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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) is related to individuals' discernment of true and false news on social media. Respondents in the United States (*N* = 205), United Kingdom (*N* = 205), and Hong Kong (*N* = 222) saw 10 true and 10 false social media posts in random order in their native languages and rated the accuracy of the posts. Regression analyses showed that higher news literacy was related to better discernment of news veracity in all three samples, though the pattern of discernment differed. Our findings demonstrate the utility of a holistic measure of news literacy that can be applied to comparative contexts. Moreover, they show the normative benefits of dispositional news literacy that could promote better news accuracy discernment in different societies around the world.

Misinformation is a global issue that affects many countries around the world (Chan, 2022; Siles, Tristan, & Carazo, 2021; Wasserman & Madrid-Morales, 2019; Weeks & Gil de Zúñiga, 2019). How to attenuate its spread and effects on social media has thus been a pressing concern among policy-makers, educators, academics, and citizens alike, even though some scholars have cautioned against "alarmist narratives" surrounding the phenomenon (Altay, Berriche, & Acerbi, 2023) and asserted that the prevalence of misinformation is no worse nowadays than in the pre-social media era (Nyhan, 2020). Nevertheless, 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 individual level, an emerging and promising strand of recent scholarship has highlighted the role of news literacy, which may help individuals discern between true and false news and, thus, reduce the spread of misinformation (Tully, Maksl, Ashley, Vraga, & Craft, 2021). Available cross-national evidence, however, suggests that news literacy—operationalized as knowledge of news production—is rather low globally (Newman et al., 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 three answers correct. Thus, levels of news literacy at the population level appear to be far from ideal, which represents a challenge but also an opportunity.

Even more pressing, however, is the need to examine whether increased news literacy is indeed related to citizens' discernment of true and false news that appears on social media. Present evidence is relatively scant and is derived predominantly from studies using U.S. samples (e.g., Amazeen & Bucy, 2019; Ashley, Craft, Maksl, Tully, & Vraga, 2022). Given that misinformation is a global issue, the lack of comparative research limits our understanding of the problem and our ability to identify effective solutions to it. This study begins to fill this gap by comparing the United States, United Kingdom, and Hong Kong. These societies are diverse geographically (i.e., in North America, Europe, and Asia) and politically (i.e., a presidential democracy, a parliamentary democracy, and a hybrid regime). Yet, there are similarities in their information environments. All three have high levels of social media use among citizens. Facebook alone has a penetration rate of 90%, 82%, and 86%, respectively (Internet World Stats, 2023). Moreover, in all three countries, the problems of "fake news" and "misinformation" have been prominent topics of public discourse and academic research in recent years, focusing on topics such as electoral politics in the United States (Weeks & Gil de Zúñiga, 2019) and the

United Kingdom (Vaccari, Chadwick, & Kaiser, 2022), and the anti-extradition protests in Hong Kong (Lee, 2020). From the user perspective, over half of online citizens in the three cases reported that they were concerned with the veracity of information online, and over half claimed they had come across at least one kind of false or misleading information in the previous week (Newman et al., 2021) (See Supplementary Appendix A3). Thus, these are suitable cases to examine to what extent the efficacy of news literacy on news veracity discernment is generalizable under different geographical, political, and cultural contexts where misinformation is perceived to be prevalent and a serious societal problem.

News Literacy and Discernment of True 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 nurture critical news consumers has long been a concern for media literacy scholars (e.g., Mihailidis, 2012). News literacy can be considered a facet of media literacy that uniquely focuses on the dynamics and processes of news production (Kajimoto & Fleming, 2019). More formally, news literacy (NL) is defined as "knowledge of the personal and social processes by which news is produced, distributed, and consumed, and skills that allow users some control over these processes" (Vraga, Tully, Maksl, Craft, & Ashley, 2021, p. 5). This is analogous with Potter's (2004) cognitive framework of media literacy that emphasizes the acquisition of *knowledge* and *skills* to navigate the media environment. Similarly, in the two-part framework of Vraga et al. (2021), NL comprises the knowledge of news production, distribution, and consumption, while news literacy behaviors (NLB) refer to relevant NL "skills" that include "identifying misinformation" among them. Intervention-based NL involves NL messages (i.e., a tweet reminding users to be critical of the news they consume) that are implemented close to the moment of false news exposure to attenuate belief. This study focuses on *dispositional* NL that is learned through formal curricula or personal experiences of interacting with media (Chan, Lee, & Chen, 2021; Fleming, 2014), and called upon from long-term memory when one encounters the news. Knowledge of politics enables citizens to process news, understand current affairs, and participate in politics (Galston, 2001). Similarly, when people come across a news headline whose veracity is uncertain, their discernment of the content is largely dependent on their prior experiences and knowledge of news production. For example, individuals who are knowledgeable about the characteristics of journalistic writing tend to be more skeptical of overblown or somewhat implausible claims in headlines. Indeed, recent studies have shown that NL was related to the 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).

