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RESEARCH ARTICLE



The mediating role of social recommendation in the relationship between concern over expression and social media news participation: a comparative study of six Asian societies

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ABSTRACT

Although social media afford users the possibility of sharing and discussing news, some users may have much concern over how others view these expressive behaviors. The recommendation features of social media indeed offer cues about others' opinions and possible references to engage with news. We investigate the mediating role of reliance on two social recommendation features, i.e. social filtering and popularity indicators, for news selection in the relationship between concern over online expression and social media news participation in six Asian societies (Taiwan, South Korea, Japan, Hong Kong, Singapore, and Malaysia), using representative online survey data. Compared with Western countries, Asian societies share a more collectivistic culture and show a greater acceptance towards reticent behaviors than expressive ones. The results show a positive indirect effect of concern over expression on news participation through the reliance on social filtering across all the samples. Similarly, a positive indirect effect through the reliance on popularity indicators is observed for five of the six samples. The significant indirect effects indicate that users with much concern over expression have a greater reliance on social recommendation features, which in turn facilitates their news participation. Implications of the findings are discussed.

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Social media afford users the possibility of sharing and commenting on news. However, the provision of interactive features alone is not a sufficient explanation for news participation, as the extant literature shows that users are less willing to express when they think that their social media followers do not agree with their opinion (Chan, 2018; Hampton et al., 2014; Kushin, Yamamoto, & Dalisay, 2019). This implies that people do have concern over their expression, which would affect their news participation on social media. Previous studies have been exploring how social media affordances play a role in overcoming or amplifying such concern over expression. Some of these affordances include network heterogeneity

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(Chan, Chen, & Lee, 2019), publicness (Chen, 2018), anonymity, and persistence (Fox & Holt, 2018). Still, the extant literature has not sufficiently addressed the fact that users with much concern have a need to assess the opinion distribution of their followers; the relevant affordances that facilitate such assessment have been overlooked.

We argue that the social recommendation features of social media, i.e. social filtering (what others share) and popularity indicators (number of likes, shares, and comments), can facilitate the assessment of opinion climate and encourage news participation. Users with much concern over expression would pay attention to the recommendation features to better understand which news coverage or source is preferred by others and engage with news accordingly. However, previous studies on recommendation features focused mainly on their impact on news selection (Hermida, Fletcher, Korell, & Logan, 2012; Knobloch-Westerwick, Sharma, Hansen, & Alter, 2005; Q. Xu, 2013), not their potential to encourage news participation on social media.

To address this gap in the literature, this study intends to examine the role of social recommendation features in encouraging social media news participation in six selected Asian societies. To be specific, this study aims at investigating the relationship between concern over online expression and social media news participation and how such relationship is mediated by reliance on (a) social filtering and (b) popularity indicators for news selection (as shown in Figure 1) across Taiwan, South Korea, Japan, Hong Kong, Singapore, and Malaysia. Despite their diverse media and political systems, these six Asian societies have shared a common Confucian culture which emphasizes collectivism and shows less acceptance towards expressive behaviors compared with Western societies (Schreier et al., 2010). This underlines the significance of investigating the role of recommendation features in encouraging news participation which consists of important expressive behaviors influencing the politics or societal development in Asian societies (Hyun & Kim, 2015; Skoric, Zhu, & Pang, 2016; Taman, Hassan, & Azarian, 2014). The comparative study design focusing on six Asian societies can also extend the extant literature on social recommendation features, which are addressed mostly in Western contexts (e.g. Knobloch-Westerwick et al., 2005; Neubaum & Krämer, 2017; Turcotte, York, Irving, Scholl, & Pingree, 2015; Q. Xu, 2013).

Context of six selected Asian societies

The six societies selected in this study differ in their political and media contexts (Skoric et al., 2016). Table 1 shows their social media penetration rates and indicators about their political and press freedom.

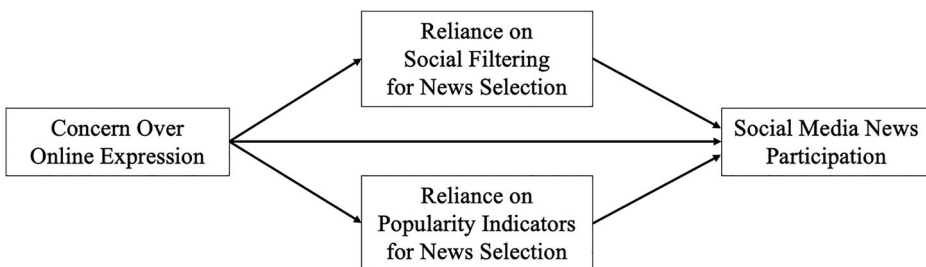


Figure 1. The proposed parallel mediation model.

Taiwan, Japan, and South Korea are democratic societies with a relatively higher degree of press freedom. Taiwan is a young democracy, and the memory of the oppressive regime in the past still makes some Taiwanese uncomfortable with expressing their opinions publicly (Shih, 2014). The traditional press is rather conservative in Taiwan, but alternative information is available on social media (Chen, Chan, & Lee, 2016). On the other hand, Japan, one of the oldest Asian democracies, has the lowest social media penetration rate among the six societies. Empirical findings showed that the Japanese used social media mainly for non-political purposes (Takeshita, Saito, & Inaba, 2014). In contrast, South Korea has the highest social media penetration rate among the six societies. Hyun and Kim (2015) found that Koreans would use social media to share news and for political mobilization.

