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Does social media keep me alarmed? The effects of expectations surrounding social media attributes and exposure to messages of social (in)stability on substitutive social media news use

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**ABSTRACT**

Social media news is pervasively replacing traditional news outlets in people’s news diets. From an active-audience perspective, this study employed a factorial preregistered experiment with a pretest and mediators to examine how (1) low versus high expectations about social media’s potential to obtain information in an efficient way and (2) exposure to messages that trigger perceptions of social (in)stability influence Chinese young adults’ intentions to substitute social media for other news sources. This study found that participants who believed that social media as a news source could reduce information costs were more willing to substitute social media for other news sources and that participants who were primed with messages of social instability were less willing to do so. The two effects were mediated separately through reliance on different social media attributes: proximal cues and recommendation systems. Arguably, both attributes can contribute to reducing perceived information costs. Exposure to messages of social (in)stability also moderates the effect between expectations regarding attributes and reliance on recommendation systems and has implications for Schudson’s “monitorial citizen” model in the social media age.

**KEYWORDS** social media; use and gratification; China; young adults; news use behavior; monitorial citizen

Social media has become a significant news source for citizens worldwide (Newman et al., 2021), with some users even indicating their intentions to replace mainstream news media with social media (Müller et al., 2016). In China, most people report accessing news daily through social media, such as WeChat groups (75%), Douyin (39%), and Weibo (20%), whereas only 26%
use the mobile news app Toutiao, and less than 10% watch television or read newspapers (Kuang, 2019). The present study addresses the following questions: (1) Why are people substituting social media for traditional news sources? and (2) Do technological attributes play a significant role in shaping users’ news diet decisions?

Uses and gratifications (U&G; Katz et al., 1973) theory posits that audiences play an active role in making media choices and is thus a promising theoretical framework to use in investigating preferences for social media news. U&G scholars have identified several informational gratifications offered by social media, including informational needs, surveillance, social utility, and guidance (Chen & Chan, 2017; Heiss et al., 2019; Nanz et al., 2020; Schäfer et al., 2017). However, traditional media can also satisfy these needs and can even outperform social media in terms of providing information (Schäfer et al., 2017). Chinese users also perceive mainstream media as more credible and informational than alternative sources (Wang, 2021). Extensive studies have demonstrated that information derived from social media does not necessarily contribute to political knowledge (Bode, 2016; Boukes, 2019; Cacciatore et al., 2018; Dimitrova et al., 2014; Lee & Xenos, 2019).

To explain why people choose to substitute conventional news outlets with social media to meet their informational needs, we introduce an informational cost–benefit evaluation model. The model suggests that users’ preference for social media is based on an informational cost–benefit evaluation. The evaluation can be shaped by both technological (expectations for social media attributes) and contextual (exposure to messages of social instability) factors. Examination of the model through a preregistered factorial experiment in China revealed that users may be strategic in their use of social media to access news: while they may rely on social media for news during their daily routines, when they encounter messages that signal social instability, they eschew news previews in favor of full-length stories and look beyond social media for further information. We further discuss the model’s implications with a focus on Schudson’s monitorial citizens concept (1998) in the social media age.

Theoretical framework

**Why substitute? Introducing informational cost–benefit evaluations**

The notion of cost–benefit weighting in media choice is not new: Downs (1957) discussed how citizens stay informed while reducing information costs. According to traditional economic theory, time and cognitive effort are utilized to obtain information. Rational citizens are assumed to acquire only the political information they need while keeping costs low. Similarly,
the information utility approach assumes that when a medium’s perceived informational utility, such as the magnitude of gratification (Knobloch et al., 2005; see also Atkin, 1973), exceeds the expenditure spent to acquire it, that medium is preferred. The recent “news worthwhileness” construct (Schrøder, 2015), which “common-sensically denotes the individuals’ subjective, implicit or explicit assessment of whether the medium in question is worth their while” (Schrøder & Steeg Larsen, 2010, p. 526), also elucidates news users’ cost–benefit evaluation. The dimensions of worthwhileness (Schrøder, 2015) touch on news costs, such as time and money spent, and the benefits of news services, such as public connections, participatory potential, and technological appeal. Berthelsen and Hameleers (2021) identify three additional news cost dimensions: initiative, mental energy, and visual focus. They also described the services that interviewees expected to receive from social media, such as “anything new” and “relevant news”.

