieszak & Mutz, 2009). In this case, whether discussion disagreement occurs via public commenting or private chatting is arguably dependent on one's frequency of SNS news use. These two distinct circumstances would

produce different political outcomes, because public commenting involves a higher degree of online incivility and fear of isolation than private chatting (Herring, 2007; Pin & Hsieh, 2014). In this sense, we explore whether and how SNS news use could moderate the effects of SNS discussion disagreement.

Employing a national probability survey, we investigate the mechanism of how discussion disagreement on social media is related to online and offline political participation. We first explore the association between SNS discussion disagreement and participation, testing the mediating role played by the frequency of SNS political discussion in this relationship. We then investigate how the frequency of SNS news use moderates the mediating effect of political discussion. The findings contribute to the understanding of the link between SNS activities and participatory democracy.

1. SNS discussion disagreement and political participation

Scholarly debate exists over whether discussion disagreement mobilizes or inhibits political participation. Some researchers contend that exposure to disagreement during political discussion discourages involvement in political activities (Mutz, 2006; Valenzuela et al., 2012). Exposure to conflicting views is likely to engender ambivalence within an individual, which in turn decreases one's likelihood of taking effective political action (Hutchens, Hmielowski, & Beam, 2015; Mutz, 2006). The fear of isolation also leads individuals to refrain from further political conversations (Gearhart & Zhang, 2015; Noelle-Neumann, 1974), which contribute to political engagement (Gil de Zúñiga et al., 2014). Furthermore, political differences in interpersonal discussion could produce anxiety because disagreement undermines the social harmony within one's network (Mutz, 2006). In order to assure social harmony, individuals will be less likely to decide to take positions on political issues.

However, research has also documented evidence for a positive relationship between political disagreement and participation (Kwak et al., 2005; Scheufele et al., 2006; Song & Eveland, 2015). Exposure to diverse views forces individuals to learn about alternative perspectives and reflect more carefully on their own views (Price, Cappella, & Nir, 2002; Scheufele et al., 2006). This learning process indirectly enhances political participation because political knowledge is critical to involvement in politics (Jung, Kim, & Gil de Zúñiga, 2011).

These conflicting findings in previous literature can be attributed to the differences in the operationalization of discussion disagreement (Barnidge, 2015; Klofstad, Sokhey, & McClurg, 2013). On the one hand, researchers who identify a negative relationship between disagreement and participation (e.g. Mutz, 2006) measure discussion disagreement based on respondents' general perception of disagreement during political interactions. On the other hand, scholars proposing a positive relationship between disagreement and participation tend to measure disagreement by one's frequency of political conversations with those who have different political characteristics (e.g., partisanship and/or vote choice) (e.g. Kwak et al., 2005). These inconsistencies on the operationalization of discussion disagreement also exist in studies of social media use, with the former measurement employed by Kim (2011) and Vraga, Thorson, Kligler-Vilenchik, and Gee (2015) and the latter one used by Choi and Lee (2015).

While both operational measures intend to capture the degree of discussion disagreement, this study sticks closer to the former for two reasons. First, perceived disagreement matters more than actual disagreement in terms of its influence on political outcomes (Mutz, 2006; Wojcieszak & Price, 2012). Indeed, Klofstad et.al. (2013) empirically compared the effects of these two measurements on political attitudes and behaviors, concluding that

perceived disagreement is more consequential. Second, frequent discussion with politically dissimilar others can be considered to be an antecedent of discussion disagreement, but does not necessarily lead to more exposure to dissimilar political views (Barnidge, 2015; Mutz, 2006). In the context of political discussions, individuals usually avoid disagreement through various means in order to reduce psychic discomfort (Festinger, 1957). In this case, a Democrat could talk frequently with Republican friends about non-partisan political issues, which would not produce much disagreement during the conversations.

In sum, our study opts for the perception-based measure of discussion disagreement. Previous studies that also focus on perceived disagreement have reported a negative relationship between discussion disagreement and political participation (Mutz, 2006; Valenzuela et al., 2012). This study extends these findings to the social media context and proposes the following hypothesis:

H1. Perceived discussion disagreement on SNSs is negatively associated with political participation.