In comparison, Hong Kong, Singapore, and Malaysia are semi-democracies with a lower degree of press freedom. In Hong Kong, citizens have the right to vote for legislators, but not the leader of the executive branch. On social media, alternative news outlets compete with mainstream organizations, some of which are subject to the covert influence of the Chinese authority (Frisch, Belair-Gagnon, & Agur, 2018). In Singapore, general elections have been dominated by the People's Action Party for decades. Traditional media are required to support the nation-building cause, but some alternative news sources can be found on social media (Skoric & Poor, 2013). Malaysia's authoritarian rule over decades was unexpectedly ended by the general elections in 2018. Even before the political earthquake, many Malaysians were already dissatisfied with the government-controlled press, turning to social media to consume alternative information and discuss politics (Taman et al., 2014).

Despite different political contexts, these six societies have shared common Confucian norms which emphasize collectivism. People in collectivistic societies are relatively less willing to express dissenting opinions or opinions in general, as they are concerned about maintaining relationships through the conformity of opinion (Rosenthal & Detenber, 2014). In addition, collectivistic societies had a greater acceptance towards reticent behaviors than outgoing ones (Schreier et al., 2010). In line with the general observation about the collectivistic societies, previous studies observed a rather moderate level of political expression or news participation on social media in these six selected societies (Chan et al., 2019; Chen et al., 2016; Hyun & Kim, 2015; Takeshita et al., 2014). However, the expressive use of social media has been found to significantly relate to political participation in various Asian societies, and these expressive behaviors represent important democratic resources and create possible civic ferments (Skoric et al., 2016).

Table 1. Indicators about political and media context of the six selected societies.

	Freedom in the World 2018 (political rights and civil liberties)	2018 World Press Freedom Index	Social media penetration (as of January 2018)
Taiwan	Free	42	80%
South Korea	Free	43	84%
Japan	Free	67	56%
Hong Kong	Partly free	70	78%
Malaysia	Partly free	145	75%
Singapore	Partly free	151	83%

Note. Freedom in the World 2018 from Freedom House (2018), 2018 World Press Freedom Index from Reporters without Borders (2018), and social media penetration from We are Social and Hootsuite (2018a, 2018b, 2018c).

Alternatively, social media news participation can also fuel the spread of fake news or partisan news which would aggravate polarization in these societies. Given these significant outcomes, it is essential to understand how social recommendation features of social media facilitate news participation in these selected Asian societies.

Social media news participation as a form of opinion expression

With the rise of social media, news content is no longer disseminated in a unidirectional and top-down manner from media outlets, as the interactivity affordance of social media has allowed users to participate by ‘liking’, commenting on, sharing, and discussing news. This study argues that *social media news participation* is a form of opinion expression in two ways. First, users can express their views on political, social, or moral issues explicitly through news participation; they discuss news with their friends or add their opinions to the news they share. Second, some users post or share news without attaching their comments. Their opinions are still implicitly revealed, as the new content shared betrays the user’s judgment on the perceived importance of a news event. Moreover, the news sources that users share information from act as cues about their political orientation or issue position, as individuals usually rely on sources that they perceive to be trustworthy and credible (Lee, Lindsey, & Kim, 2017).

Arguing that social media news participation is a form of opinion expression, both explicitly and implicitly, we investigate how the concern over online expression relates to news participation on social media and how this relationship is mediated by the reliance on social recommendation features.

Concern over online expression

People do not use social media for news use only, but also for maintaining social relationships (Gil de Zúñiga, Jung, & Valenzuela, 2012). When individuals engage with news on social media, they may be concerned about the impact of these participatory behaviors on their relationships with other users. This study conceptualizes *concern over online expression* as the extent to which individuals are worried that their political opinion expressed online affects how their family, friends, and colleagues think about them. This approach to conceptualization matters to the Asian context where the prevalent Confucian culture highlights the maintenance of group harmony and social relationships (Schreier et al., 2010). We expect that concern over online expression would affect social media news participation which is a form of expression.

To explain the impact of interpersonal networks on opinion expression, the spiral of silence theory states that individuals monitor the opinion environment for fear of being socially isolated (Noelle-Neumann, 1974). They are worried about being excluded from their social circles for expressing views that are different from the majority opinion. The theory is also applicable to the social media context. Matthes, Knoll, and von Sikorski (2017) explained that the fear of being ‘unfriended’ on social media resembles the fear of being isolated, which can set the spiral of silence into motion. Moreover, expressions on social media usually remain in place for a longer period, compared with spoken communications which are ephemeral in nature (Chan, 2018); users who intend to express

themselves on social media would need a more careful assessment of the opinion environment.