Similar to Potter's (2004) notion of "knowledge structures" that comprise different components of media knowledge such as media industries, media content, and media effects, Vraga et al. (2021) conceptualized 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 it (consumption) (see Supplementary Appendix B1). However, a factor analysis of the scale showed it to be unidimensional (Ashley et al., 2022), which limits our theoretical understanding of which of the "Cs" is related to the discernment of news veracity. Thus, as a first step, we follow the more holistic conception of NL where discernment of news veracity likely draws from a combination of the 5Cs, consistent with Potter's (2004) assertion that "the more knowledge structures we have, the more confident we can be in making sense of a wide range of messages" (p. 34). We thus raise the following hypothesis:

> H1: There will be an interaction effect between news literacy and the veracity of headlines, such that higher levels of news literacy are related to increased discernment of false and true headlines.

In the next step, we also consider the factor structure of NL, which may offer deeper theoretical insights as to which of the 5Cs are related to news veracity discernment.

Method

Sample

Respondents for each of the three samples were recruited through the panel company Cint. Quotas for age and gender were used to achieve representative samples based on the latest census data (See Supplementary Appendix A1). Online surveys in respondents' native languages were all fielded in 2023—February 20–22 for the United States, February 23–24 for the United Kingdom, and March 1–3 for Hong Kong. The response N/final valid sample was 403/203 for the United States; 394/205 for the United Kingdom, and 276/222 for Hong Kong. Respondents were not included in the final sample for several reasons, including failure to complete the survey, demographic quota already met, failing two attention check questions, and refusal to participate after accessing the survey. Non-Facebook users were also excluded as the stimuli were designed to resemble Facebook posts that are familiar to Facebook users.

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 was 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 U.S. and U.K. 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 and thus we did not ask this question. To check that respondents were paying attention, they were asked to select "Rarely" from five frequency items that appeared in random order.

To measure *news literacy* respondents were presented with 10 multiple-choice question items in random order. The same questions were presented to all three samples though the answer choices for some had to be adapted for the specific context (i.e., names of media brands, see Supplementary Appendix B2). Correct answers were summed to form an overall score. Then, we used Item Response Theory (IRT) to ascertain the factor structure and reliability of the scale for each country. Similar to Ashley et al. (2022), the analyses revealed a unidimensional news literacy scale. To improve the model fit of the scale for each country sample, we removed question items with factor loadings below .40. The final revised news literacy scale thus comprised eight questions for the U.K. sample and six questions for the pooled, U.S., and HK samples, with empirical reliability scores of .68, .53, .62, and .78, respectively (see Supplementary Appendix B3 for procedures). Respondents were then presented with 10 true and 10 false Facebook posts from a pool of 40 items in random order. To simulate the experience of the "news feed," five posts were presented on a page and then another five posts, and so on, with relevant questions appearing under each post. The same news posts were used across all three samples with only adjustments for language and currency amounts. For instance, the statement "McDonald's workers in Denmark make $50 an hour" in the United States was revised to equivalent amounts for the United Kingdom and Hong Kong. All

false headlines were sourced from fact-checking websites such as Snopes and PolitiFact. The true headlines comprised factual versions of the false headlines and other verified news (See Supplementary Appendix C1). To measure *perceived accuracy* of the post respondents were asked "What do you think about the accuracy of the post?" after seeing each 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). The same attention check question described above was repeated after participants had seen the first ten posts. Finally, respondents were debriefed on the true purpose of the research and were informed about the veracity of the true and false posts based on relevant fact-check sources. They then confirmed whether they agreed or disagreed that their responses be used for subsequent analysis. Respondents who did not agree were removed from the final sample, and their responses were deleted.

Results

News Literacy and Perceived Accuracy of News Posts

We ran multilevel regression models that allowed the intercept to vary for each participant, and control variables were included as fixed effects (Guay, Berinsky, Pennycook, & Rand, 2023; Vaccari, Chadwick, & Kaiser, 2022). The dependent variable was the perceived accuracy of each news post, and the core independent variables were measures of news literacy and post veracity (true or false). As shown in Table 1, the negative and significant coefficients for post veracity indicated that respondents in all samples (pooled and by country) rated the false posts as less accurate compared to

