

**Social Media and Online News Media in Motivating Political Discussion: Influence on
Homogenous and Heterogeneous Strong-Ties**

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Social Media and Online News Media in Motivating Political Discussion: Influence on Homogenous and Heterogeneous Strong-Ties**Abstract**

The aim of the current study was to explore how changes of individuals' media use patterns and the form of strong-tie political discussion are increasingly intertwined over time. The current study argued that social media has increasingly replaced news media's deliberative meanings of spurring political discussion. In particular, the study tested whether the interaction of communication mode between social media and online news media would have causal influence on political discussion with politically like-minded or cross-cutting families and friends. Using cross-lagged penal model by Taiwanese representative data ($N = 1,272$), we found the spending time on social media is positively correlated with online news media use, indicating a complementarity effect. Furthermore, the results showed that discussing politics with homogeneous and heterogeneous strong ties is mainly driven by social media rather than online news media.

Keywords: political discussion, homogeneity, heterogeneity, strong ties, cross-lagged penal model

Social Media and Online News Media in Motivating Political Discussion: Influence on Homogenous and Heterogeneous Strong-Ties

With the development and pervasiveness of social media, much of accumulated political communication literature has turned their attention from news media into social media.

Traditional studies argued that the instrumental use of news media and political discussion is a ‘virtuous circle’ which is closed correlated with civic motivation (Rojas et al., 2005). However, recent studies have shifted to social media which interactivity and association features would motivate political discussion through enlarging social network size, broadening discussion network heterogeneity and homogeneity, and strengthening relationships with strong ties and weak ties (Carlson, Abrajano, & García Bedolla, 2020; Gil de Zúñiga, Valenzuela, & Weeks, 2016; Kim, 2018; Lu & Lee, 2020; Valenzuela, Correa, & Gil de Zúñiga, 2018). However, we argued that it should reconsider the interaction of social media and news media in the contemporary media ecology.

The changes in media environments not only influence peoples’ media use patterns but also challenge traditional theoretical models. Particularly, the emergence of new media may influence the impacts of old media. For instance, Gil De Zúñiga, Puig-I-Abril, and Rojas (2009) examined whether web blogs were situated in communication mediation model, and whether blogs would replace traditional news source or have identical effects on online and offline political engagements. Likewise, given the progresses of information communication technology, Tillema, Dijst, and Schwanen (2010) examined whether electronic communication take the place of face-to-face communication or complement each other. Furthermore, as Shah et al. (2017) pointed out, the communication mediation model, which assumed news media would increase political discussion and further foster political engagements, should be revised due to

the shifts of news media systems and emergence of social media. Therefore, we argued that researchers should take accounts of interaction of communication modes and the varying nature of media environments. That is, when we examined the antecedences of political discussion, we should consider the media ecology where people are embedded in. However, most recent studies focused on a single medium rather than the interaction of media. In order to investigate the influence of changing media environments over time, the current study used longitudinal study to examine the causal relationship between online news media, social media, and political discussion, as well as take changes in media use patterns into our theoretical model.

In term of political discussion, the current paper emphasized on homogeneous and heterogeneous strong-tie political discussion. Since Granovetter (1973) stressed on the strength of weak, a growing research argued that social media would revive the power of weak tie because social media contribute to larger social network size and network diversity. However, in recent year, Somma (2009) proposed a contended argument which strong ties will lead to stronger behavioral influence than weak ties. Furthermore, compared with weak tie which increase diffusion of mobilization information, strong ties are found to mobilize others to participate protests (Somma, 2009; Valenzuela et al., 2018). In fact, political discussion among families and friends often involves with disagreements rather than all agreements (Morey, Eveland, & Hutchens, 2012). However, research on like-minded and cross-cutting strong-tie discussion is still limited. Moreover, the current study responded to the critique which social media reinforce echo chamber phenomenon. Rather than examining the homogeneity in political discussion forum or around specific topics on a single platform (Colleoni, Rozza, & Arvidsson, 2014; Williams, McMurray, Kurz, & Lambert, 2015), we followed Dubois and Blank's (2018) ideas by investigating whether an individual is being caught in an echo chamber from micro

level. Therefore, to fill the gap, the current study aimed to examine how social media influence individual-level political discussion with politically similar and dissimilar strong ties.

