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Examining the relationship between dispositional news literacy and discernment of real and misleading news

Cross-national evidence

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Abstract

The importance of news literacy to attenuate belief in and spread of misinformation has been emphasized by scholars and educators in recent years. This research note presents the first cross-national evidence demonstrating how dispositional news literacy (NL) helps individuals discern real and false news on social media. Respondents in the United States (N = 205), United Kingdom (N = 205), and Hong Kong (N = 222) saw 10 real and 10 false social media posts in random order in their native languages and rated the veracity of each one. Regression analyses showed that higher news literacy was related to better discernment of real and false headlines in the US and UK samples, but only real news items for the Hong Kong sample. Our findings demonstrate the utility of a holistic measure of news literacy proposed by researchers that can be applied to comparative contexts. Moreover, it shows the normative benefits of dispositional news literacy to engender better news veracity discernment in different societies around the world.

Keywords: news literacy, misinformation, fake news, news discernment, comparative study,

Word count of research note (not including abstract and references): 3380

Dispositional news literacy helps individuals discern real and misleading news on social media: Cross-national evidence

While the 2016 US Presidential election and UK Brexit referendum are oft-cited exemplars on the nefarious consequences of false news circulating on social media (e.g., Humprecht, Esser, & Van Aelst, 2020; Weeks & Gil de Zúñiga, 2019), misinformation is a phenomenon that traverses all regions globally (Chan, 2022; Siles, Tristán, & Carazo, 2021; Wasserman & Madrid-Morales, 2019). Thus, how to attenuate the spread and effects of misinformation on social media has been a pressing global concern among different stakeholders in society including policymakers, educators, and academics alike.

Much scholarship has sought to understand why people believe in and share false or misleading news (see review by Pennycook & Rand, 2021) and different solutions have been proposed at different levels to mitigate it. At the policy level some governments have enacted laws specifically to tackle “fake news” (Vese, 2021). At the organizational level social media companies introduced fact-check labels and/or warnings to accompany misleading news (Nekmat, 2020). An emerging and promising strand of scholarship in recent years has focused on the individual by explicating the role of *news literacy*, such that greater aggregate levels among the citizenry can be effective to resist and negate the belief and spread of false news (Tully, Maksl, Ashley, Vraga, & Craft, 2021). Its benefits lay not only in its practical utility to help citizens discern what is real or false online, but also its normative benefits as media literate citizens tend to be critical thinkers that are more engaged in civic life (Mihailidis & Thevenin, 2013). Available cross-national evidence however suggested that news literacy—operationalized as knowledge of news production—is rather low globally (Newman, Fletcher, Kalogeropoulos, Levy, & Nielsen, 2018). Of 36,911 respondents surveyed from 18 countries in the 2018 Reuters Digital News Report, 32% of them did not know which news outlets in their country did not rely on advertising for financial support;

which person typically writes press releases; and how news is selected to appear on social media platforms. Only 34% got one of the answers correct. Levels of news literacy at the population level appear far from ideal, which represents a challenge but also an opportunity.

More pressing however is the need to examine whether increased news literacy does indeed increase citizens' discernment of real and false news that appear on social media. Present evidence is relatively scant and is derived predominantly from studies using American samples (e.g., Amazeen & Bucy, 2019; Ashley, Craft, Maksl, Tully, & Vraga, 2022). Given that misinformation is a global issue there is a need for comparative studies that is currently lacking. This study fills this gap by applying a theoretically derived holistic measure of news literacy among the general online population in the US, UK, and Hong Kong, and examining whether it predicts veracity discernment of news headlines from social media posts. Narratives surrounding misinformation and 'fake news' have been very salient in the US and UK for obvious reasons. Similarly, misinformation has become more prominent in Hong Kong as it was used by both pro- and anti-government factions during the 2019 anti-extradition protests (Lee, 2020). These three societies thus provide diverse political and cultural contexts to examine the efficacy of news literacy as a potential bulwark against misinformation.