To answer our questions, this study builds on the existing literature and seeks to further clarify that (1) perceptions regarding costs can be shaped by the medium’s technological attributes such that expectations regarding social media attributes elicit the perception that news consumption via social media reduces information costs (i.e., the time and energy it takes to follow the news) while still sufficiently informing the reader; and (2) the need for news services might be influenced by social surroundings, specifically the social (in)stability that may be primed by news messages.

**Shaping the cost evaluation: expectations for two social media attributes**

Schrøder (2015) argued that social media choices are subject to media technologies that enable more convenient access to news. This association should be linked with users’ expectations regarding technology features from a micro level. Users often develop expectations for a digital medium’s informative potential while experiencing its novel attributes, leading to media choices (Sundar & Limperos, 2013). In this section, we propose that users who believe that the technological features of social media can keep them informed while requiring less time and effort on their part will choose to substitute social media for other news sources. The proximal cues on news feeds or the recommendation systems embedded in social media, which present and push information in a way that differs from other news media, are the prominent features that relate to such expectations.

**Proximal cues** refer to cues that appear in the immediate environment and direct audiences to the desired information (Pirolli & Card, 1999). On social media timelines, news items typically appear as post-previews—an aggregation of proximal cues—rather than as complete stories. News
providers expect proximal cues to invite users to the full-length news; by contrast, users appear to expect the less effort-intensive proximal cues (or “snack news”; Schäfer et al., 2017) to inform them equally well as the complete article. Bakshy et al. (2015) report that only 7% of their participants click through to the full story after exposure to political posts on Facebook, a behavior that requires more cognitive effort and time than merely scanning feeds.

Nevertheless, social media news use appears to have only limited influence on actual knowledge acquisition (Boukes, 2019), or at least, to a lesser extent than that to which it increases the perception of knowledge acquisition (Feezell & Ortiz, 2021; Lee et al., 2021; Ran et al., 2016). Rather, social media news often creates an illusion of knowledge, probably as a result of the proximal cues: experiments revealed that users who only scanned article previews believe that they are well-informed (Anspach et al., 2019) or at least as knowledgeable as those who read the entire article (Schäfer, 2020). Such perceptions (but not necessarily realities) of being informed during the social media use process might shape the expectation that social media news provides sufficient information about the topic in question while requiring less effort.

Similarly, users might expect social media news recommendation systems to keep them informed with lower information costs. All social media posts are recommended by various curators, such as the user’s customization, their friends, or the algorithmic recommendations (Thorson & Wells, 2016). The curated information is presented not according to topic categories but in chronological order or based on algorithmic decisions: for example, a coronavirus update might appear next to a kitten video simply because they were posted simultaneously or because the algorithm assumes that the user is interested in both. This results in the incidental news exposure (INE) phenomenon whereby users encounter news on social media while at leisure (Boczkowski et al., 2018). Conventional news sources encourage purposeful news-seeking activities—for example, audiences switch to television or radio news channels or directly access news websites/applications. By contrast, social media recommendation systems move information toward or away from the user, thus demanding less effort from the user (Berthelsen & Hameleers, 2021; Kim et al., 2013). Thus, users might develop a news-finds-me (NFM) expectation, which refers to the perception that the user need not make any effort to seek news but that relevant news will be recommended to them regardless (Gil de Zúñiga et al., 2017). Scholars have found that INE frequency leads to NFM (Park & Kaye, 2020), suggesting that NFM perceptions might be particularly shaped by social media recommendation systems.

In summary, both attributes lead to the expectation that social media is economical in keeping one informed. If users were advised that neither the
proximal cues nor the recommendation systems are capable of providing sufficient information, they might no longer consider the benefit to outweigh the cost and would accordingly rely less on social media exclusively. Hence, we propose the following:

H1: The expectation that social media attributes are sufficient to inform oneself at low information cost leads to increased intention to substitute conventional news outlets with social media relative to when this expectation is lacking.

Furthermore, expectations for the proximal cues and recommendation systems might first lead to behavioral intentions to rely on these respective attributes and subsequently increase the likelihood of substitutive social media use. Rather than a monolithic entity, social media should be viewed as a “toolkit” (Smock et al., 2011) for which the use of certain technological attributes satisfies certain requirements or meets certain expectations (Eftekhar et al., 2014; Hayes et al., 2016; Huang & Chang, 2020; Smock et al., 2011). Given that proximal cues and recommendation systems are the two attributes that make social media superior to other news media in reducing information costs, users may rely on them to access news, perceiving them as sufficient and indispensable. Other news media that do not have these attributes may become less popular since they do not facilitate such a casual approach to news consumption. We propose that reliance on both attributes could fully mediate the effect in H1, to test whether the proximal cues and recommendation systems are indeed crucial for users’ media choice. As mentioned above, expectations for social media (i.e., the illusion of knowing and the sense that one is informed) are particularly linked to the two mediating attributes. Hence, we propose the following:

H2ab: The effect of the expectation that social media attributes can sufficiently inform users at low information cost (X) on the substitution of other news outlets with social media (Y) is fully mediated by the reliance on (a) proximal cues and (b) recommendation systems (M).