Taken together, the purpose of the current study was to explore the causal relationship between interaction of communication modes (i.e., social media and online news media) and the form of strong-tie political discussion (i.e., homogeneity and heterogeneity) by using longitudinal data from Taiwan. With 75.6% penetration of Facebook use (Internet World Stats, 2019) and a clear two-party political system (Wu & Guo, 2017), we argued that Taiwan is suitable for examining how a social media-dominated environments influence peoples' media use patterns and like-minded/cross-cutting strong-tie political discussion. Using cross-lagged penal model by two-wave panel data ($N = 1,272$), we found the spending time on social media is positively correlated with online news media use, indicating a complementarity effect. Furthermore, the results showed that discussing politics with homogeneous and heterogeneous strong ties is mainly driven by social media rather than online news media.

Literature Review

Strong-tie political discussion homogeneity and heterogeneity

Political discussion has been regarded as a conduits of political participation and is fundamental for democratic society. Compared with unidirectional reception of information or news exposure, bidirectional and reciprocal discussion for politics has been found to increase political knowledge, political efficacy, information acquisition, mobilization, political participation, civic engagement, and voting (Allen et al., 2017; Eveland, 2004; Jung, Kim, & deZúñiga, 2011; Valenzuela et al., 2018). Hence, based on the perspective of deliberative theory, there is a large volume of studies examined how to reach an ideal public sphere through political discussion.

Although prior research on political discussion is multi-dimensional, the current study focused on how individual discuss politics with like-minded or cross-cutting discussants within strong-ties discussion network. Previous studies have examine multi-perspective political discussion, ranging from discussion network size, frequency of political discussion, political discussion network homogeneity and heterogeneity, to tie strength with political discussants (Carlson, McClean, & Settle, 2020; deZúñiga & Valenzuela, 2011; Lee, 2012; Scheufele, Hardy, Brossard, Waismel-Manor, & Nisbet, 2006). To echo deliberative theory, we argued that strong-tie political discussion homogeneity and heterogeneity needs further investigation because of its influence on political behaviors. Strong-tie political discussion is defined as discussing political issues or public affairs with individuals' core networks, such as families and friends; whereas weak-tie political discussion is with acquaintances or strangers (Campbell & Kwak, 2012; Morey & Yamamoto, 2020). Researchers have found different effects on political participation between strong-tie and weak-tie political discussion. Political discussion with weak-tie can increase the diffusion of political information (deZúñiga & Valenzuela, 2011; Granovetter, 1973); however, strong-tie political discussion have theoretical importance on social influence and normative pressure due to emotional connections (Campbell & Kwak, 2012), which enable to persuade others to strengthen or adopt a specific political behavior, such as protest participation and political mobilization (Bond et al., 2012; Somma, 2009). Furthermore, research has suggested that strong-tie networks are not politically homogeneous (Lu & Lee, 2020), which people are more willing to express disagreements with close ties than weak ties and have higher tolerance toward cross-cutting viewpoints in discussion (Morey et al., 2012; Mutz, 2002). For instance, John and Dvir-Gvirsman (2015) found Facebook users were more likely to unfriend and unfollow weak ties with different political orientations than strong ties.

How to motivate individuals to discuss political issue with homogeneous or heterogeneous close ties through media use? Based on communication mediation model, previous studies have shown news media use would foster political discussion, which in turn boost political participation

(Gil De Zúñiga et al., 2009; Rojas et al., 2005); however, researchers have turned attention on social media because it has been playing an influential role in politics and news acquisition in recent years (Lu, Heatherly, & Lee, 2016). Indeed, contemporary media environments have changed dramatically due to ubiquitousness of internet and social media, and it may transform the nature of interpersonal communication, such as news consumption patterns, political engagement, and the role of audience (Shah et al., 2017). Hence, we argued that in advance of examining how social media and online news media influence strong-tie political discussion homogeneity and heterogeneity, we should investigate the revolution of media use patterns given these shifts.