News Literacy and Discernment of Real and False News

Media literacy education and research have been decades-long endeavors that focus on improving peoples' abilities to "access, analyze, evaluate and create messages across a variety of contexts" (Livingstone, 2004, p. 3). Thus, how to engender critical news consumers has long been a subject of interest for media literacy scholars (e.g., Mihailidis, 2012), yet there is still debate on what constitutes news literacy and whether it is a field in its own right or it is one aspect of media literacy (Kajimoto & Fleming, 2019). More agreeable is that news literacy is fundamentally concerned with the news, and recent theorizing in communication

scholarship sought to provide greater conceptual clarity by distinguishing news literacy (NL) from news literacy behaviors (NLB) (Vraga, Tully, Maksl, Craft, & Ashley, 2021). The former comprises the knowledge of news production, distribution, and consumption; and the skills in utilizing such knowledge. The latter emphasizes the application of NL when people encounter the news, of which “identifying misinformation” is one pertinent context (Vraga et al., 2021). Moreover, Vraga et al. (2021) viewed NL as a holistic concept that consists of five dimensions (the 5Cs): the environment (context) and processes (creation) in which the news is produced and its specific characteristics (content) that are then distributed to audiences (circulation) who pay attention to and evaluate (consumption). For example, news literate individuals would likely be more skeptical of outlandish claims or assertions made by certain news headlines posted on social media (Vraga & Tully, 2019), especially if the original source of the news is unfamiliar.

NL research is further divided into two types. The first is *intervention-based* NL where NL messages (i.e., a tweet reminding users to be critical of the news they consume) are implemented close to or at the moment of false news exposure with the goal to attenuate favorable attitudes or belief in misinformation (Vraga, Bode, & Tully, 2022). The second, which is the focus of this study, is *dispositional* NL, which is called upon from long-term memory when one encounters the news. It can be learned in different ways, such as through formal news literacy curricula (Fleming, 2014) or personal experiences (Chan, Lee, & Chen, 2021). Thus, people who are knowledgeable about the processes and dynamics of news production, distribution, and consumption should be better able to discern the veracity of the news they come across. Recent studies provided support for this assertion, showing that dispositional NL increases discernment of general false news (Amazeen & Bucy, 2019) and misleading COVID-related news in the United States (Ashley et al., 2022) and Hong Kong (Chan, 2022). But how robust is this relationship given that previous research focused on

different issues and topics in different parts of the world? This study addresses this question with a most different systems research design where the same news literacy questions and misleading news headlines are presented to respondents in the US, UK, and Hong Kong to answer the following general hypotheses:

H1: People with higher levels of news literacy are (a) more likely to perceive real news headlines as accurate, and (b) less likely to perceive fake news headlines as accurate.

H2: People with higher levels of news literacy can better discern that (a) real news headlines are real, (b) fake news headlines are fake.

Method

Sample

To determine the sample size for the study we conducted a priori power analysis using G*Power (Faul, Erdfelder, Lang, & Buchner, 2007). With a desired power of $1 - \beta = .80$, a conservative statistical significance level of $\alpha = .01$, and the ability to detect a medium effect size ($F = .15$) for linear regression and a 30% increase in the dependent variable with a 1-unit increase in the predictor for Poisson regression, the recommended sample sizes were 148 and 166, respectively. Respondents for each of the three samples were then recruited through the panel company Cint with a target sample of 200. Quotas for age and gender were used to achieve representative samples based on the latest census data. Online surveys in their native languages were all fielded in 2023—February 20-22 for the US, February 23-24 for the UK, and March 1-3 for Hong Kong. The response N/final valid sample was 403/203 for the US; 394/205 for the UK, and 276/222 for Hong Kong. Respondents were not included in the final sample for several reasons, including survey incompleteness, demographic quota already met, refusal to participate, and being a non-Facebook user.

Procedure and Measures

After reading the introduction and purpose of the survey “to understand how users make sense of and understand content posted on social media” and providing informed consent, respondents were presented with a series of demographic-related questions (i.e., gender, age, education) followed by a battery of questions on media use and attitudes adapted from the Reuters Institute Digital News Report (Newman, Fletcher, Robertson, Eddy, & Nielsen, 2022). This included *Facebook use* (“Typically, about how often do you use Facebook?”) with answers ranging from “Never” (0) to “More than 10 times a day” (10). Those who answered “Never” were excluded from the remainder of the survey. *News use* was measured with the question “Typically, how often do you access the news via any platform such as newspaper, TV, radio and online?” (0 = “Never” to 10 = “More than 10 times a day”) and news interest were measured with the question “How interested, if at all, would you say you are in news?” (1 = “Not at all interested” to 5 = “Extremely interested”). *Ideology* was also measured for the US and UK samples with the question “Some people talk about 'left', 'right' and 'center' to describe parties and politicians. With this in mind, where would you place yourself on the following scale?” (1 = “Very left-wing” to 7 = “Very right-wing”). The left-right distinction is not applicable to the Hong Kong context. To measure *news literacy* respondents were presented with 10 multiple choice questions in random order that followed the five dimensions of news literacy proposed by Vraga et al. (2021). The same questions were presented in all three samples though the answer choices for some had to be adapted for the specific context (i.e., names of media brands, see online Appendix A for question and answer wordings). Correct answers were summed to form an overall score.