Shaping the benefit evaluation: social (in)stability message exposure

Because the cost–benefit evaluation is perceptual, the benefit-side evaluation should also be subjective: that is, users themselves should decide whether they obtain sufficient news through a certain medium. This decision may be affected by one’s surroundings: users are only satisfied with the short-form pushed news items on social media when society is stable and one’s surroundings pose less risk. This situation is less likely for members of unstable societies.

Schudson (1998) described a “monitorial citizens” model wherein citizens need not have sophisticated knowledge about all civic issues but keep abreast of the political environment by scanning news headlines to determine whether a crisis requires their attention. That is, when society is stable
and risk is scarce, headlines and previews provide sufficient information for most (monitorial) citizens. Headline-scanning activity today transfers to a digital “news snacking” use pattern, which consists of checking news, scanning feeds, and consuming short news items (Costera Meijer & Groot Kormelink, 2015; Molyneux, 2018; Pew Research Center, 2012).

However, once people encounter messages about social instability, they may feel the need to look beyond news previews to assuage feelings of uncertainty and prepare for more serious news events. Thus, the user’s own evaluation of sufficient news (i.e., expected information benefits) may be influenced by the (message about) stability of their surroundings.

A large body of literature has examined the link between risk messages and information seeking, particularly under the risk information seeking and processing (RISP) model (Griffin et al., 1999). The RISP model proposes that perceived risk characteristics predict one’s information-seeking behavior through various mediators, including affective response, informational subjective norms, information insufficiency, and perceived information-gathering capacity. Risk messages also exacerbate feelings of uncertainty (Griffin et al., 1999), which are naturally unwanted in communication processes (Berger & Calabrese, 1975), and drive news-seeking behavior in a bid to assuage such feelings (Boyle et al., 2004).

Experimental studies have consistently found that risk messages lead to higher levels of information-seeking behavior (Bigsby et al., 2021; Brinker et al., 2020; So et al., 2019; Valentino et al., 2008). Zhang and Zhou (2019) further tested the effect in a social media environment and found that people were more inclined to click on and read the entire article when encountering health-related threat messages via social media than in low-threat conditions. Because messages that prime social instability signal a risk that is relevant to all members of the society in question, the effect of risk messages should also apply in the present study, which focuses on news consumption. It is particularly interesting to examine how social instability messages influence substitutive social media news use, given that social (in)stability is a characteristic of a society, and studying the effect may explain the differences between news use patterns across countries. Hence, we propose the following:

H3: Exposure to messages of social instability message leads to decreased intention to substitute other news outlets with social media compared with social stability message exposure.

Similar to H2, the effect can be mediated by social media users’ reliance on proximal cues and recommendation systems. When they encounter messages portraying social stability, audiences might feel that the message provides less utility for social monitoring. Therefore, they may be less willing to expend effort on that message. In other words, with social stability, audiences might deem it unnecessary to seek additional information and
may prefer to rely on proximal cues and recommendation systems, which allow them to quickly scan news items on their social media feeds.

By contrast, if people encounter informational cues suggesting that society might become unstable, they might be willing to assign more time to obtain relevant information, thus relying less on proximal cues and the social media recommendation system to stay updated. Reduced reliance on these two attributes will lead to fewer instances wherein social media is substituted for traditional news media. However, reliance on social media attributes should only partially mediate the effect in H3 because social instability messages might also reduce substitutive social media use via other paths, such as preference for credible content during periods of instability or the motivation to fact-check. Detailed testing of all mechanisms lies beyond the scope of this study. Hence, we propose a partially mediated effect:

\[ H_4ab: \text{The effect of social (in)stability message exposure (X) on the substitution of other news outlets with social media (Y) is partially mediated by the reliance on (a) proximal cues and (b) recommendation systems (M).} \]