Competition for eyeballs between social media and online news media

Since social media have become the main source or alternative channel for getting news (Antunovic, Parsons, & Cooke, 2016; Müller, Schneiders, & Schäfer, 2016), it is important to understand whether peoples' news use patterns have changed because the variation may further influence political discussion. Similar to the interaction between old media and news media, we focused on the interaction of media use patterns between social media and online news media. According to Tillema, Dijst, and Schwanen (2010), there are four types of relationships between two communication modes: substitution (e.g. social media reduce online news use); complementarity (e.g. social media stimulate the use of online news); modification or changes in the nature (e.g., online news websites build social media accounts for more traffics); or neutrality (social media has no effects on online news use).

In order to capture users' limited attention, online news media not only modify the nature but also cooperate with social media, and it may form a complementary and reciprocal relationship. For instance, online news media provide more partisan news and entertainments for serving both niche and mass users (Shah et al., 2017), and turn into social media markets to increase more directed links to news websites (Flaxman, Goel, & Rao, 2016). On the other hand,

social media function as social and newsy platforms to fulfill users' needs for social interaction and information gathering (Colleoni et al., 2014) and news contents through personalization algorithms increase stickiness and positive attitudes (DeVito, 2017; Thurman, Moeller, Helberger, & Trilling, 2019). Furthermore, online news media allow users to quickly transfer to social media to comment or share news for more interaction with news and others. Hence, we proposed that social media would stimulate online news use and vice versa.

H1a: Online news media use will lead to higher level of social media use.

H1b: Social media use will lead to higher level of online news media use.

Social media as main role in strong-tie political discussion

Although the potential reinforcing spiral relationships between social media use and online news use, the current study argued that social media has increasingly replaced news media's deliberative meanings of spurring political discussion, in particular with strong ties. As mentioned above, online news media have changed the nature (e.g., more partisan and entertained news) to attract attentions and compete with other communication mode. The lacks of objectivity and news quality would increase media distrust and damage the democratic functions of news media, hence decrease users' motivation for political discussion and participation (Shah et al., 2017). As Shah et al. (2017) pointed out, although communication mediation model focused on news media in previous studies, the model should be modified due to the changing nature of news media landscapes. Furthermore, online news media fulfill news demands for social media users (Müller et al., 2016). Hence, we argued that the "virtuous circles" between news media and political discussion (Rojas et al., 2005) would be varied because of pervasive use of social media. The current study proposed that the main role to trigger

involvement in political discussion with families and friends is social media rather than online news media in contemporary media environments. Reasons are as follows.

First, the affordances of social media meet the motivations for strong-tie political discussion. Morey and Yamamoto (2020) found that the motivations to frequently engage in political discussion with individuals' core social network are political learning, political expression and to influence others. Different from online news media, the affordances of social media allow information and connected relationships to be visible, the original posts to be persistent and reviewable, posts can be editable and reach larger audiences, and to build social relationships with others (Treem & Leonardi, 2013). That is, social media not only have expression effects (Shah et al., 2017), but also make offline relationships be present online which enables users to observe friends' political orientation, interests, and political activities, hence further influence strong-tie political discussion (Hampton, Shin, & Lu, 2017). For instance, Lee, Kwak, and Campbell's (2015) study showed that when people who perceive they are in homogeneous strong-tie networks interact with politically dissimilar others, they are more willing to engage in politics, open dialogue, and transform deliberative conversation into meaningful political activities.

Second, social-oriented use of social media would motivate civic and political outcomes. Although prior studies suggested that the positive effects of news media use on political discussion are because people are purposive to gain information, form opinions, and express viewpoints to fulfill civic and instrumental needs (Conover, Searing, & Crewe, 2002; Gil De Zúñiga et al., 2009; Rojas et al., 2005), recent studies found social-oriented and civic-oriented motivations of media use have similar and positive impacts on political discussion (Gil de Zúñiga et al., 2016). Political discussion with their families and friends may be embedded in

informal and daily conversation, where discussing public affairs are similar to chatting about sports or entertainment programs, and it can be viewed as a way to entertain, pass time or build common social grounds (Rubin, Perse, & Barbato, 1988). Prior research has found people tend to interact with close friends and families, and are willing to spend more time reading and discussing news content with them on social media (Ellison, Steinfield, & Lampe, 2007; Kaun & Stiernstedt, 2014). Furthermore, the personalization algorithms would prioritize posts from frequently interacted friends (Valenzuela et al., 2018). Therefore, we argued social media would increase more opportunities than online news media to involve in social-oriented political discussion with their close ties.