Respondents were then presented with 10 real and 10 false Facebook posts from a pool of 40 items in random order (See online Appendix B). To simulate the ‘wall browsing’ experience five posts were presented on a page and then another five posts, and so on. The

same news posts were applied across all three samples with only adjustments made for language and currency amounts, such as “McDonald’s workers in Denmark make \$50 an hour” in the US being revised to £40 and \$400 for the UK and Hong Kong, respectively. All false headlines were sourced from fact-checking websites such as Snopes and PolitiFact. The real headlines comprised factual versions of the false headlines and other verified news information. To measure *perceived accuracy* of the post respondents were asked “What do you think about the accuracy of the post?” which appeared under every post. The answer choices included: “I am sure it is inaccurate” (1), “I think it could be inaccurate” (2), “I am not sure if it is accurate or inaccurate” (3), “I think it could be accurate” (4), and “I am sure it is accurate” (5). Finally, respondents were debriefed on the true purpose of the research and were informed about the veracity of the real and false posts and relevant fact-check sources. They then confirmed whether they agree or disagree to allow their responses to be used for subsequent analysis. Respondents who “do not agree” were removed from the final sample and their responses were deleted.

Results

Descriptive statistics showed that respondents on average rated real news posts higher on accuracy than false news in the US (Real: $M = 3.4$, $SD = 0.7$; False: $M = 3.2$, $SD = 0.8$) and Hong Kong (Real: $M = 3.0$, $SD = 0.6$; False: $M = 2.8$, $SD = 0.6$), but lower for the UK (Real: $M = 3.2$, $SD = 0.6$; False: $M = 3.5$, $SD = 0.7$). Respondents in the US were able to correctly discern the veracity of 8 of the 20 posts ($SD = 3.1$) while the figures were 8.3 ($SD = 3.5$) for the UK and 7.5 ($SD = 3.0$) for Hong Kong. Overall news literacy scores were relatively low among the three samples, consistent with previous comparative data (Newman et al., 2018). The median number of correct answers was four for UK and Hong Kong and three for the US out of 10 (US: $M = 3.2$, $SD = 1.8$; UK: $M = 4.4$, $SD = 1.9$; HK: $M = 3.8$, $SD = 1.7$).

News Literacy and Perceived Accuracy of News Posts

Linear regression analyses with clustered robust standard errors (by respondent) were used to examine whether news literacy predicted perceived accuracy of real headlines (H1a) and inaccuracy of false headlines (H1b). As shown in Table 1 below, higher news literacy was related to perceived inaccuracy of false news headlines for the US and UK samples and perceived accuracy of real news headlines for the UK and Hong Kong sample. Education level in the US sample was the only other variable that discriminated accuracy of false and real news, such that lower education was related to perceived accuracy of false news while higher education was related to perceived accuracy of real news.

[Table 1 about here]

News Literacy and Correct Discernment of Real and False Posts

We recoded the perceived accuracy variable such that “1” and “2” represented correct discernment of *false news as false* and “4” and “5” as *real news as real*. The two values were also summed to create a measure of *total* correct discernment of false and real news. As the newly formed variables represented count data, we ran Poisson regression models with clustered robust standard errors to test whether higher news literacy was related to correct discernment of real (H2a) and false headlines (H2b). As shown in Table 2 below, the patterns of false and real discernment were like the previous analyses. The one notable addition was that news literacy was marginally significant in predicting real news discernment in the US sample. Thus, respondents in the US and UK with higher news literacy were more likely to discern false news headlines while those in the US, UK and Hong Kong with higher levels were more likely to discern real news headlines. For total news discernment news literacy was related to overall discernment of false and real news headlines in the US and UK samples.

[Table 2 about here]

Discussion

Misinformation is a global problem and efforts to mitigate its nefarious societal consequences have spanned different levels with varying levels of effectiveness. Some scholars and educators have emphasized a more audience-centered perspective by advocating the role of news and other related literacies as an effective bulwark against the belief and spread of misinformation (Mihailidis & Thevenin, 2013; Vraga et al., 2021). However, while it is theoretically and intuitively sound to claim that higher news literacy engenders more critical news consumers who are better able to discern the veracity of news on social media, substantive empirical evidence for the relationship is lacking and confined mostly to the US context. The latter also inhibits a more holistic understanding of news literacy and misinformation because much of the US-based research is couched within the liberal/conservative and Democrat/Republican political divides that are less applicable to other parts of the world.