2. Mediating role of SNS political discussion

The communication mediation model suggests that reasoning activities, such as political discussion, could relay the effects of certain types of media use on political participation (Shah et al., 2007). For example, a two-wave panel survey indicates that the relationship between online news use and political participation is mediated by online political interactions (Ekström & Östman, 2015). In the social media context, political expression is also found to mediate the relationship between SNS news consumption and political engagement in a two-wave survey study (Gil de Zúñiga et al., 2014). It is likely, therefore, that SNS political discussion mediates the relationship between discussion disagreement and political participation.

The mediating role of SNS political discussion can be explained by a sequence of two paths. First, SNS discussion disagreement discourages individuals' involvement in political conversations. Social media users monitor the online opinion climate based on the frequency of encountering disagreeable SNS content (Gearhart & Zhang, 2015). Individuals who come across significant disagreement in SNS discussions tend to perceive their own views to be in the minority, and then refrain from further online expression due to the fear of isolation (Gearhart & Zhang, 2015; Noelle-Neumann, 1974). Echoing the spiral of silence theory (Noelle-Neumann, 1974), social media users are less willing to express political views if they think their audience would disagree with them (Hampton et al., 2014). Further, exposure to disagreement undermines one's interest in politics (Torcal & Maldonado, 2014; Wojcieszak & Price, 2012) and leads to the belief that political expression on SNSs produces negative feelings (e.g., anger and discomfort) (Vraga et al., 2015). Such changes in political interest and the perception of political expression on SNSs are likely to inhibit involvement in further political conversations.

The second path of the mediation model is that political discussion on SNSs is positively associated with political participation. Political discussion, as a reasoning behavior, is crucial in encouraging political participation (Eveland, 2004; McLeod et al., 1999; Shah et al., 2007; Zhang, Johnson, Seltzer, & Bichard, 2010). Studies relying on multi-wave surveys indicate that interpersonal interaction leads individuals to more thoroughly comprehend related concepts and create reasoned argumentation (Cappella, Price, & Nir, 2002; Shah et al., 2007). These elaborative processes produce strong political orientations, such as political efficacy and political knowledge, which subsequently enhance participatory democracy (Jung et al., 2011; Min, 2007). In addition, the expression

of political ideas leads to political participation by changing the expresser's self-perception from observer to participant (Bem, 1967; Gil de Zúñiga et al., 2014).

Compared with offline conversations, online political discussion not only shares similar elaboration merits, but may also produce even stronger consequences for democratic processes. Primarily dependent on text-based exchanges of composed messages, online discussion is highly cognitively-oriented and emotionally detached (Min, 2007). This form of communication makes individuals more likely to deliberately reorganize existing knowledge and ideas in their minds (Cho et al., 2009; Greene, 1984; Min, 2007). Additionally, online political interaction could enable individuals to encounter more opportunities for political mobilization (Shah et al., 2005), and the participation habit acquired from online political expression could lead to involvement in other political activities (Jung et al., 2011).

As an important online application, SNSs foster political participation by enabling individuals to engage in political discussions with others in their digital networks. SNSs allow individuals to construct a public or semi-public profile or persona and articulate a list of their connections (Boyd & Ellison, 2007). By connecting individuals to a wider community, SNSs function as avenues where norms around reciprocity and trust are built through networked discussion, stimulating greater engagement in political life (Gil de Zúñiga et al., 2012). Indeed, studies employing multi-wave surveys reveal that political use of SNSs, such as expressing political views and discussing politics with others, is positively related with political participation (Gil de Zúñiga et al., 2014; Holt, Shehata, Strömbäck, & Ljungberg, 2013).

In sum, the literature suggests that SNS political discussion is associated with both discussion disagreement and political participation. Therefore, we propose the following hypothesis:

H2. Political discussion on SNSs mediates the relationship between perceived discussion disagreement on SNSs and political participation.

3. The moderating role of SNS news use

Social networking sites provide individuals with numerous opportunities to engage in news-related activities, such as following news media posts on Twitter and sharing news links on Facebook. Individuals who frequently consume news on SNSs could easily discuss politics with others by leaving public comments underneath a certain news post (Gil de Zúñiga et al., 2012). For the politically inattentive who avoid news on SNSs, political topics tend to come up incidentally during their SNS private chats where politics is not the central concern (Wojcieszak & Mutz, 2009). In this case, SNS discussion disagreement could occur under two distinct circumstances (i.e., public news comments vs. private chats), depending on whether an individual frequently consumes news or simply ignores news on SNSs. This disparity resulted from the engagement in SNS news-related activities leads us to consider whether SNS news use could moderate the effects of SNS discussion disagreement.