Finally, an expected negative synergy may exist between exposure to messages of social (in)stability and expectations for social media’s technological attributes. Although high expectations may lead to reliance on these attributes, this effect may be limited to people who are told that society is stable. Previous findings revealed an overall increase in television and online news use and social media use during crises (Van Aelst et al., 2021; Westlund & Ghersetti, 2015). In other words, those who are told that society is becoming unstable may find social media insufficient and seek news sources beyond social media even when their expectations for social media’s attributes are high. This interaction may be contingent on Holbert and Park (2020) typology of moderators, meaning that exposure to messages of social (in)stability will cancel out the influence of the expectation factor:

\[ H_5ab: \text{Exposure to messages of social (in)stability is a negative contingent moderator of the effects of the expectation for social media attributes on the reliance on (a) proximal cues and (b) recommendation systems, such that, although young Chinese adults who are exposed to a message that indicates that society will become unstable experience the effects of H1 and H2, those who are instead exposed to message indicating that society remains stable will not experience the effects.} \]

**Method**

A preregistered online experiment was conducted in May 2021 after it was approved by the Amsterdam School of Communication Research (ASCoR) Ethics Committee (ID: 2021-CC-13434). The experiment followed a 3 (expectations for social media attributes: expectations for proximal cues vs.
expectations for recommendation systems vs. low expectations) × 2 (perceived social instability: high vs. low) between-subject pretest–posttest factorial design. The procedure consisted of two parts: the first included pretests and occurred at timepoint 0 (t₀). The second included exposure to the manipulations and posttests and occurred at timepoint 1 (t₁), which was three days after t₀. Prior to the study proper, we conducted a pilot study to confirm the readability and credibility of the stimulus materials (see Appendix 2).

**Sample**

The study focuses on young Chinese adults aged 18–35 years. This age group was selected because their news use patterns have shifted more dramatically to the digital environment (Kantar, 2018). A total of 515 participants who met the criteria were recruited at t₀ through the Chinese crowdsourcing platform Credamo. This convenient sampling strategy can yield comparative results to population-based samples for political science survey experiments (Krupnikov et al., 2021; Mullinix et al., 2015). A total of 429 participants joined the second stage at t₁, and 422 passed the attention checks (implemented using questions that asked participants to select a certain answer). This resulted in a final sample size of \( N = 422 \).

The sample’s descriptive statistics are presented in Appendix 3. In general, the sample is representative in terms of age, sex, and region but is more highly educated than the national representative samples. Because this study focuses on examining causal relationships rather than making exact point estimates of the relevant variables, this sampling method is well-suited to our hypotheses.

**Procedure**

The questionnaire (see Appendix 4) was available only to those aged 18–35. At t₀, participants were informed that this study was about “the information delivery function of social media”. After they had given their consent, they were asked to state their age and sex. Subsequently, the manipulation check question pretest, the reliance on social media attributes pretest, and the substitutive social media use pretest were measured.

After three days, participants who had completed the first questionnaire and passed the attention checks were invited to join the study’s second part at t₁. In the event that presentation of the long stimuli would discourage participants from joining, we asked a simple question about their education levels before randomly assigning them to one of the six conditions. Following exposure to the stimuli, they completed the posttest of the
mediators, the outcome variable, and the manipulation check questions. Finally, the participants were thanked, debriefed about the study’s actual aim, and informed that the stimuli were fictitious.

**Stimuli** (all stimuli materials can be found in Appendix 1)

*Expectations for social media attributes* were manipulated by priming participants with a mock Weibo news post covering a fictitious scientific study. Regarding the expectations for the proximal cues condition and the expectations for recommendation systems condition, the messages written were, respectively, that “A recent study” found that “the way in which social media presents messages” or “the social media information recommendation system” can “largely reduce the time cost to users in obtaining information” to enhance participants’ expectations about social media’s informing capability. Participants in the low-expectation condition were exposed to a post stating that social media with the two attributes cannot reduce information costs. The posts were kept as identical as possible. To ensure that participants had processed the message, they were required to stay on the stimuli page for at least 30 seconds before activating the “next” button. They were also asked to summarize the post’s main idea in a text input question².

The social (in)stability message was inserted into a fictitious Weibo news post covering the influence of the ongoing pandemic. The fictitious poster was a state-owned quality news outlet, The Paper (澎湃新闻). Given that the situation in China had already been under control for a year when the experiment was conducted, the global pandemic should not have been a pressing issue for Chinese citizens. In the high-instability condition, the message claimed that Chinese society might become less stable and that the government had not decided on a solution. In the low-instability condition, the message claimed that Chinese society would remain stable thanks to the government’s timely introduction of measures. The post also functioned as material for measuring reliance on proximal cues (RoPC; see below). Therefore, at t₀, an identical post was presented but with neither of the (in)stability messages. The post included variations between t₀ and t₁, such as the name and affiliation of the commentator, to avoid sensitizing participants. To ensure that the participants had processed the message, they had to remain on the stimuli page for at least 40 seconds before activating the “next” button.