The opinion environment on social media is therefore an important factor to consider for news participation, and this opinion environment depends on the composition of social media networks. In general, social media networks have two properties. The first property is context collapse, which means that social media collapse multiple contexts and bring together distinct audiences from different social circles (R. A. Hayes, Smock, & Carr, 2015). Unlike offline networks, social media networks potentially have a more diverse composition. On social networking sites, such as Facebook, users are often connected to close friends and family as well as acquaintances from weak-tie networks. It is reasonable to expect that diverse views exist on social media where users encounter more difficulties in assessing the opinion environment, compared with offline settings. Another property is the large overlap between social media networks and offline networks (Ellison, Steinfield, & Lampe, 2007). Users are likely to engage with news in a way that would not trigger conflicts with their friends or professional contacts whom they get to know in offline settings.

In addition to these two properties of social media networks, people in collectivistic societies are believed to be more concerned about the adverse impact of their news participation on social relationships. We therefore assume that:

H1: Greater concern over online expression relates to a lower level of social media news participation in the six Asian societies.

The mediating role of reliance on social recommendation features for news selection

For users with much concern over online expression, the most direct way of monitoring the opinion environment is to observe others' news participation. Two social recommendation features, i.e. social filtering and popularity indicators, can help users select news from an ocean of information on social media (Hermida et al., 2012; Knobloch-Westerwick et al., 2005; Q. Xu, 2013). Both are related to third-person interactions with the news content, serving as a reference for assessing the opinion environment. We argue for a parallel mediation model in which the relationship between concern over online expression and social media news participation is mediated by two mediators: *reliance on (a) social filtering and (b) popularity indicators for news selection*.

Previous research on online news participation mainly focused on three dimensions – the psychological (e.g. intrinsic motivation), political (e.g. ideological strength), and news media-related (e.g. news interest, trust in news, and news use) variables (Fletcher & Park, 2017; Kalogeropoulos, Negredo, Picone, & Nielsen, 2017). In our study, concern over online expression belongs to the psychological dimension, and our focus on users' reliance on social recommendations points to an additional dimension insufficiently addressed in the literature: features of social media platforms.

Reliance on social filtering for news selection

Social filtering refers to the role of social media contacts as news filters; users filter out irrelevant news items and share those worthy of attention (Boczkowski, Mitchelstein,

& Matassi, 2018; Pentina & Tarafdar, 2014). Users receive their personalized news streams based on the sharing activities of their social media contacts (Hermida et al., 2012). We argue that such personalized news streams offer an important reference for news participation on social media; the reliance on social filtering for news selection mediates the relationship between concern over online expression and social media news participation.

We propose that greater concern over expression would predict greater reliance on social filtering for news selection, as reading the news shared within one's network can help users assess the opinion climate. Previous studies found that a higher need for social relationships promotes greater attention to social cues (Pickett, Gardner, & Knowles, 2004; M. Xu et al., 2015). The experimental study of Neubaum and Krämer (2017) found that individuals attentively scan the opinion cues on social media, especially user-generated comments, for fear of social isolation. They explained that these cues help social media users make inferences about the opinion climate and maintain their relationships accordingly. It should be noted that their user-generated comments were not manipulated to be produced by participants' friends or the people they follow, whereas social filtering in this study refers to the news-sharing activities of people that users follow. In this regard, social filtering should provide even more relevant cues about the opinion climate of one's network. Greater concern over online expression is therefore believed to predict greater reliance on social filtering for news selection.

Users can assess the opinion environment by paying heed to two types of social filters, i.e. (a) family, friends, and colleagues they meet offline and (b) opinion leaders. Reading news shared by people they meet offline, users can better understand which news topic or source their social circles find the most important and the opinions implied in these sharing activities (Boczkowski et al., 2018). Individuals with much concern over expression need this kind of information to avoid any potential conflicts triggered by their expression. Some users may even rely on these news-sharing activities as cues to assess the wider opinion environment, assuming that the news source their friends trust should be oriented to more people who are similar to their friends (Turcotte et al., 2015). As it is time-consuming to read all the news each acquaintance shares, some less attentive users may rely on opinion leaders for news selection. Opinion leaders have a much broader audience in general (Bobkowski, 2015); examples of opinion leaders include journalists, politicians, and friends who are believed to be knowledgeable about public affairs (Turcotte et al., 2015). Great concern over expression may cause users to focus on a few opinion leaders followed by their friends and read the news shared by these leaders to assess the opinion environment.

While greater concern over expression is proposed to relate to a greater reliance on social filtering for news selection, we further hypothesize that such a greater reliance on social filtering would subsequently promote a higher level of news participation in two ways. First, based on the spiral of silence theory (Noelle-Neumann, 1974), if users observe that their views are congruent with the majority opinion, they will be assured to engage with news. Another scenario is that when users realize that they hold the minority view, they may simply reduce news participation accordingly. Nonetheless, Fox and Holt (2018) pointed out a different possibility in the social media context that asynchronicity and editability affordances can affect users' willingness to self-censor; users sharing the minority view have more time to craft their expressions on social media, compared

with offline settings. Upon understanding the opinion climate based on the news selected by social filters, these users can participate with appropriate tactics, such as posting rather general views or sharing news with a designated audience only (R. A. Hayes et al., 2015). People holding the minority view can therefore have a high level of news participation on social media if they rely on social filtering for news selection. It is also possible that some individuals are more likely to engage with news that would resonate to their networks, including partisan news or even fake news, upon learning about the opinion climate based on the news selected by social filters.