Furthermore, we examined whether social media have stronger effects on homogenous and heterogeneous political discussion with strong ties. Research regarding the role of social media on political discussion has revolved around three streams. One strain of research has argued social media would reinforce political homogeneity on discussion. For instance, Jacobson, Myung, and Johnson (2016) revealed that Facebook users in partisan fan page discussion were highly political homogenous and often used ideologically consistent links in their comments. Other work has considered the association feature of social media would form networked public sphere and strengthen political discussion with heterogeneous others. Many researchers found social media would enlarge network heterogeneity and network size, and further amplify cross-cutting political discussion (Heatherly, Lu, & Lee, 2017; Kim, Hsu, & deZuniga, 2013). Yet other researchers have claimed that social media may curtail strong-tie political discussion because people are unwilling to damage social relationships with friends, and the spiral of silence mechanisms make them fear to express political viewpoints (Hampton et al., 2017).

Taken together, the current study argued that social media would make users hardly to avoid or inhibit political discussion with close ties, and it may increase like-minded and cross-cutting strong-tie discussion. In fact, political discussion may occur in casual conversation, dialogue, and deliberation (Rojas et al., 2005). Social media can blur boundaries between private and public sphere, distort the lines between news and discussion forum, and further make users unaware of residing in a political field (Brundidge, 2010). Hence, we speculated that social media would motivate discussing politics with families and friends in casual conversation and dialogue, which are rather informal, without political purpose, and private (Rojas et al., 2005).

Furthermore, these occasions seem safer and lower hostility for people to involve in political discussion with disagreements. This notion is congruent with findings reported by Morey et al. (2012), which they found social media users were more likely to talk to heterogeneous strong ties and tended to avoid conflicts and be tolerant to discrepant opinions. In addition to heterogeneous discussion, we argued social media would also enhance homogenous strong-tie political discussion. Research has suggested that using social media are mainly driven by social motivations, such as interact with close friend and maintain existing relationships (Ellison et al., 2007). The similar motivation of strengthening social relationships is also been revealed when people engage in homogenous political discussion (Morey & Yamamoto, 2020). Therefore, we proposed our hypotheses:

H2a: The effect on homogeneous strong-tie political discussion will be stronger for social media use compared to online news media use.

H2b: The effect on heterogeneous strong-tie political discussion will be stronger for social media use compared to online news media use.

Moreover, the current study responded to the long-term debate whether social media create public sphere or form echo chamber (Colleoni et al., 2014; Williams et al., 2015). That is, whether social media have stronger effects on homogenous political discussion than heterogeneous discussion is still an unsettled question. Unlike most previous studies have focused on online political discussion network in the specific social media platform, we emphasized on individual-level political discussion with strong ties. Due to conflicting results on online political discussion and lacks of empirical studies on comparison between homogeneity and heterogeneity within strong-tie discussion, we proposed a research question:

RQ: Will the effect of social media use on homogeneous strong-tie political discussion be stronger compared to heterogeneous strong-tie political discussion?

Method

A two-wave panel data was from Taiwan Communication Survey (TCS), a long-term project funded from the Ministry and Science Technology in Taiwan. Using multi-stage stratified random sampling, the nationally representative sample aged 18 years of age or older reported their behaviors and attitudes related to media use by face-to-face interviews. The first-wave survey was conducted from 27 September 2016 to 9 November 2016 (N of Time 1 = 2,138), and respondents who agreed longitudinal survey were contacted again two year later from 4 July 2018 to 11 October 2018 (N of Time 2 = 1,272). Data collection procedures were identical for both waves. In total, data of 1,272 samples filled out two-wave survey were used in the analyses. Among the respondents, 44.5% of them were males, 55.5% of them were females. The average age was 52.86 years (SD = 15.99), ranging from 20 to 95.