Frequent SNS news users, who primarily encounter discussion disagreement in the form of public news commenting, are more likely to refrain from further political discussion for several reasons. First, disagreement encountered in SNS public commenting induces more fear of isolation than disagreement encountered in private conversations. News commenting enables frequent SNS news users to come across more disagreement because individuals are more likely to engage in political interactions with weak-tie friends or even strangers (Barnidge, 2015; Brundidge, 2010; Choi & Lee, 2015). On the contrary, private chats on SNSs, where the

politically inattentive tend to incidentally encounter disagreement, occurs most frequently between close friends (Hsu, Wang, & Tai, 2011). Compared with weak-tie connections, close friends are less likely to isolate an individual solely due to political differences (Pin & Hsieh, 2014). This is because close friends have already established trust and intimacy with each other (Kenny, 1994; Pin & Hsieh, 2014) and their relationships are usually maintained on the basis of other common grounds so that exposure to political disagreement is "less threatening and more easily deflected" for them (Wojcieszak & Mutz, 2009, p. 52).

Secondly, discussion disagreement that occurs through public news commenting on SNSs rather than private conversations is more likely to induce online incivility (Herring, 2007; Hutchens, Cicchirillo, & Hmielowski, 2015). Exposure to disagreeable uncivil political talk is found to reduce individuals' satisfaction with online message boards, which could in turn decrease one's likelihood of engaging in further discussions (Gervais, 2015). Indeed, whether an individual is treated as equal or abused by disagreeing discussants may induce different political outcomes (Zhang & Chang, 2014).

Finally, individuals who frequently consume news on SNSs are usually those at the higher ends of the socio-economic spectrum (Smith, 2013), possess more resources, and have higher levels of motivation (Lee, Choi, & Kim, 2014). These people may be more concerned about the social harmony within their networks, and will thus be more likely to refrain from conversations in order to avoid conflict (Mutz, 2006). Indeed, individuals with a high level of conflict avoidance are more likely to consider Facebook an inappropriate place for politics after exposure to political disagreement (Vraga et al., 2015).

In sum, frequent SNS news users are particularly susceptible to the negative influence of political disagreement on SNS political discussion, which in turn decreases their involvement in political activities. Therefore, we propose the following hypothesis:

H3. SNS news use moderates the mediating effects of political discussion in the relationship between perceived discussion disagreement on SNSs and political participation. Specifically, the mediating effect of political discussion is stronger among individuals who engage more frequently in news-related activities on SNSs.

4. Methods

4.1. Data

This study employed a national survey of American adults conducted from May 3, to May 10, 2012. A commercial firm, Clear Voice Research, recruited survey respondents from representative online panels. The sample was weighted on two variables of gender and age, in accordance with the U.S. Census data for more accurate representation of the general population. The sample size was 1032. Males represented 52 percent of the sample, and the average age was 39.8. The response rate was 17.3 percent, which is acceptable for online panel surveys (Sax, Gilmartin, & Bryant, 2003).

4.2. Measurement

Perceived discussion disagreement on SNSs. As discussed above, this study opts for the perception-based operationalization of discussion disagreement. Following previous studies (e.g. Barnidge, 2015; Zhang, 2015), we measure SNS discussion disagreement by asking respondents, "if political discussion occurred in your social network sites, in general how much did you agree or disagree with the political views expressed by other friends on social network

sites?" ($M = 1.59$, $SD = .90$, $Range = 0-4$).

SNS political discussion. The frequency of political discussion on SNSs was measured by a question asking respondents how often they discuss politics or current events with friends on SNSs ($M = 1.31$, $SD = 1.02$, $Range = 0-3$).

SNS news use. SNS news use was measured with five items (4-point scale; $Range = 0-3$), with respondents indicating how often they 1) get news or news headlines on SNSs ($M = 1.69$, $SD = .99$); 2) receive news links from news organizations ($M = 1.62$, $SD = 1.02$); 3) receive news links from other individuals ($M = 1.35$, $SD = 1.10$); 4) post news or news headlines on SNSs ($M = 1.24$, $SD = 1.01$); 5) share new links with friends on SNSs ($M = 1.45$, $SD = 1.00$). Each respondent's scores on these five questions were combined into a single index (*Cronbach's α = .89*), with higher scores reflecting a higher frequency of SNS news use.