Thus, the concern over online expression would trigger the need to assess the opinion climate and encourage the reliance on social filters for news selection. This assessment would subsequently encourage news participation on social media. In summary, we propose:

H2a: Concern over online expression relates positively to reliance on social filtering for news selection in the six Asian societies.

H2b: Reliance on social filtering for news selection relates positively to social media news participation in the six Asian societies.

H2c: There is a positive indirect effect between concern over online expression and social media news participation via reliance on social filtering for news selection in the six Asian societies.

Reliance on popularity indicators for news selection

Popularity indicators refer to the number of likes, shares, and comments in a news post. These indicators correspond to social recommendations on a collaborative basis and a form of 'impersonal influence' from unknown others (Q. Xu, 2013).

The reliance on these indicators for news selection facilitates the assessment of the opinion environment in three ways. First, popularity indicators serve as cues about the wider social environment (Knobloch-Westerwick et al., 2005), as they reflect the opinion of many users, including the unknown ones. As it is time-consuming to read all the news shared within one's network, the popularity indicators become an indispensable proxy to understand the opinions distribution of one's network. The second way is that users can distinguish the majority and minority views by simply comparing the popularity indicators attached to news posts. News consumers tend to interpret these numeric cues as a measure of representativeness, although they are by no means equivalent to scientific polls (Knobloch-Westerwick et al., 2005; Sundar & Nass, 2001). Third, popularity indicators are available in every news post and help users assess the opinion distribution on almost every single news event. Sometimes users fail to learn sufficient cues from social filtering, as their friends may be less vocal in general and rarely share news. However, it does not mean that their friends have no stance. In this regard, users can rely on popularity indicators as an alternative means to assess the opinion environment within their social media network.

We propose a mediation relationship between concern over online expression and social media news participation through the reliance on popularity indicators for news selection; greater concern over online expression is hypothesized to predict greater reliance on popularity indicators for news selection. Similar to the argument proposed

in the last section about social filtering, users with much concern over expression would have a greater need to assess the opinion environment. However, Neubaum and Krämer (2017) found that greater fear of isolation predicted more attention to user-generated comments, not the number of likes. It should be noted that their experimental study focused on the context of a single news post, but not the general attention to popularity indicators; participants in their study were given sufficient time to read all the users' comments attached to the post. Neubaum and Krämer admitted that there has been so far a lack of literature testing the relevant relationship. Their observation is valid, as previous studies on popularity indicators focused mostly on their influence on news selection only (e.g. Knobloch-Westerwick et al., 2005; Q. Xu, 2013). Addressing the general usage, rather than a single post, this study proposes that a higher level of concern over online expression predicts greater reliance on popularity indicators for news selection. Compared with social filtering, popularity indicators are more readily available cues on almost every single news topic, and users would consider reading these indicators as a more time-efficient means for selecting news endorsed by others.

We also hypothesize that greater reliance on popularity indicators for news selection relates to a higher level of news participation on social media. Similar to the previous argument that the reliance on social filtering relates to social media news participation, users who rely more on popularity indicators would have a more confident assessment of the opinion environment, which encourages them to engage with news with a lower probability of offending the friends in their social media network. In short, we propose:

H3a: Concern over online expression relates positively to reliance on popularity indicators for news selection in the six Asian societies.

H3b: Reliance on popularity indicators for news selection relates positively to social media news participation in the six Asian societies.

H3c: There is a positive indirect effect between concern over online expression and social media news participation via reliance on popularity indicators for news selection in the six Asian societies.

Social recommendation features of different platforms

The most popular platforms for news use are different in the six societies, and different platforms offer social recommendations in different ways. In theory, social filtering inherently exists on every single social media platform, as it generally refers to others' news-sharing activities. On the contrary, popularity indicators are absent in some platforms, in particular the messaging applications.

Facebook has been the most popular and dominant platform for news use in Taiwan, Hong Kong, Malaysia, and Singapore (Newman, Fletcher, Kalogeropoulos, Levy, & Nielsen, 2018). Social filtering and popularity indicators are similarly salient on Facebook, as users encounter news posts shared by their friends with the numbers of likes, shares, and comments clearly shown in their news feeds.

However, Japan and South Korea have different social media infrastructures. For Japan, the most popular platforms for news use are YouTube and Twitter (Newman et al., 2018). On YouTube, popularity indicators are available in each video and facilitate users' assessment of opinion distribution for the issues concerned. Although there is not

a news feed on YouTube showing what the user's friends share, the platform allows users to subscribe to credible channels or opinion leaders, which serve as social filters of news. Regarding news participation, the Japanese may engage with news on YouTube or use social networking sites, such as Twitter or the less popular Facebook, upon watching news on YouTube and having a grasp of the opinion climate. In South Korea, KakaoTalk, a messaging application founded locally, has been the dominant platform for news use (Newman et al., 2018). Social filtering is the key recommendation feature of KakaoTalk, as it is common for Koreans, regardless of political stance and age, to share news and express opinions in group chats on KakaoTalk (Min & Yun, 2018). Moreover, KakaoTalk allows users to access news portals within the application, and users can subsequently share and engage with the news they read. This facilitates the functioning of social filtering and news participation. Although popularity indicators are unavailable in users' messages on KakaoTalk, they are present on YouTube and Facebook, the second and the third most popular platforms of the country.