Measurements

Social media use and online news media use

Social media use and online news media use were measured using direct estimates that respondents reported the frequency and duration of media usage. Direct estimates are frequently used and has been found validated as well as reliable in media research (Beyens, Piotrowski, & Valkenburg, 2020; Vossen & Valkenburg, 2016). Participants were asked by two items for each medium use. The first item was accessed by “How many days of the week do you use social media (e.g., Facebook, Twitter, YouTube) /read online news (e.g., news websites and news APP)?” Response categories ranged from 0 (never) to 7 (7 days a week). The second item was an open-ended question by asking “On the days that you use social media (e.g., Facebook, Twitter, YouTube)/read online news (e.g., news websites and news APP), how much time do you spend on this per day? Respondents filled in hours and minutes for each medium. Finally, we employed the equation to calculate direct estimates of the number of minutes per week spent on each medium:

$$\text{Media use} = (60 \times \text{hours} + \text{minutes}) \times \text{days}.$$

Homogeneous/Heterogeneous strong-tie political discussion

Adapted from previous studies (Brundidge, 2010; Lee, Choi, Kim, & Kim, 2014), homogeneous/heterogeneous strong-tie political discussion were accessed by asking “How frequently do you discuss politics with your families and friends who hold similar political ideology/who hold dissimilar political ideology?” on a four-point scale (1 = never; 2 = seldom; 3 = sometimes; 4 = always).

Analytical strategy

First, based on the suggestions by Vossen and Valkenburg (2016), we examined normality and outliers for media use variables. Extreme values were defined as mean \pm 3 times the standard deviation (SD), and we filtered outliers when the values exceeded the threshold of mean \pm 3 times SD. All variables were normally distributed and no outliers at Time 1 and Time 2. Table 1 presents inter-correlations between all variables of Time1 and Time 2.

To test our hypotheses and research questions (H1a, H1b, H2a, H2b, and RQ), we used a cross-lagged panel model using maximum likelihood (ML) estimation to investigate the causal effects by two wave data. The cross-lagged panel model was widely applied for obtaining causal inference by surveys methods to test autoregressive effects and cross-lagged effects using at least two-wave longitudinal data (Finkel, 1995; Mund & Nestler, 2019; Vossen & Valkenburg, 2016). There are two assumptions in cross-lagged panel model: (1) autoregressive and the cross-lagged effects are constrained to be equal across time; and (2) within-individual differences and between-individual differences are stable (Mund & Nestler, 2019). We conducted structural equation modeling (SEM) with the observed variables for longitudinal relationships between social media use, online news media use, and political discussion. We used Mplus (version 8.3) and the maximum likelihood (ML) estimation method. To ensure the comparability of the coefficients across the variables, we applied z-score standardization for analysis data. The fit of the our cross-lagged model was good, AIC = 25756.87, BIC = 25983.40, CFI = 1.00, RMSEA =.000.

Regarding the comparison of two regression coefficients (H2a, H2b, and RQ), we first examined the cross-lagged regression coefficients. If two regression coefficients are significant,

we follow the suggestion from Paternoster, Brame, Mazerolle, and Piquero (1998) to calculate Z by the following equation.

$$Z = \frac{b_1 - b_2}{\sqrt{SE\ b_1^2 + SE\ b_2^2}}$$

Results

Descriptive statistics-

Descriptive statistics and correlations of model variables at Time 1 and Time 2 are presented in Table 1. In term of media use at Time 1 and Time 2 (see Table 1), social media plays the main role in media use patterns among both waves, it indicates that our panel data is appropriate to examine the triangular relationships between social media, online news media use and political discussion in contemporary media environment. At Time 1, participants spent an average of 483.17 minutes per week on social media ($M = 483.17$, $SD = 766.67$) and 178.83 minutes per week reading online news ($M = 178.83$, $SD = 310.187$). Similar pattern emerged at Time 2, social media use was higher ($M = 462.23$, $SD = 755.19$) than online news media use ($M = 230.17$, $SD = 371.34$).

Overall, all variables in the model proved to be stable over time ($r = .35-.50$). Although the social media use was not significant between Time 1 and Time 2, social media dominated individuals' time for media use. Online news media use, homogeneity and heterogeneity of strong-tie political discussion increased from Time 1 to Time 2 (online news media use: $t(1271) = -5.03$, $p < .001$; homogeneity: $t(1271) = -8.70$, $p < .001$; heterogeneity: $t(1271) = -6.22$, $p < .001$).