Political participation. The main dependent variable in this study is political participation. To capture individual variance of the participation, this study used a battery of questions about political activities. Also, with the rise of the Internet, individuals have adopted new online forms of participation to involve in politics (Gil de Zúñiga, Copeland, & Bimber, 2014). Compared with traditional forms of participation, online political participation requires fewer resources (Best & Kruger, 2005). In this case, we measure online and offline political participation separately. For *offline political participation*, we followed previous studies (e.g., Scheufele, Nisbet, & Brossard, 2003; Shah et al., 2007) and used a battery of 11 questions, asking respondents if they had, in the last 12 months, participated in political activities by 1) sending a political news story to a friend or colleague; 2) campaigning for a candidate of their choice; 3) attending a public political forum or joining a political organization; 4) attending a political rally or demonstration; 5) attending a meeting of a political organization; 6) joining a political organization as a member; 7) donating money to a political cause; 8) signing a political petition; 9) contacting a politician or government official; 10) actively campaigning for a political organization; and 11) written a letter to the editor of a newspaper. "Yes" responses were coded as "1" and "No" responses as "0." The results were then summed to create an index (*Cronbach's α = .87*) of offline political participation ($M = 1.94$, $SD = 2.73$, $Range = 0$ to 11). *Online political participation* was also measured by a battery of questions (Bakker & de Vreese, 2011; Gil de Zúñiga, Garcia-Perdomo, & McGregor, 2015), asking about participation in political activities such as 1) visiting the web site of a party or political organization; 2) signing an online petition; 3) donating funds online to a political cause; 4) sending an email to a politician or government official; 5) participating in an online question & answer session with a politician; 6) signing up online as a volunteer to help with a political cause; and 7) joining a political organization online as a member. "Yes" responses were coded as "1" and "No" responses as "0." The results were also summed to create an index (*Cronbach's α = .79*) of online political participation ($M = 1.53$, $SD = 1.84$, $Range = 0$ to 7).

Controls. Demographics, media use, and other variables of individual characteristics (i.e., party identification, political ideology, political interest, and political knowledge) were included as control measures. Summary statistics are provided in the Appendix.

5. Results

This study specified OLS regression models to test the proposed hypotheses. Furthermore, a moderated mediation model was set up to test the moderating effects of SNS news use on the hypothesized mediation. Some control variables were found significantly related to political participation. Males are more likely to participate in both on- and offline political activities. Political interest and the frequency of reading newspapers are also found to have significant and positive relationships with the dependent variables. Findings are summarized in Table 1.

H1 predicted discussion disagreement on SNSs is negatively associated with political participation. Model 1 in Table 1 shows that discussion disagreement on social media is significantly associated with offline political participation ($B = -.54$, $t = -3.51$, $p < .001$), even after controlling for demographics, media use variables, and individuals' political characteristics. Model 3 in Table 1 shows that discussion disagreement on SNSs is also significantly related to online participation ($B = -.42$, $t = -4.10$, $p < .001$). The findings indicated that the more an individual encounters disagreement during SNS political discussions, the less likely he or she is to participate in both off- and online political activities. These results support H1.

H2 predicted SNS political discussion mediates the relationship between discussion disagreement and political participation. This study employed a bootstrapping technique (Preacher & Hayes, 2004) to test this indirect relationship. We analyzed the 95 percent confidence intervals associated with the indirect effects of SNS political discussion, with 5000 bootstrap samples. Table 2 shows that the negative effects of SNS discussion disagreement on political participation are significantly mediated by the frequency of SNS political discussion for offline (Confidence interval = [−.1736, −.0206]) and online political activities (CI = [−.1231, −.0158]). The confidence intervals do not include zero, which shows significant mediation by SNS political discussion. However, as shown in Model 2 and Model 4 in Table 1, the direct association between SNS discussion disagreement and the participation variables remains significant (Offline participation: $B = -.46$, $p < .01$; Online participation: $B = -.37$, $p < .001$) after SNS political discussion is included into the models, demonstrating that SNS political discussion partially mediates the relationship between SNS discussion disagreement and political participation, both online and offline. These findings support H2.