Despite the different social media infrastructures of the six societies, the two social recommendation features are generally available yet in different formats on the more popular platforms of these societies. This explains why we hypothesize a similar pattern of indirect effect between concern over expression and social media news participation via reliance on the two recommendation features across the six societies (i.e. H2c and H3c).

Method

Sampling

This study used the data from Reuters Institute Digital News Report 2018 on digital news consumption habits in different societies. The data were collected by YouGov in partnership with the Reuters Institute for the Study of Journalism at the University of Oxford from January to February 2018 (Newman et al., 2018). Respondents were obtained from YouGov's opt-in online panels and invited to complete surveys based on preassigned demographic quotas (e.g. age and gender). Weighted according to census/industry data, the sample was representative of the online population. The final sample sizes were 2,016 for Hong Kong, 2,033 for Japan, 2,013 for Malaysia, 2,018 for Singapore, 2,010 for South Korea, and 1,008 for Taiwan. [Table 2](#) shows the descriptive statistics of key variables.

Dependent variable

Social media news participation

Respondents were asked whether they participated in the following activities during an average week (1 = *Yes*, 0 = *No*): (1) comment on a news story in a social network (e.g. Facebook or Twitter), (2) share a news story via a social network (e.g. Facebook, Twitter, LinkedIn), (3) share a news story via an instant messenger (e.g. WhatsApp, Facebook Messenger), (4) post or send a news-related picture or video to a social network site, and (5) talk online with friends and colleagues about a news story (e.g. by email, social media, instant messenger). The selection of these items followed the study of Chan et al. (2019), which also focuses on the participatory aspect of social media news engagement. The five items were summed to form an index.

Table 2. Descriptive statistics of key variables across six samples.

	Taiwan	South Korea	Japan	Hong Kong	Malaysia	Singapore
Dependent variable						
Social media news engagement						
Comment on a news story	21.3%	10.8%	5.6%	20.6%	23.2%	13.0%
Share a news story via a SNS	35.6%	13.2%	7.6%	28.7%	35.9%	26.5%
Share a news story via an instant messenger application	17.0%	14.9%	3.4%	28.7%	38.3%	30.3%
Post or send a news-related picture or video to a SNS	13.3%	6.0%	2.8%	10.8%	16.3%	9.4%
Talk online with friends and colleagues about a news story	16.5%	12.7%	5.1%	14.6%	25.6%	25.5%
<i>M</i>	1.04	0.58	0.24	1.03	1.39	1.05
<i>SD</i>	1.23	0.89	0.66	1.20	1.36	1.21
Independent variable						
Concern over online expression						
<i>M</i>	3.36	3.49	3.21	3.43	3.43	3.48
<i>SD</i>	0.79	0.83	0.76	0.82	0.95	0.92
Mediators						
Reliance on social filtering						
<i>M</i>	3.45	3.32	3.02	3.25	3.31	3.32
<i>SD</i>	0.74	0.81	0.83	0.78	0.98	0.94
Reliance on popularity indicators						
<i>M</i>	3.22	3.15	2.84	3.10	3.18	2.94
<i>SD</i>	0.81	0.89	0.90	0.83	1.00	0.98

Independent variable

Concern over online expression

Respondents indicated their level of agreement (1 = *strongly disagree* to 5 = *strongly agree*) to two statements: (1) 'I tend to think carefully about expressing my political views openly on the internet because this could make friends or family think differently about me'; (2) 'I tend to think carefully about expressing my political views openly on the internet because this could make colleagues or other acquaintances think differently about me.' The two items were averaged to form an index (r ranges from .687 for Taiwan to .794 for Japan, $p < .001$).

Mediators

The survey has a set of four questions about the cues on which respondents rely to select news stories in social media. The two questions about social filtering and popularity indicators were adopted in this study, while the other two are about the news brand concerned and headlines/pictures.

Reliance on social filtering for news selection

Respondents were asked to rate their level of agreement (1 = *strongly disagree* to 5 = *strongly agree*) with the statement: 'When looking at stories in social media, the person who shared the story is very important in helping me decide whether the information is likely to be worth my time.'

Reliance on popularity indicators for news selection

Respondents were asked to rate their level of agreement (1 = *strongly disagree* to 5 = *strongly agree*) with the statement: ‘When looking at stories in social media, the number of comments, likes, or shares is very important in helping me decide whether the information is likely to be worth my time.’

Control variables

Demographic variables, including gender, age, level of education (1 = did not/ don’t expect to complete secondary/high school to 5 = completed/ expect to complete a masters or doctoral degree), household income (on a standardized scale representing the number of standard deviations a respondent’s income above or below the mean score of the society), were controlled in the analysis.