Causal relationships between social media use, online news media use, and political discussion

A cross-lagged panel model was used to test the causal paths between social media use, online news media use, and political discussion (see Figure 1). To examine the interaction of communication modes between social media use and online news media use over time (H1a and H1b), we found significant paths from social media use at Time 1 to online news use at Time 2 ($\beta = .14^{***}$, $SE = .04$, $p < .001$) and online news media use at Time 1 to social media use at Time 2 ($\beta = .10^*$, $SE = .05$, $p < .05$). Hence, H1a and H1b were supported.

In order to test whether social media had a stronger effect than online news media on like-minded strong-tie political discussion, as well as on cross-cutting strong-tie political discussion (H2a and H2b), we took two-step analytical procedure. First, we examined whether there was an increase in social media use/online news media use would result in a subsequent increase in both homogeneous and heterogeneous strong-tie political discussion. The results showed that individuals used more social media at Time 1 reported increased level of homogeneous strong-tie political discussion ($\beta = .09^{**}$, $SE = .03$, $p < .01$) and heterogeneous strong-tie political discussion ($\beta = .10^{***}$, $SE = .03$, $p < .001$) at Time 2. When looking at the cross-lagged pathways concerning the causal effects of online news media use, we found no significant effects of online news media use at Time 1 on like-mined political discussion with strong ties at Time 2 ($\beta = .04$, $SE = .04$, $p > .05$), as well as cross-cutting political discussion with families and friends at Time 2 ($\beta = .05$, $SE = .04$, $p > .05$).

Next, we examined the different effects between social media use and online news media use on political discussion. Because the coefficients of online news media use on both homogenous and heterogeneous strong-tie political discussion were not significant, we claimed

that social media played a main role of strong-tie political discussion among like-minded and cross-cutting discussants rather than online news media. Hence, these results supported H2a and H2b.

Social media form strong-tie echo chamber or public sphere

In order to test whether social media had a stronger effect on homogeneity of strong-tie political discussion in comparison to heterogeneity of strong-tie political discussion (RQ), we compared the unstandardized estimates from our cross-lagged panel model. We used coefficient-comparison strategy (Paternoster et al., 1998) and found that the unstandardized coefficient from homogenous strong-tie political discussion ($\beta = .09^{**}$, $SE = .03$) and from heterogeneous strong-tie political discussion ($\beta = .10^{***}$, $SE = .03$) were not statistically different ($Z = .25$, $p > .05$). Therefore, the results showed that social media had parallel effects on the creation of like-minded and cross-cutting political discussion among families and friends.

Discussion

The aim of the current study was to explore how changes of individuals' media use patterns and the form of strong-tie political discussion are increasingly intertwined over time. In particular, the study tested whether the interaction of communication mode between social media and online news media would have causal influence on political discussion with politically like-minded or cross-cutting families and friends. Using cross-lagged penal model by Taiwanese data, we found the spending time on social media is positively correlated with online news media use, indicating a complementarity effect. Furthermore, the results showed that discussing politics with homogeneous and heterogeneous strong ties is mainly driven by social media rather than online news media.

Based on the theories of communication mode interaction, we hypothesized that social media use would stimulate online news media use and vice versa (H1a and H1b). The findings supported these expectations and showed a positive and reciprocal relationships between two communication modes. It indicated that social media use would motivate to read online news and visit news media websites over time, even though news media trust are increasingly lower (Shah et al., 2017). On the other hand, we also found online news media use would foster social media use, indicating that users often transfer to social media to express their viewpoints and interact with others. Specially, prior studies revealed that people frequently interact with their core network on social media, such as families and friends (Ellison et al., 2007; Kaun & Stiernstedt, 2014). Therefore, we argued that the changes in media use patterns provide the context to further investigate how media use influence strong-tie political discussion.

The main argument of the current study was that social media have stronger effects on homogenous and heterogeneous strong-tie political discussion than online news media (H2a and H2b). As predicted, our findings further revealed that social media took the place of online news media to positively influence like-minded and cross-cutting strong-tie discussion because online news media had no significant effects. The explanation may be that social media have become the main source for news (Müller et al., 2016), and interactivity of social media afford more engagement with news and others (Jae KookLee & Kim, 2017). Moreover, low political interest and news-find-me perception increase the power of incidental news exposure on social media, which further increase political expression, political learning and political participation (Gil de Zúñiga & Diehl, 2018; Lee & Kim, 2017; Weeks, Lane, Kim, Lee, & Kwak, 2017).