H3 posited that SNS news use moderates the indirect effect of discussion disagreement on political participation through SNS political discussion. To test the moderated mediation, we specified a regression model using the PROCESS Model 7 proposed by Hayes (2013). This model (see Fig. 1) aims to examine how SNS discussion disagreement (X) is indirectly associated with political participation (Y) through a mediator of SNS political discussion (M) that is conditioned by the frequency of SNS news use (W). This moderated mediation model allows us to examine whether and how the strength of an indirect relationship (i.e., mediation) is contingent on the level of some variables (i.e., moderators) (Preacher, Rucker, & Hayes, 2007).

SNS news use is found to significantly moderate the mediating effects of SNS political discussion in the relationship between discussion disagreement and offline political participation (CI = [−.0423, −.0029]). As shown in Table 3, discussion disagreement on SNSs is related to offline political participation, via the frequency of SNS political discussion, only among people who engage in SNS news-related activities at a high frequency ($B = -.11$, $SE = .05$). However, this indirect path was not found significant for people who have low (CI = [−.0694, .1302]) and moderate levels of SNS news use (CI = [−.1192, .0078]). A similar pattern was found for online participation. The mediating path for online participation was only significant for those consuming news frequently on SNSs ($B = -.07$, $SE = .03$). Again, the indirect relationship was not significant for those who have low (CI = [−.0451, .0884]) and moderate levels of SNS news use (CI = [−.0808, .0053]). Therefore, H3 is supported.

Table 1
Regression analysis of political participation, unstandardized (SE).[a]

	Offline political participation		Online political participation	
	Model 1	Model 2	Model 3	Model 4
Age	−.00 (.01)	.00 (.01)	−.00 (.01)	.00 (.01)
Gender (being male)	.96(.27)[***]	.94 (.27)[***]	.45 (.18)[*]	.43 (.18)[*]
Education	.23 (.11)[*]	.24 (.10)[*]	.13 (.07)[†]	.14 (.07)[*]
Income	.01 (.07)	.03 (.07)	.02 (.05)	.03 (.05)
Race (being white)	.35 (.32)	.38 (.32)	−.03 (.22)	−.01 (.21)
Party identification	.11 (.10)	.13 (.10)	.05 (.07)	.06 (.07)
Ideology	−.18 (.15)	−.19 (.15)	−.07 (.10)	−.08 (.10)
Political interest	.87 (.14)[***]	.76 (.14)[***]	.52 (.09)[***]	.44 (.09)[***]
Political knowledge	−.04 (.10)	−.03 (.10)	.05 (.07)	.06 (.07)
Newspaper	.39 (.11)[***]	.35 (.11)[**]	.22 (.08)[**]	.19 (.08)[*]
TV news	−.07 (.10)	−.05 (.10)	−.01 (.07)	.01 (.07)
Radio news	.26 (.10)[*]	.23 (.10)[*]	.04 (.07)	.02 (.07)
Internet news	.08 (.11)	.02 (.11)	.16 (.08)[*]	.11 (.08)
SNS use	.14 (.08)[†]	.10 (.08)	.05 (.05)	.02 (.05)
SNS discussion disagreement	−.54 (.15)[***]	−.46 (.15)[**]	−.42 (.10)[***]	−.37 (.10)[***]
SNS political discussion		.72 (.20)[***]		.52 (.13)[***]
R^2	.32	.34	.28	.31

[†]$p < .10$; [*]$p < .05$; [**]$p < .01$; [***]$p < .001$; listwise deletion.
[a] $N = 411$, list-wise.

Table 2
Mediation of the relationship between SNS discussion disagreement and political participation through SNS political discussion.

	Offline participation				Online participation			
	B	SE	Bootstrapping		B	SE	Bootstrapping	
			LLCI	ULCI			LLCI	ULCI
SNS political discussion	−.08	.04	−.17	−.02	−.06	.03	−.12	−.02

Note: Bootstrapping results are bias corrected and accelerated; 5000 bootstrap samples; Demographics, political characteristics, and media use were included into the equations as control variables, but not reported here due to space limitation.
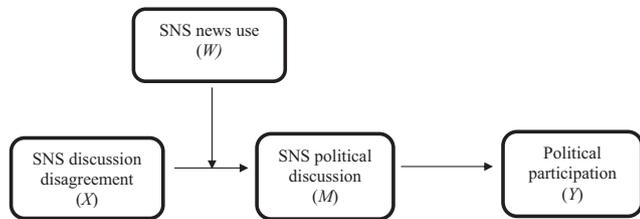

Fig. 1. Conceptual model. Indirect association of SNS discussion disagreement (×) with off- and online political participation (Y) through SNS political discussion (M) that is conditioned by SNS news use (W).