Based on Kalogeropoulos et al.’s (2017) research on online news participation, we also controlled several political (ideological strength) and media (news interest, trust in news, news access) variables. Kalogeropoulos et al. found that ideological strength relates positively to news participation on social media, as people who are certain about their attitudes are likely to express their views regardless of the opinion climate. They also revealed that those with greater news interest tend to more actively share and comment on news on social media, as news interest serves as a key motivation of news participation. Moreover, we controlled trust in news, as lower trust was found to relate to more online news participation (Fletcher & Park, 2017; Kalogeropoulos et al., 2017); people with lower trust in news tend to seek alternative views or validate the credibility of news through news participation. Previous studies on online news participation or expression also included news access as the covariate, as news exposure facilitates people’s understanding of the issue concerned prior to expressive behaviors (Chen et al., 2016; Kalogeropoulos et al., 2017).

Our analysis also controlled Internet access and face-to-face news discussion.¹ Internet access was controlled in previous research, as it directly influences one’s opportunity to access social media to engage with news (Kalogeropoulos et al., 2017). Chan et al.’s (2019) study controlled face-to-face news discussion, which was positively associated with social media news participation. It is believed that those engaging in more face-to-face news discussions have more experience of expressing views and feel more confident in online news participation. The operationalization of controls is explained in Appendix I, and their descriptive statistics across samples are reported in Appendix II.

Results

Descriptive statistics in Table 2 show that the samples in Taiwan, Hong Kong, Malaysia, and Singapore have a moderate level of social media news participation (M ranges from 1.03 for Hong Kong to 1.39 for Malaysia), while those in South Korea and Japan have a relatively lower level of participation (South Korea: $M = .58$; Japan: $M = .24$).

Analysis was conducted with the PROCESS macro (version 3.3) for SPSS (A. F. Hayes, 2013). Testing a parallel mediation model, we use the Model 4 template from the macro to test all the hypotheses. The models were run with 10,000 bias-corrected bootstrap samples and a 99.9% confidence interval (CI). Statistical significance ($p < .001$) is

achieved when lower bound and upper bound *CI* do not include zero. If the 99.9% *CI* includes zero, the models were run again with 99% and 95% *CI*. The responses of non-users of social media are excluded in the analysis, as the survey did not require them to answer the questions of the two mediators. Demographics, political ideology, news interest, trust in news, news access, Internet access, and face-to-face news discussion were entered as controls. Table 3 summarizes the results of the analysis. (Bootstrapped *CI*s and regression results are reported in Appendices III and IV respectively.) Among the controls, greater news interest and more face-to-face news discussion were found to predict a higher level of social media news engagement across all the samples.

H1 addresses the direct relationship between concern over online expression and social media news participation. Table 3 shows that greater concern over online expression relates to a lower level of social media news participation only for the samples of South Korea ($B = -.100, p < .001$) and Hong Kong ($B = -.102, p < .01$), but not the others. H1 is therefore not supported.

H2a-c address the reliance on social filtering for news selection. A significant relationship between concern over online expression and reliance on social filtering for news selection is observed across all the samples (Taiwan: $B = .264, p < .001$; South Korea: $B = .168, p < .001$; Japan: $B = .198, p < .001$; Hong Kong: $B = .189, p < .001$; Malaysia: $B = .246, p < .001$; Singapore: $B = .255, p < .001$). H2a is therefore supported. The results also show a significant relationship between reliance on social filtering for news selection and social media news participation in all the samples (Taiwan: $B = .185, p < .001$; South

Table 3. Mediation models predicting social media news engagement.

	Taiwan	South Korea	Japan	Hong Kong	Malaysia	Singapore
<i>Total effect</i>	.199***	-.063**	.093***	-.025	.027	.002
<i>Direct effect</i>						
Concern → Engagement	.098	-.100***	.046	-.102**	-.002	-.037
<i>Model components</i>						
Concern → Social Filtering	.264***	.168***	.198***	.189***	.246***	.255***
Concern → Popularity Indicators	.246***	.146***	.172***	.247***	.240***	.211***
Social Filtering → Engagement	.185**	.150***	.172***	.170***	.094**	.104***
Popularity Indicators → Engagement	.216***	.081**	.074**	.181***	.027	.058*
<i>Indirect effects</i>						
Concern → Social Filtering → Engagement	.049**	.025***	.034***	.032***	.023**	.027***
Concern → Popularity Indicators → Engagement	.053***	.012**	.013*	.045***	.007	.012*
N	957	1,887	1,408	1,960	1,946	1,976

Entries are unstandardized beta coefficients. Bootstrap resample = 10,000. All models controlled for demographics, news access, Internet access, trust in news, news interest, face-to-face news discussion, and political ideology. Estimates were calculated using the PROCESS macro (Model 4). Control variables are included in the analyses.