**Manipulation check**

A paired-sample t-test was conducted to compare the pretest and posttest results of participants’ perceptions regarding their expectations for social media attributes. Participants rated the extent to which they agreed that (1) social media, (2) short-form information on social media, and (3) social
media recommendation systems could reduce the time and cognitive effort that users must invest to remain abreast of key current affairs. The results suggest that the low-expectation condition stimulus successfully reduced the expectation for proximal cues ($M_{diff} = 0.29, p < .001$) and recommendation systems ($M_{diff} = 0.38, p < .001$), whereas both remained constant for the other two conditions (proximal cues: $M_{diff} = -0.06, p = .279$; recommendation systems: $M_{diff} = -0.08, p = .219$). As a solution, the two conditions were grouped into a high-expectation group, and the subsequent analysis compared between-subject differences between the high- and low-expectation groups. Regarding exposure to the (in)stability message, O’Keefe (2003) claimed that no manipulation check was needed for message variations—in this case, the existence of the (in)stability message—because participants’ perceptions were not assumed to be changed, and we followed this suggestion.

**Measurement**

**Mediators**

Mediators were measured immediately after participants were exposed to the fictitious post by *The Paper*. The post included a button that would unfold the full text and an external link that would redirect users to the long news article.

*Reliance on proximal cues to stay informed* (RoPC) was operationalized as participants’ behavioral intentions to learn more about the global pandemic’s influence on China. It was measured using a three-item scale: (a) intention to click on and read the full text, (b) intention to read the news article, and (c) intention to read more about the topic. Answers ranged from completely disagree (1) to completely agree (7). The scale achieved high reliability, with Cronbach’s $\alpha = .81$. Indicators were inversely recoded such that a higher score indicated higher RoPC.

*Reliance on recommendation systems to stay informed* (RoRS) was initially measured using a four-item seven-point Likert scale. However, two items used to measure behavioral intention to search for further information were excluded for reliability, perhaps because of social desirability bias. The final two items measured (a) the intention to rely on pushed information to stay informed and (b) the belief that pushed information is sufficient to stay informed. These items were adapted from the NFM scale (Gil de Zúñiga et al., 2017), which originally focused on news shared through social networks. Combined, it yielded a Spearman-Brown coefficient of .52, indicating that the scale is not wholly reliable. However, we retained this scale because deleting items (i.e., a single item scale) would have led to a loss of information. Moreover, the inclusion of this scale still yielded a good-fitting
confirmatory factor analysis (CFA) and structural regression (SR) model in the data analysis section, meaning that the scale reliability—albeit unsatisfying—has limited influence on the model.

**Outcome variable**

*Substituting other news outlets with social media, or substitutive social media use (SSMU)*, was also measured on a seven-point Likert scale using four items: (a) the perception that other news sources are unimportant; (b) willingness to rely mostly on social media; (c) the perception that social media can replace other news sources; and (d) the intention to use other news sources less. The scale was adapted from Müller et al. (2016) substitutive Facebook use scale and achieved good reliability, with Cronbach’s $\alpha = .76$.

In line with the manipulation, all items were focused on obtaining information about the global pandemic’s influence on China instead of general information. For example, the first item states, “Other news sources are less important to me because I receive all important information about how the global pandemic influences China on social media”.

**Data analysis**

We used structural equation modeling (SEM) in AMOS 26 to analyse the hypothesized model and applied maximum likelihood estimation. A bootstrap with 300 subsamples and 8 bootfactors was applied to all subsequent calculations. We performed robustness checks to ensure the models’ robustness (see Appendix 2).

We first performed CFA to examine the dimensionality of latent factors. A unit loading indicator (ULI) was used to scale the factors. The pretest and posttest of the three latent factors, along with the dummy variables indicating experimental conditions, were included in the CFA model. The experimental condition variables covaried with other variables. The model achieved a good fit, $\chi^2(129) = 179.70, p = .002$; CFI = .98; RMSEA = .03 and 90% CI [.02, .04]. The measurement for RoRS and SSMU showed a low convergent validity, with some factor loadings less than .60 (see Appendix 3). However, they were retained because the model fit was fine and deleting them would result in loss of information. The discriminant validity was acceptable: the greatest factor covariance ($= .76$) was less than the .85 threshold (Kline, 2010) and was reasonable because it was between the pretest and posttest of SSMU.