6. Discussion

This study investigated the relationship between discussion disagreement on social networking sites and political participation by exploring the intervening roles of political discussion and news use on SNSs. Employing a national probability survey, we examined how discussion disagreement on SNSs is associated with political participation and tested the mediating role of SNS political discussion in this relationship. Further, we tested whether and how SNS news use moderates the mediating effect of SNS political discussion.

The findings confirmed the negative association between SNS discussion disagreement and both off- and online political participation, even after controlling for demographics and other media use variables. The findings add evidence to the dark side of disagreement in terms of its influence on participation. The two mechanisms of ambivalence and social accountability, which were proposed in offline political conversations (Mutz, 2002b), could be also applied to the social media context. Further, the negative association between SNS discussion disagreement and political participation also raises doubts about the functions of SNSs in participatory democracy. While frequent SNS use contributes to more exposure to political differences (Barnidge, 2015; Choi & Lee, 2015), it seems that SNS users are unable to translate the deliberative benefits of discussion disagreement, such as a better understanding of oppositional views (Huckfeldt, Johnson, & Sprague, 2004; Mutz, 2002a; Price et al., 2002), into meaningful behaviors.

However, it is worth noting that this negative association between SNS discussion disagreement and political participation may

Table 3
Conditional indirect effects of SNS discussion disagreement (X) on political participation (Y) through SNS political discussion (M) at different levels of SNS news use (W).

Mediator	Moderator (SNS news use)	Offline participation				Online participation			
		B	SE	Bootstrap		B	SE	Bootstrap	
				LLCI	ULCI			LLCI	ULCI
SNS political discussion	Low	.02	.05	-.07	.13	.01	.03	-.05	.09
	Mean	-.04	.03	-.12	.01	-.03	.02	-.08	.01
	High	-.11	.05	-.22	-.04	-.07	.03	-.15	-.02

be explained by alternative mechanisms. For example, the politically disenfranchised might be more likely to encounter disagreeing opinions on SNSs, but they are less likely to participate in mainstream political activities. Future research could explore such alternative explanations and consider other ways that people work as political agents (e.g., lobbying and starting petitions).

In addition, the findings suggest that the frequency of SNS political discussion partially mediates the relationship between discussion disagreement and political participation. Exposure to political differences on SNSs leads individuals to refrain from further political discussion, which is crucial in encouraging political participation. While previous research primarily considers the psychological mechanism (i.e. ambivalence and social accountability) under the relationship between disagreement and political participation (Mutz, 2006), this study indicates that the important role of SNS communicative activities cannot be ignored. Theoretically, the indirect process examined in this study adds empirical evidence to the communication mediation model, which suggests the importance of reasoning activities, such as political discussion, in mediating the effects of media use on political participation (Shah et al., 2007).

A closer look into the mediation model raises some concerns about the influence of SNS discussion disagreement on public life. In the mediation model, the negative association between political differences and SNS political discussion suggests that the deliberative merits of discussion disagreement on SNSs may be offset. Admittedly, political disagreement could contribute to deliberative democracy by enhancing political tolerance and one's awareness of dissimilar views (Mutz, 2002a; Price et al., 2002). However, the decreased frequency of political conversations resulted from SNS discussion disagreement may lead to some undesirable consequence. For example, a lower frequency of political discussion is very likely to inhibit political learning, because political conversations contribute to knowledge gain (Eveland & Hively, 2009; Kim, 2016).

Our results revealed that the frequency of SNS news use regulates the indirect relationship between SNS discussion disagreement and political participation through political discussion. For individuals who frequently engage in news-related activities on SNSs, such as sharing a news link on Facebook, exposure to dissimilar views leads to a significant decrease in their frequency of SNS political discussion, which in turn inhibits political participation. For individuals who rarely consume news on SNSs, political disagreement does not influence the frequency of engaging in further political conversations so that its indirect effect on participation is insignificant. Frequent news use on SNSs is an important indicator of a model citizen, and thus, withdrawals from further conversations leads to serious problems. A healthy democracy needs the involvement of people with more political information, because they can provide more insights on controversial issues and probably make more rational decisions (Bartels, 1996; Kim, 2016).