Furthermore, the important implication of the current study is that social media are potential for political deliberation. First, we found social media would foster homogenous

strong-tie political discussion. According to Stromer-Galley and Muhlberger (2009), discussing politics with like-minded discussants would increase the satisfaction, reflectivity, and intention for future discussion. We argued these deliberative effects would be stronger when the discussants are close ties who are emotionally connected. In addition, we also revealed that social media would enhance heterogeneous strong-tie discussion, which has meaningful importance. Based on deliberative theory and public sphere argumentation, discussing others with discrepant viewpoints in a civil and rational way are essential for democratic society because it would form consensus on political policies for public goods (Rojas et al., 2005; Stromer-Galley & Muhlberger, 2009). Differ from other studies which examined general political discussion and found incivility, flaming, and polarization among cross-cutting discussion in online forums (Halpern & Gibbs, 2013; Jacobson et al., 2016; Moor, Heuvelman, & Verleur, 2010; Williams et al., 2015), we focused on positive effects of social media on political discussion with strong ties. Research has showed that strong ties have stronger emotional connection, social influence and normative pressure than weak ties (Campbell & Kwak, 2012), which results in powerful impacts on political behaviors, such as higher tolerance toward disagreements, higher intention to participate protest and mobilization (Bond et al., 2012; Morey et al., 2012; Mutz, 2002; Somma, 2009). Hence, we argued that people would behave politely and respect disagreements in close-tie discussion, and they can learn others' opinions and exchange viewpoints. In this way, heterogeneity would be a driver for deliberation rather than conflicts.

In addition to the potential of democratic deliberation, we argued that it may produce negative effects when strong-tie discussion is mainly driven by social media. The social filtering mechanism which news are re-contextualized by friends and the fragmentary news consumption

patterns on social media (Boczkowski, Mitchelstein, & Matassi, 2018) may make users get slanted and incomplete information toward public affairs. Furthermore, people tend to share ideologically congruent information to amplify their viewpoints and persuade others when they encounter counter-attitudinal information (Weeks et al., 2017). In this way, the asymmetry information may influence the equilibrium of political discussion.

The first theoretical contribution of the current paper is to links the interaction of communication modes and the communication mediation model, and to shed lights on what media may have motivated strong-tie political discussion in contemporary media environments. To respond to the notion of Shah et al. (2017) who proposed to revise communication mediation model, we argued that the role of news media to trigger political discussion may have changed because news media ecology has varied and audience have been empowered as active users in recent years. To deepen the understandings of interaction of communication mode, we found a complementary relationship between social media and online news media rather than replacement or neutrality. We found this complementary relationship further reinforced the role of social media on strong-tie political discussion. This results are in line with a great volume of studies which have revealed the important role of social media in political communication literature (e.g., Heatherly et al., 2017; Lu & Lee, 2020; Valenzuela et al., 2018). Since the civic nature of news media has turned into partisan contents and entertainment for media competition (Shah et al., 2017), we argued that future studies need to reconsider the traditional communication theories which focus on the democratic function of news media in the changing media environments.

Another theoretical importance of the current paper is to echo the unanswered question whether social media create echo chamber, form public sphere, or curtail political discussion. We

concluded that social media would promote people to discuss politics with like-minded as well as cross-cutting strong ties, rather than curbing involvement in talking about politics. Dissimilar to previous studies which focused on aggregated-level political discussion (Colleoni et al., 2014; Williams et al., 2015), such as examination of the online discussion forum or around the certain topics in a single platform, the current paper focused on individual-level political discussion, in particular with strong ties. We argued that social media provide more opportunities to engage in politics due to blurred boundaries (Brundidge, 2010). Through informal political talks and dialogue with homogenous and heterogeneous families and friends, social media can further promote political knowledge, political efficacy, protest participation, and voting (Allen et al., 2017; Eveland, 2004; Jung et al., 2011; Morey & Yamamoto, 2020; Valenzuela et al., 2018).