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

Korea: $B = .150, p < .001$; Japan: $B = .172, p < .001$; Hong Kong: $B = .170, p < .001$; Malaysia: $B = .094, p < .01$; Singapore: $B = .104, p < .001$). H2b is supported. H2c proposes a positive indirect effect between concern over online expression and social media news participation via reliance on social filtering for news selection. A significant positive indirect effect is observed for all the six samples (Taiwan: $B = .049, p < .01$; South Korea: $B = .025, p < .001$; Japan: $B = .034, p < .001$; Hong Kong: $B = .032, p < .001$; Malaysia: $B = .023, p < .01$; Singapore: $B = .027, p < .001$). Specifically, greater concern over online expression predicts heavier reliance on social filtering for news selection, which in turn enhances social media news participation. Thus, H2c is fully supported.

On the other hand, H3a-c address the reliance on popularity indicators for news selection. We observe a significant relationship between concern over online expression and reliance on popularity indicators for news selection across all the samples (Taiwan: $B = .246, p < .001$; South Korea: $B = .146, p < .001$; Japan: $B = .172, p < .001$; Hong Kong: $B = .247, p < .001$; Malaysia: $B = .240, p < .001$; Singapore: $B = .211, p < .001$). H3a is supported. The relationship between reliance on popularity indicators for news selection and social media news participation is significant for all the samples, except Malaysia (Taiwan: $B = .216, p < .001$; South Korea: $B = .081, p < .01$; Japan: $B = .074, p < .01$; Hong Kong: $B = .181, p < .001$; Singapore: $B = .058, p < .05$). Thus, H3b is largely supported. H3c proposes a positive indirect effect between concern over online expression and social media news participation via reliance on popularity indicators for news selection. A significant positive indirect effect is found for all the samples, except Malaysia (Taiwan: $B = .053, p < .001$; South Korea: $B = .012, p < .01$; Japan: $B = .013, p < .05$; Hong Kong: $B = .045, p < .001$; Singapore: $B = .012, p < .05$). Greater concern over online expression relates to heavier reliance on popularity indicators for news selection, which in turn encourages news participation. H3c is therefore largely supported.

Discussion

This study aims at examining the role of concern over online expression and recommendation features in predicting news participation on social media in six Asian societies. Testing a parallel mediation model, we found that the relationship between concern over online expression and social media news participation is mediated by the reliance on (a) social filtering and (b) popularity indicators for news selection. Implications are discussed.

Concern over online expression and social media news participation

In line with the previous studies on the Asian context (Chan et al., 2019; Hyun & Kim, 2015; Takeshita et al., 2014), we observed a low or moderate level of news participation in the six Asian societies. Hong Kong, Malaysia, and Singapore had a comparatively higher level of news participation than the more democratic societies, i.e. Japan and South Korea. This represents the real-world situation that users in semi-democracies prefer to engage more actively with news and express their views on social media which were more leniently regulated by the government compared with traditional media or offline activism (Chan et al., 2019; Skoric & Poor, 2013; Taman et al., 2014). A low level of news participation in Japan may also reflect the fact that the Japanese mainly

use social media for non-political purposes (Takeshita et al., 2014). Taiwan also had a higher level of news engagement, potentially reflecting the more active political use of social media since the Sunflower Movement in 2014 (Chen et al., 2016).

It is hard to concretely conclude that the low or moderate level of news participation in these societies is attributable to the collectivistic culture, as we found mixed results about the relationship between concern over online expression and social media news participation. Greater concern over online expression is found to significantly relate to a lower level of social media news participation in South Korea and Hong Kong, while no significant relationship between the two variables is observed for the remaining samples. For South Korea, the Internet culture may have intensified people's concern over the impact of news participation on their social relationships, as cyberbullying and online flaming have been a prevalent and serious social phenomenon over the years (Kim, Kim, & Oh, 2014). For Hong Kong, there has been a long-term polarized political climate since the transfer of sovereignty in 1997, which has caused some citizens to refrain from expressing opinions on social media for fear of being isolated by their social circles (Chen, 2018). Regarding the null relationships observed in the remaining societies, it is possible that users with much concern over expression do not reduce their news participation, but instead post news without comments or manage the privacy setting (R. A. Hayes et al., 2015). Future studies should utilize a more comprehensive framework to explore whether adopting alternative approaches to engage with news can help explain the mixed results. Admittedly, the non-significant relationship may also reflect the actual situation of some societies. For example, the survey was conducted a few months before the Malaysian elections that ended the decade-long authoritarian rule. Malaysian citizens may have overcome their concern over expression at this politically heightened moment, as many of them were active in news participation on social media to support the opposition (Rahim, 2019).

Consistent pattern of the role of social recommendation features

Despite the aforesaid mixed results, the indirect effects between concern over online expression and social media news participation through the reliance on social filtering and popularity indicators for news selection are consistently positive in the six samples. Although greater concern over online expression did not predict a lower level of news engagement across all the samples, it promoted a greater reliance on social recommendation features which in turn encourages news participation. This reveals the key role of social recommendation features in encouraging news participation across the six societies of different political contexts and social media infrastructures. More importantly, it implies an important feature of these six collectivistic societies that the concern over expression would drive the need to assess the opinion climate based on the cues from recommendation features on social media.