In the second step, we tested whether the hypothesized model’s global fit was as good as that of the CFA model. A just-identified SR model equivalent to the CFA model was constructed by replacing some covariances with direct paths. The hypothesized SR model was then created by constraining
uninterested paths to zero. In the SR model, pretests acted as exogenous variables and were made to predict their posttests only to control for individual differences. A chi-square difference test showed that the hypothesized model fit was as good as that of the just-identified model, $\chi^2_{\text{diff}} (7) = 11.02, p = .138$. The hypothesized SR model was used for subsequent analysis. The CFA and SR models (and all subsequent models, along with covariance matrices for replication) are attached to the preregistered project storage. The SR model parameters can be found in Appendix 3.

To test the moderation effects, the SR model was simultaneously fitted on both (in)stability message experimental groups. Thus, the (in)stability message condition variable itself was excluded from the original model. The multigroup model achieved a good fit, $\chi^2 (248) = 324.16, p = .001; \text{CFI} = .97; \text{RMSEA} = .03$ and 90% CI [.02, .04]. Constraining the measurement structure as invariant across groups did not significantly influence the model fit ($\chi^2_{\text{diff}} (12) = 12.30, p = .422$). Hence, moderation analysis was tested on the multigroup SR model.

**Results**

To examine H1 to H5, it is sufficient to examine the SR model without multiple groups. The model explains 75 per cent of the variance of the SSMU posttest (Figure 1). According to the model, H1 is supported: at t1, people with lower expectations for proximal cues or recommendation systems are on average 0.30 points (on a seven-point scale) less willing to rely on social media recommendation systems as a means of keeping informed (RoRS; $b = 0.30, SE = 0.09, b^* = 0.21, p < .001$) and, in turn, are 0.75 points less likely to use social media as a substitute for other news outlets ($b = 0.75, SE = 0.17, b^* = 0.67, p < .001$) compared with that at t0. These effects were absent for participants in the high-expectation condition (whose expectations remained unchanged). The expectation manipulation’s direct effect on the SSMU posttest is insignificant ($b = 0.16, SE = 0.10, b^* = 0.09, p = .113$); adding this path does not significantly improve the model fit ($\chi^2_{\text{diff}} (1) = 2.69, p = .101$). Therefore, supporting H2b, the effect of social media expectations on SSMU is fully mediated. However, H2a should be rejected. Although the RoPC posttest has a significant influence on the SSMU posttest (is insignificant ($b = 0.16, SE = 0.10, b^* = 0.09, p = .113$); adding this path does not significantly improve the model fit ($\chi^2_{\text{diff}} (1) = 2.69, p = .101$). Therefore, supporting H2b, the effect of social media expectations on SSMU is fully mediated. However, H2a should be rejected. Although the RoPC posttest has a significant influence on the SSMU posttest ($b = 0.03, SE = 0.06, b^* = -0.02, p = .567$).

Regarding social (in)stability message exposure, the exposure of participants to a social instability message significantly lowered their RoPC posttest results with small effect sizes ($b = -0.11, SE = 0.05, b^* = -0.07, p =$
The lowered RoPC posttest then leads to a lowered intention of SSMU posttest ($b = 0.29, SE = .10, b^* = 0.27, p = .004$), indicating that compared with $t_0$, participants who were primed with the high-instability message at $t_1$ were 0.11 points less likely to rely on minimal information to stay informed; rather, they seek further information. In turn, they are 0.29 points less likely to substitute social media for news outlets. Such changes were absent for those in the low-instability condition (i.e., the reference group who read the message stating that Chinese society would remain stable). Hence, H3 is supported. H4a is partially supported because RoPC acts as a full rather than a partial mediator: exposure to the (in)stability message shows no direct effect on the SSMU at $t_1$ ($b = 0.07, SE = 0.08, b^* = 0.04, p = .414$). H4b is not supported: social instability priming does not influence RoRS at $t_1, b = 0.01, SE = 0.09, b^* = 0.01, p = .939$.

H5 proposed that social instability priming is a negative contingent moderator of the expectation variables’ effect. In the multigroup model (Appendix 3, Table 5), the addition of path invariance makes the model fit slightly worse than that of the measurement invariance model ($\chi^2_{\text{diff}} (8) = 11.62, p = .169; \chi^2 (268) = 348.08, p = .001; \text{CFI} = .97; \text{RMSEA} = .03, 90\% \text{ CI} [.02, .03]$). Although the difference is insignificant, path estimates of the measurement invariance model suggest that some effects are inconsistent between the two groups. First, in the low-instability condition, similar to the overall model, the expectation manipulation significantly affected the

![Hypothesized structural model with standardized estimates](image_url)

Figure 1. Hypothesized structural model with standardized estimates ($N = 422$). 