Table 1. Multilevel Regression Models Predicting Perceived Headline Accuracy

	Pooled sample		U.S. sample		U.K. sample		HK sample	
	Main model	Interaction model	Main model	Interaction model	Main model	Interaction model	Main model	Interaction model
Fixed effects								
(Intercept)	2.30***	2.16***	2.13***	2.01***	2.54***	2.30***	1.42***	1.32***
Gender (Female)	.14***	.14***	−.08	−.08	.17*	.17*	.30***	.30***
Age	.00	.00	−.00	−.00	−.00	−.00	.01***	.01***
Education	.10***	.10***	.08*	.08*	.00	.00	.12***	.12**
Facebook use	.01	.01	−.01	−.01	.04	.04	−.00	−.00
News use	.01*	.01**	.06*	.06*	.02	.02	−.03	−.03
News Interest	.04***	.04***	.24***	.24***	.07	.07	.09*	.09*
Ideology (Right)			.05	.05	−.02	−.02		
News literacy	−.02**	.04***	−.10*	−.04	−.02	.05	.04	.08*
Post veracity (False)	−.29***	−.01	−.23***	.00	−.42***	.06	−.23***	−.03
News literacy × Veracity (False)		−.13***		−.13***		−.13***		−.08***
Marginal R^2	.03	.04	.09	.10	.05	.06	.08	.08
N (Observations)	12,580	12,580	4,080	4,080	4,060	4,060	4,440	4,440
N (Sample)	629	629	204	204	203	203	222	222
N (Posts)	20	20	20	20	20	20	20	20

Note. Only fixed effects are displayed although all models include random intercepts for each respondent and post.
***$p < .001$, **$p < .01$, *$p < .05$.

the true posts. To test H1, we added an interaction term to the main model to examine whether perceived accuracy of true and false posts varies at different levels of NL. All interactions were negative and significant. As shown in Figure 1 for the pooled sample, as NL increases so does the discernment of true and false news, consistent with our hypothesis. But there were more nuanced findings by country. While the pattern in the United Kingdom was consistent with that for the pooled sample (Supplementary Appendix D: Figure 2), higher NL was related to a better discernment of false news but not true news in the United States (Supplementary Appendix D: Figure 3), and the reverse pattern was found in the HK sample (Supplementary Appendix D: Figure 4), where higher NL was related to better discernment of true but not false news. As a robustness check, we also reran all analyses with the original 10-item NL scales, and the results were consistent with the revised NL scales (Supplementary Appendix B3). Finally, although this was not the focus of this study, we also ran additional multilevel models that interacted post-veracity with the other independent variables (Supplementary Appendix E).

Discussion

This study offers the first cross-national evidence that dispositional news literacy predicts discernment of news headline veracity. Moreover, it lends support to the two-part *knowledge-skills* framework proposed by Potter (2004) for media literacy and applied by Vraga et al. (2021) for news literacy. In all three samples, the perceived accuracy of true and false posts diverges as NL increases, but the pattern of divergence differed. The U.K. results exhibited perhaps the "ideal" pattern where NL increases discernment of *both* true *and* false posts. As noted, the U.K. sample had higher levels of NL (i.e., a median score of 4 versus 3 in the US and HK). A possible contextual factor is the strength of public service media (PSM) that features more hard news and higher quality journalism that are conducive to building NL (Soroka et al., 2012). NL is also higher in Nordic countries like Sweden and Denmark (Fletcher, 2018), which also have strong PSM. This suggests that PSM could be an important systemic feature that attenuates the belief in and, possibly, spread of misinformation (Humprecht, Esser, & Van Aelst, 2020). Interestingly, higher NL in Hong Kong increased perceived accuracy of true news, but not false news. Hong Kong citizens may be more skeptical
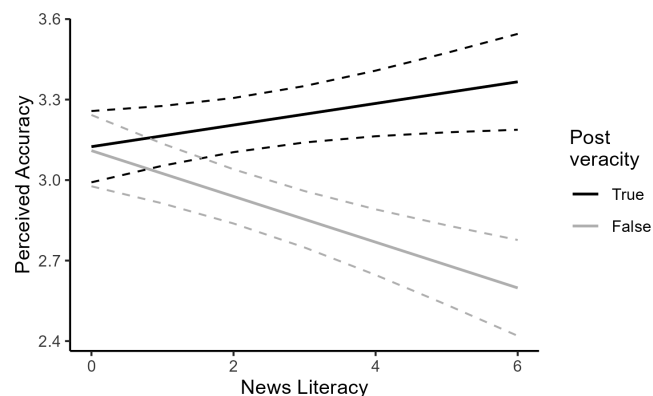
of news veracity in general due to low media trust, as more critical media outlets in the city state have closed or were shut down after the enactment of the National Security Law (NSL) (Lee & Chan, 2022). Thus, NL only increased the perceived accuracy of true news, which raised perceived accuracy above the mid-point. This speaks to the contextual role of media trust on perceived accuracy where citizens with low levels of media trust could be less motivated to put the effort into discerning false news (Humprecht et al., 2020). Another possible reason is that the false news items were derived predominantly from U.S. sources such as Snopes and PolitiFact, and the tone and semantic style of the false headlines may have resonated less with Hong Kong audiences when translated. Future studies might need to consider using stimuli that are more culturally meaningful for local samples. The case of the U.S. findings was the opposite where greater news literacy increases discernment of false news and not true news. Notably, the mean accuracy scores of true and false news were above the mid-point, which indicates a tendency toward believing the news regardless of veracity (i.e., the "truth bias"; Luo, Hancock, & Markowitz, 2020). A possible explanation is the polarized media environment in the United States where citizens selectively consume offline and online news that already align with their existing political views (Peterson, Goel, & Iyengar, 2019). This is complemented by a very salient discourse on "fake news" in the United States since the 2016 Presidential Election where the emphasis has been on how to "spot" false news rather than on general discernment of news veracity (Guess et al., 2020). These interpretations are tentative, but the different patterns of veracity discernment uncovered in this study are indicative of higher-order country-level factors that shape the antecedents and consequences of misinformation, which can be included in future cross-national research.