Our results also illustrated the real picture that a society's unique and core characteristics may affect the mediating role of recommendation features. Notably, the absence of an indirect effect via reliance on popularity indicators in Malaysia can be explained by its ethnic tension. Malaysia has a less homogeneous ethnic composition than the other five societies.² It has been experiencing ethnic conflicts between Malays and Chinese since the early 1900s, given the unequal socio-economic standing of these two groups (Montesino, 2012). Despite the inter-ethnic tension, it is common for Malays and Chinese to co-exist

in social settings, like schools and workplaces (Montesino, 2012). Individuals from one group often include contacts from the other in their weak-tie networks. Due to the fragile ethnic mix and politics, Malaysians are more cautious about handling opinion expression within their multi-ethnic networks (Taman et al., 2014). Encountering a post with many likes and shares, Malaysians may be concerned about the fact that the relevant coverage is only supported by one ethnic group and the opinion mentioned may trigger anger from another group. Our results show that the relationship between concern and reliance on popularity indicators is significant, but the one between reliance on popularity indicators and news participation is not. It implies that Malaysians would pay attention to popularity indicators out of their concern over expression, but these indicators are probably not a useful reference facilitating their news participation.

One of the limitations of this study is the use of single-item measures for the two mediators. For example, the measurement of social filtering could be improved by having multiple questions that address different sources, including friends and opinion leaders. The survey questions can also be improved by using wordings that address the concept more directly (e.g. to what extent do you rely on your friends' sharing activities to filter the news on social media?). Indeed, a well-developed index of the reliance on social filtering is unavailable in the extant literature, as most of the relevant studies either adopted a qualitative methodology (e.g. Boczkowski et al., 2018; Pentina & Tarafdar, 2014) or executed social filtering as an experimental treatment (e.g. Feezell, 2018; Turcotte et al., 2015). Similarly, the reliance on different popularity indicators, e.g. likes, comments, shares, can be measured separately before these questions are lumped together to form an index. An established index of the concept is also lacking, as past studies mostly addressed popularity indicators as an experimental treatment (e.g. Neubaum & Krämer, 2017; Q. Xu, 2013). The significant findings of this survey imply the need to develop comprehensive indices to measure these two concepts in future studies.

Admittedly, the use of single-item measures is attributable to the application of secondary dataset, which has constrained the availability and operationalization of the key variables. Another related issue is the unavailability of the core variables of the spiral of silence theory, such as fear of isolation and willingness to self-censor, in the dataset, given that we have made reference to the theory. Also, testing the same model for people in the majority and those in the minority separately was not possible due to the lack of relevant variables in the dataset, although we previously discussed the scenarios concerned.

Despite these limitations, this dataset provides a valuable opportunity to test an important model about social media news engagement across six Asian societies. An analysis based on these representative samples has helped us acquire an understanding of the consistent role of recommendation features across the six collectivistic societies. Future studies are encouraged to adopt better measurements, incorporate variables directly related to the spiral of silence theory (e.g. fear of isolation, perception of opinion climate) in the model, and test the parallel mediation model with a multi-wave survey to establish stronger causality claims.

Practical implications for social media news participation

This study also provides two major practical implications for future investigation of social media news participation. First, it calls for a need to have a more in-depth analysis

of the role of social recommendations in social media news participation in future studies. Although this study did not address how many people the users follow and how frequently their friends share news, the findings of the reliance on social filtering imply that these two factors can potentially influence one's assessment of the opinion climate and their subsequent news participation. Furthermore, this study did not ask questions about the use of specific platforms, but future studies should consider whether the frequency or depth of news participation would differ between platforms with and without popularity indicators. As suggested previously, they are not readily available in messaging applications, such as KakaoTalk (i.e. the most popular platform for news use in South Korea).

Second, it also sheds light on testing platform features to reduce the spread of fake news. Although social media news participation can encourage political participation, it also relates to the dissemination of misinformation. While different platform features, such as flagging and recommending corrective stories, have been tested to deal with the spread of fake news (Tromble & McGregor, 2019), researchers or platform engineers can also consider actions related to the recommendation features. For example, they may consider hiding the popularity indicators of the disputed posts or content and analyze the shares and comments of these posts without the indicators.

Conclusion

This study contributes to the discussion about how the features of social media influence users' news participation and provides insight into the role of social recommendations in promoting news participation in the six selected Asian societies with diverse contexts and a shared collectivist culture, given that previous studies on the recommendation features did not consider people's fear over expression and mainly addressed the Western context. Future studies can consider examining the generalizability of the model to different cultures by testing it in more individualistic societies.

Notes

1. We treated face-to-face news discussion as a distinct construct from social media news participation, based on the results of factor analysis (Appendix I) and the suggestion of Gibson and Cantijoch (2013).
2. According to the Factbook of Central Intelligence Agency (2016), the Malaysian population consists of Bumiputera (Malays and indigenous people, 62%), Chinese (20.6%), and Indian (5.7%). Singaporean population is comprised of Chinese (74.3%), Malay (13.4%), and Indian (9%); its ethnic composition is comparatively more homogeneous than Malaysia's. For the four remaining societies, their largest ethnic group accounts for more than 90% of the population.

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No potential conflict of interest was reported by the author(s).

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