Note. Observed variables are presented as rectangles and latent variables as ellipses (dashed ellipses indicate pretests; solid ellipses indicate posttests). Solid lines are hypothesized paths. Dashed lines are covariances between error terms. Items of latent variables and covariances between endogenous variables are not presented for clarity. ***$p < .001$; **$p < .01$; *$p < .05$. 

.048).
RoRS posttest ($b = 0.41, SE = 0.14, b^* = 0.24, p = .003$), and the latter significantly predicted the SSMU posttest ($b = 0.45, SE = 0.15, b^* = 0.44, p = .002$). In the high-instability condition, expectation manipulations did not influence the RoRS posttest ($b = 0.10, SE = 0.14, b^* = 0.07, p = .488$), and only the latter effect is significant ($b = 0.81, SE = 0.32, b^* = 0.70, p = .011$). Second, in the low-instability condition, the RoPC posttest significantly affected the SSMU posttest ($b = 0.26, SE = 0.10, b^* = 0.25, p = .010$), but this effect was absent for those in the high-instability condition ($b = 0.21, SE = 0.19, b^* = 0.18, p = .276$). Finally, the direct effect from expectation manipulations on the outcome variable was marginally significant for the low-instability condition ($b = 0.22, SE = 0.12, b^* = 0.13, p = .072$) but not for the high-instability condition ($b = 0.12, SE = 0.13, b^* = 0.07, p = .383$).

Therefore, instability message priming moderates these paths: users who were told that society was becoming unstable and who had high expectations for social media attributes did not resort to social media recommendation systems. Freeing the equality constraints on all different paths significantly improved the global fit of the path invariance model, $\chi^2(265) = 339.13, p = .001$; CFI = .97; RMSEA = .03, 90% CI [.02, .03]. Compared to the model with complete measurement and path invariance, the chi-square difference test is statistically significant, $\chi^2_{\text{diff}}(3) = 8.95, p = .030$. Accordingly, $H_{5b}$ is supported: exposure to the (in)stability message was a negative contingent moderator of expectations for social media attributes on the RoRS. Because the expectations for social media attributes did not significantly influence RoPC in either group, $H_{5a}$ is not supported.

**Discussion**

This study used a preregistered factorial experiment to examine how (1) expectations for social media attributes together with (2) exposure to messages of social (in)stability lead to substitutive social media use through reliance on social media’s proximal cues and recommendation systems.

One unambiguous finding is that expectations for social media attributes predicts users’ reliance on recommendation systems as a means of staying informed, while the latter in turn increases substitutive social media use. This finding is in line with LaRose et al. (2001) proposal that outcome expectations might be incorporated into the U&G framework to explain media use choices. Another factor that influences users’ substitutive social media use is exposure to messages of social instability, which exerts its influence via users’ reliance on proximal cues as a means of staying informed. This exposure provides causal evidence for the informational utility approach, which holds that people intend to spend more time on information of higher salience (Knobloch et al., 2003; Knobloch et al., 2005).
Together, both findings support the “newsworthiness” proposal that social media preference is based on a cost–benefit evaluation (Berthelsen & Hameleers, 2021; Schröder, 2015; Schröder & Steeg Larsen, 2010) and further suggests that the evaluation can be shaped by technological attributes and contextual factors.

Interestingly and contrary to assumptions, reliance on proximal cues and reliance on recommendation systems depend on separate predictors. The model shows that expectations for social media attributes predict users’ reliance on recommendation systems as a means of staying informed but not reliance on proximal cues; by contrast, social instability message priming exclusively predicts users’ reliance on proximal cues. The result may be influenced by the reliance-on-recommendations scale’s poor reliability; however, we believe that it should not be a prominent factor because the CFA and SR models still achieved good fits. This finding can be explained by the following rationale: people want to use recommendation systems to keep abreast of relevant issues, as hypothesized, but they do not expect to be fully informed by proximal cues alone. For users, proximal cues might function merely as “filters” to filter out topics that do not require much attention; therefore, whether proximal cues on social media feeds can sufficiently inform them does not matter. By contrast, proximal cues as filters should be capable of sensitizing users when delivering social instability messages. Indeed, in this experiment, people’s intentions to click on and read for further information about an issue (i.e., not relying on proximal cues to stay informed) increased after exposure to social instability messages. This finding again stresses that studying media uses and gratifications produces insightful findings by disaggregating a medium into its attributes, along with how users interact with them. The technological features of social media shape human behavior. Because most studies link social media technological features with expressive and entertainment use (e.g., Jaidka et al., 2019; Smock et al., 2011), this study adds to the literature by focusing on social media’s new informational modality and navigability affordance, which provides important implications for an informing society but to date has received little coverage.