Theoretically, our use of IRT to assess the factor structure of the NL scale also provided the first empirical evidence that certain "Cs" of the NL scale (Vraga et al., 2021) may have stronger linkages than others to news veracity discernment. As shown in Supplementary Appendix B3 (Table 2), knowledge of *context* (i.e., the environment in which the news is produced) and *creation* (i.e., the norms and characteristics of journalism) were particularly salient across all samples. It is understandable that context could play a role because social media platforms are not producers of news. Rather, they serve as intermediaries of news that may not have been vetted by professional gatekeepers (Klinger & Svensson, 2015), which allows news of questionable veracity to spread in the social media space. Therefore, individuals who are more aware of the dynamics of news posting and sharing on social media might be more vigilant against more sensationalist headlines such as those claiming that human waste is dumped from aircraft while airborne. Similarly, people who are more familiar with the norms and styles of journalistic writing might find headlines claiming that "NASA has faked images of Mars" to be somewhat exaggerated and misleading. Although these are speculative interpretations, they highlight the need for future studies to ascertain the structure of the news literacy scale with larger samples and more rigorous scale development and validation procedures and to further test which of the Cs are more relevant for the discernment of news veracity. It is possible that some Cs are generalizable across all countries, while others are more specific to particular contexts, which could perhaps explain why the reliability of the NL scale was lowest for the pooled sample compared to the country-specific samples.

Figure 1. Interaction of news literacy and post veracity on perceived accuracy of headlines (Pooled sample).

In terms of normative and policy-level implications, this study demonstrates the benefits of news literacy for the population. The higher the aggregate levels of news literacy, the greater the likelihood that false news can be recognized and, to the extent that most people are unlikely to pass on information they believe to be false, not shared (Vaccari et al., 2022). 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 and sustain greater news literacy among the general population, which might require different strategies and public awareness programs for different age cohorts (Rasi et al., 2019).

Some limitations of the study should be noted. First, to maintain comparability across samples, we purposefully did not use news stimuli directly related to politics, which arguably comprise a significant proportion of false information. 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 (see Supplementary Appendix C1). Second, the experimental stimuli did not include source cues that are common in social media posts, but this was necessary to maintain the internal validity of the findings, consistent with previous research. Future studies may also integrate popularity cues (e.g., "number of "likes") as an additional experimental condition (Luo et al., 2020). Third, the normative benefits of NL, such as increased skepticism toward outlandish news content (Vraga & Tully, 2019), could be potentially counteracted by increased cynicism toward the news and the media more generally. Thus, future research should also explore the potentially negative aspects of NL (boyd, 2017).

News literacy is just one of several possible ways to mitigate the effects of misinformation. Previous studies have also explored the efficacy of warnings that accompany false news (e.g., "fact-check tags," Clayton et al., 2020) as well as accuracy nudges where individuals are prompted to "think" about veracity before exposure to news (e.g., Pennycook & Rand, 2022). News literacy as an additional variable or moderator can complement and enhance such interventions. Notably, dispositional news literacy also has important normative benefits, as those who are news literate also tend to be engaged citizens (Mihailidis & Thevenin, 2013). This means comparative research should continue to examine the antecedents of news literacy and how it engenders discernment of news veracity.

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Supplementary Data

Supplementary data are available at the *International Journal of Public Opinion Research* online.

Biographical Note

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