The practical implications of this study are twofold. First, although recent studies showed the decline of news industries (Shah et al., 2017), we found a complementary interaction between social media and online news media. It suggests that news industries should develop commercial model on social media markets to revive, as well as lower partisan and entertained contents to rebuild the role of political instruments. Second, given strong-tie political discussion is trigger by social media use, we suggest that the government, civic groups, and social organization should reinforce the policy promotion and information delivery on social media to inform people, spark a discussion, and activate political engagement.

While this study offers several theoretically and practically implications, the limitations should be noted. First, the concepts of homogenous and heterogeneous strong-tie political discussion relied on a single-item measurement, which may lower the reliability of our results. Second, recent studies have proposed the alternatives to the cross-lagged panel model (e.g., the random-intercept cross-lagged panel model, the autoregressive latent trajectory model with

structured residuals, and the dual change score model) due to some methodological considerations (Mund & Nestler, 2019). Because these alternative models need at least three wave data, we argued that cross-lagged panel model are suitable for our analysis. Our results should be carefully interpreted because we assumed that there are stable between-person differences in our variables. Third, we focused on social media use in general, however, different social media have different affordances and political implications (Halpern & Gibbs, 2013; Treem & Leonardi, 2013; Valenzuela et al., 2018). Future studies are encouraged to differentiate the political influence on strong-tie discussion across diverse platforms.

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Table 1

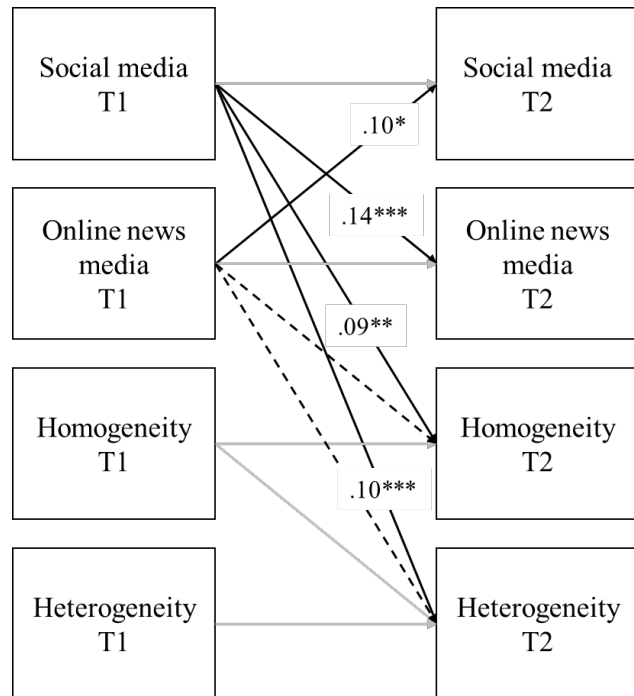
Means, Standard Deviations, and Inter-correlations between Model Variables of Time 1 and Time 2.

	Means, Standard Deviations and Paired sample t tests					Inter-correlations between T1 and T2 variables			
	T1		T2		T test				
	M	SD	M	SD		1	2	3	4
1. Online news	178.83	310.187	230.17	371.34	-5.03***	.44***	.38***	.24***	.24***
2. Social media	483.17	766.67	462.23	755.19	0.98	.46***	.50***	.13***	.16***
3. Homogeneity	1.83	0.84	2.06	0.87	-8.70***	.19***	.09***	.40***	.67***
4. Heterogeneity	1.6	0.71	1.75	0.76	-6.22***	.16***	0.00	.73***	.35***

Note. Media use (i.e., online news media and social media) reflects minutes of exposure per week. Paired sample t tests were used to test differences in means of T1 and T2. T1 = Time 1; T2 = Time 2; Online news = online news media use; Social media = social media use; Homogeneity = homogeneous strong-tie political discussion; Heterogeneity = Heterogeneous strong-tie political discussion. Correlations in bold are stability coefficients; correlations for T1 are presented below the diagonal; correlations for T2 above the diagonal. * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 1

Hypothesized cross-lagged panel model with social media use, online news media use and homogenous/heterogeneous strong-tie political discussion



Note. Bold lines represent significant causal pathways, and dashed lines represent non-significant causal pathways. The grey lines represent modelled pathways that are not directly related to the hypotheses. $*p < .05$, $**p < .01$, $***p < .001$.