Exposure to messages of social instability is not only a predictor of reliance on proximal cues but also moderates the effect of attribute expectations on users’ reliance on recommendation systems and the direct effect of attribute expectations on users’ substitutive social media use. Both effects are significant when participants are exposed to messages of low social instability but are absent for those exposed to high social instability messages. Several scholars have expressed concern about social media news use, claiming that it creates an illusion of knowledge (Schäfer, 2020), discourages conventional news use (e.g., Müller et al., 2016; Park & Kaye,
and ultimately shapes a “less knowledgeable public” (Gil de Zúñiga et al., 2017, p. 119). However, the findings suggest that people use social media more strategically than we often assume. Users will rely on social media news recommendations in the belief that they can reduce news-seeking efforts but only when society is perceived as stable. Once they encounter messages indicating social instability on their timelines, they rely less on proximal cues, except as prompts to read the full stories, and actively turn away from social media alone toward other news media in search of more information about the issue.

This strategic news media use is in line with Papacharissi’s Papacharissi (2009) claim that the Internet benefits monitorial citizenship. This finding also partly explains why social media news is overwhelmingly preferred in China (Kuang, 2019). Social stability maintenance is a key agenda of state-owned media (Meng, 2018). Journalists tend to frame conflict issues in a positive light by praising governmental efforts (Chen, 2013; Xia & Wang, 2012) and tend to avoid reporting “sensitive” conflicts between social classes (Xia & Wang, 2012). Social media censorship and issue framing (Gunitsky, 2015; King et al., 2013) also reduce the visibility of messages indicating social instability in the Chinese context. When citizens monitor their surroundings through social media and fail to detect any risk issues worthy of their attention, they do not seek more information from sources other than easily accessible social media.

Of course, it is far too early to conclude that the monitorial citizen ideal has been realized. It is yet to be confirmed whether social media is sufficient for monitoring all important issues concerning—for example—media accountability (Peters, 2019) or people’s lack of political interest (Ytre-Arne & Moe, 2018). Researchers should further explore the threshold at which citizens focus their attention on an issue and the extent to which this threshold is subject to personal and contextual differences.

The present study has several limitations. First, the expectation-for-cues and expectation-for-recommendations manipulations were not successful, although both were similarly differentiated from the low-expectations condition. Social desirability bias may also have exerted an influence: social media is generally regarded as a less desirable news source; therefore, even participants who frequently use social media are unlikely to believe that social media can keep them sufficiently informed, though they are likely easily persuaded that social media are not capable of doing so (in the low-expectation condition). Moreover, the expectations for separate attributes of the same medium may have been too nuanced or too technical for most audiences to differentiate. Arguably, many participants simply developed a general impression (positive or negative) of social media’s capability of informing in both conditions. Second, the study did not explore the
perception mechanisms that operate following exposure to messages of social (in)stability: whether the exposure indeed leads to increased perceived social instability remains unclear. Third, the reliability of the reliance-on-recommendations scale was not ideal. Although the CFA and SR model still achieved a good fit, a more reliable scale should be designed to further validate the results. Finally, we measured reliance on proximal cues and recommendation systems based on self-reported intentions. Although intention is a strong predictor of actual behavior (e.g., Ajzen, 1991), it cannot be equalized. Thus, the findings with respect to behavioral outcomes should be interpreted with caution.

Notes
1. For more details of the preregistration, please see the following: https://osf.io/etj9g?view_only=8b931da1d4474811bbbe2ff71bae9e. All appendices are available in the preregistered project storage: https://osf.io/uyrqv/?view_only=8b931da1d4474811bbbe2ff71bae9e.
2. Not all participants summarized correctly (n = 7). However, they were included because they were more poorly educated than the others (p = .054, df = 6.06, Mdiff = 0.90, SD = 0.38, 95%CI = [-0.02, 1.83]) and excluding them would have introduced bias.
3. Although the chi-square difference test is significant, it is not a problem in our case because a sample size greater than 400 always returns a significant chi-square result (Kenny, 2020).

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References