Theoretically, the moderating effect of SNS news use also suggests the importance of differentiating public messaging and private messaging in online communication research (Herring, 2007). Individuals who frequently engage in news-related activities on SNSs are more likely to encounter political disagreement via the follow-up comments of a certain news post. Compared with SNS private chatting, where the politically inattentive encounter disagreement incidentally, these public comments are likely to produce online incivility and the fear of isolation, both of which could lead frequent SNS news users to stay away from further political conversations. Research has so far focused on the moderating role of political orientations (e.g. political efficacy and attitude strength) in examining the effects of disagreement (Lee, Kwak, & Campbell, 2015; Matthes, 2012; Matthes & Marquart, 2015).

Future research could place more emphases on the different contextual environments where discussion disagreement often occurs. For instance, disagreement encountered on public platforms may lead individuals to respond differently to the counter-attitudinal opinions from that encountered during private conversations.

Some limitations need to be noted in the interpretation of the findings. First, cross-sectional surveys do not allow us to draw causal conclusions. For example, while the results suggest that exposure to disagreement on SNSs inhibits the involvement in further political conversations, the opposite is also possible. Nevertheless, previous research employing experiment data has reported the causal effect of online discussion disagreement on some psychological variables (e.g. dissatisfaction with the message board) that could possibly reduce the intention of further discussions (Gervais, 2015). In order to thoroughly investigate the chain of causality, future studies should employ more appropriate methods, such as experiments and multi-wave surveys. Secondly, we used single-item measures for SNS political discussion and SNS discussion disagreement. Although single-item measures of political discussion have been used in the past (e.g., Eveland & Hively, 2009), it is clear that multi-item measures are needed in future studies so as to capture one's frequency of political conversations more precisely. As for the measurement of discussion disagreement, we focused on people's general perception of political disagreement. While the wording of the question is straightforward and has been employed by previous studies (e.g. Wojcieszak & Mutz, 2009), it is better to measure key variables with multiple items. Thirdly, this paper did not consider how discussion disagreement encountered on various social networking sites would influence its outcomes. For example, given that individuals are more likely to comment on political posts on Facebook than Twitter (Barthel, Shearer, Gottfried, & Mitchell, 2015a), frequent Facebook users may encounter more disagreement in public than their Twitter counterparts. Future research should explore the nuanced differences across SNSs. Finally, the measurement of political participation in this study is not perfect. Voting was not included in the index of offline participation and political activities afforded by SNSs, such as following a politician on Twitter, were not measured for online participation.

Despite such limitations, this study extends the understanding of how discussion disagreement on SNSs exerts influence on political participation through SNS political discussion. Findings indicate that SNS political discussion partially mediates the negative relationship between perceived discussion disagreement on SNSs and political participation, and that the mediation effect only exists among people who engage more frequently in news-related activities on SNSs. As a prevalent online platform, social networking sites will have greater influence on public life. In this sense, future investigation should place more emphases on how different types of SNS activities enhance/inhibit democracy.

Appendix. Variables summary

Demographics: Age ($M = 39.8$, SD = 16.4), Gender (Male: 51.6%), Income (M = \$45,500, SD = \$25,000), Education (M = 11 years of schooling), Race (White: 77.2%).

Media Use: Print newspapers (M = 1.34, SD = 1.34, $Range$ = 0–5), TV news (M = 2.80, SD = 1.58, $Range$ = 0–5), Radio news (M = 1.50, SD = 1.45, $Range$ = 0–5), Internet news (M = 2.27, SD = 1.49, $Range$ = 0–5), SNS use (M = 2.35, SD = 2.07, $Range$ = 0–7).

Other controls: Party identification (M = 3.18, SD = 1.55, Range = 1–5, Republican to Democrat), Political ideology (M = 2.80, SD = 1.04, Range = 1–5, Conservative to Liberal),

Political interest ($M = 2.28$, $SD = 1.22$, $Range = 0–4$), Political knowledge ($M = 2.55$, $SD = 1.70$, $Range = 0–5$, Cronbach's $\alpha = .74$).

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