This study offers the first cross-national evidence that news literacy—operationalized as knowledge of the conditions in which news is produced, disseminated, and consumed—predicts discernment of true and false news headlines. Specifically, in all three samples greater news literacy predicted discernment of real news headlines while in the US and UK it predicted discernment of false news headlines. A possible reason why news literacy did not predict discernment of false news in Hong Kong was that the false news items were derived predominantly from US sources such as Snopes and PolitiFact; such that the tone and semantic style in which the false headlines were written and then translated into Chinese may have resonated less with Hong Kong audiences. Given that this was the first cross-national comparative study examining news literacy we took steps to ensure that all respondents answered the same questions and received the same stimuli. However, future studies might need to consider adding stimuli that are more culturally meaningful for local samples.

Even though none of the 40 items in our pool were directly related to politics (i.e., not mentioning any specific politician or political party), we found that those with a right-wing political ideology in the US were more likely to perceived false news as accurate and those in the UK were better able to discern false news. Our US findings were consistent with previous research showing that conservatives were more susceptible to false news (Garrett & Bond, 2021) and the potential positive benefits of news literacy were attenuated for those who were more conservative compared to liberals (Ashley et al., 2022). The case of the UK is more intriguing and can be the focus of future research. In any case, while political orientations were not the main focus of this study, future comparative studies should continue to theorize and test contextually relevant political and/or non-political orientation variables that may moderate the effects of dispositional news literacy on news veracity discernment. The Democrat/Republican dynamic in the US and its role in false news discernment is well documented (see Pennycook & Rand, 2021), but in societies like Hong Kong and the UK the traditional left/right and political party divides are less salient and other variables could be more relevant and important moderators.

In terms of normative and policy level implications, this study demonstrates the benefits for the general population who go online to have high levels of news literacy. The higher the aggregate levels of news literacy the greater likelihood that false news can be identified and subsequently not shared. Yet, formal media and news literacy programs and initiatives are typically implemented at the school and university levels (Chu & Lee, 2013; Fleming, 2014). A life span based approach would be necessary to engender greater news literacy among the general population, which might require different strategies and public awareness programs for different age cohorts (Rasi, Vuojärvi, & Ruokamo, 2019). Communicative strategies should also clearly target news literacy (NL) rather than news literacy behaviors (NLB). For example, public service announcements broadcasted on TV

and radio in 2019 by the Hong Kong government encouraged citizens to “check facts before jumping to conclusions” targeted the NLB of “news verification” rather than one or several of the 5Cs of news literacy itself (Vraga et al., 2021). In terms of conceptual and methodological contributions, the study demonstrated the cross-national applicability of a news literacy scale incorporating the 5Cs (Vraga et al., 2021) that were applied to all three samples with minor revisions to the answer choices for local context. While the 10-item scale used in this study provided a holistic measure of news literacy with good content validity, a greater number of questions in future applications of the scale would be useful to confirm the factor structure of the various dimensions of the concept. Moreover, it would be possible to uncover which of the Cs, if any, are more prominent for news veracity discernment (i.e., context, creation, content, circulation, consumption), which can then inform education curricula and public awareness campaigns.

Two specific limitations of the study should be noted. First, while our analyses were adequately powered to uncover ‘main effects’ they were not sufficient to test possible interactions where the effects of news literacy are conditioned by additional variables (e.g., news literacy by political ideology). Future studies testing significant interactions should ensure that they are adequately powered. Secondly, to maintain comparability across samples we purposefully did not use news stimuli directly related to local politics, which comprise a significant proportion of false information at the local level. Therefore, the findings may not be generalizable to local political issues though there were many false news headlines related to the environment, health, and science among the pool of items used in our study. In all, news literacy is just one of several possible ways to mitigate the belief, spread, and effects of misinformation. Yet, having the knowledge and skills to navigate the news offer not only practical benefits, but also the possibility that news literate citizens would become engaged citizens who are competent to “navigate the digital landscapes that offer them space for

expression, participation, collaboration, and engagement in civic life” (Mihailidis & Thevenin, 2013, p. 1618). These potential normative benefits mean that global and comparative research should continue to examine the antecedents of news literacy and how it engenders greater news veracity discernment.

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