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Understanding Fake News Corrective Action: A Mixed-Method Approach

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Recent scholarship deals with the spread of fake news in social media, suggesting viable ways to slow down the spread of misinformation. Effective documented interventions rely on fake news identification and peer corrective actions. Based on a mixed-method convergent design, this study independently (1) investigates how citizens develop strategies to identify fake news and generate rational motivations to engage in corrective actions (Study 1, 51 in-depth adults' interviews in Spain) and (2) tests the direct and indirect effects, via cognitive news elaboration, of traditional, social media, and fake news exposure leading to corrective measures (Study 2, with U.S. survey data). Study 1 shows that the fake news identification process is based on two distinctive layers: cognitive processes related to news content appraisal and a follow-up consumption of media resources (i.e., fact-checkers). Study 2 shows how traditional news use exhibited a direct relationship with corrective responses, whereas fake news and social media news

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exposure are only indirectly associated to corrective actions through cognitive elaboration. The findings contribute new insights about how to combat misinformation.

Keywords: fake news, social media, corrective action, misinformation, heuristics, information cognitive processing and elaboration, fake news detection, mixed methods

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Influential scholarship at the intersection of technology and politics contends that the affordances of social media facilitate the diffusion of fake news (Allcott & Gentzkow, 2017). The low-access barriers to information and the paucity of traditional gatekeepers have turned social media into fertile soil for malicious misinformation campaigns with grave consequences for public opinion formation (Amazeen, Thorson, Muddiman, & Graves, 2018; Weeks & Gil de Zúñiga, 2021). Against this backdrop, social behavioral scientists have examined the potential deleterious effect of fake news in democracy, demonstrating how fabricated content and misinformation is affecting citizens' attitudes, beliefs, and behavior (Guo & Vargo, 2020).

Extant research has shown that the impact of fake news may be curtailed, whether by means of professional interventions, individual detections, or peer corrective actions (Tandoc, Lim, & Ling, 2020). Moreover, prior studies show evidence that the effectiveness of citizens' corrective responses is also contingent upon users' prior beliefs, the corrector's credibility, and the provision of an alternative factual account (Bode & Vraga, 2018; Lewandowsky, Ecker, Seifert, Schwarz, & Cook, 2012). What is less clear, however, are the individual practices for (1) fake news identification and (2) correction based on users' daily life experiences. Accordingly, in Study 1 we provide inductive evidence to answer both research gaps in the literature (Tandoc et al., 2020), providing evidence on how fake news information is processed and beliefs are formed.

Furthermore, limited scholarly attention has been directed toward the direct effects of citizens' news consumption patterns and fake news exposure in activating fake news corrective action (Bode & Vraga, 2018). Are citizens who consume more news in traditional and social media more inclined to correct misleading information? Do levels of fake news exposure explain citizens' likelihood of engaging in corrective actions? And equally important, does cognitive elaboration about the news mediate the link between citizens' news exposure and corrective action? Building on Study 1, by extending the cognitive mediation model (Eveland, 2001; Jung, Kim, & Gil de Zúñiga, 2011) to fake news corrective action in Study 2, this article illustrates the direct and indirect mechanisms that prompt users' corrective responses to fake news.

Taking advantage of a singular mixed-method parallel design, the aim of this study is twofold. First, in Study 1, we seek to inductively and independently understand the cognitive processes behind fake news detection and users' motivations for engaging in fake news corrective actions. Based on 51 in-depth interviews with a diverse array of Spanish adults, the first study conceptualizes users' repertoires of fake news identification and explains how the fake news detection process unfolds in two different layers: cognitive processes related to news content appraisals and consultancy of different media resources and comments (i.e., news organizations and fact-checkers). Moreover, Study 1 findings illustrate the general lack of citizens' preference to correct fake news in social media. These practices of correction, mainly through

comments, are largely triggered either when citizens have a great attachment to the issue covered by the fake news or when the fake news disseminator is a close tie.

Parallelly, drawing on U.S. survey data, Study 2 findings indicate that traditional news use yields a direct, positive, and statistically significant relationship with fake news corrective action, suggesting that those who consume more news in traditional media outlets are directly inclined to correct fake news in social media. In contrast, social media news use and fake news exposure are not directly associated with people's fake news corrective behavior, which takes place only by means of cognitive news elaboration. That is, people who are exposed to social media and fake news, and in turn reflect on the news they consume, will also tend to engage in news corrective behavior. This suggests that the effects of fake news exposure and social media news use on corrective action are primarily activated when citizens cognitively elaborate about the (fake) news content they consume.

Converging both Study 1 and Study 2, our findings shed some important light on the decision-making processes social media users implement when evaluating fake news online and highlight the central role of elaboration in compelling corrective responses. In general, this study contributes to current literature by offering an innovative mixed-method approach to understand fake news information processing. These findings have important implications because they suggest possible interventions to curb the spread of misinformation and thereby improve liberal democracies.

The motivation behind this work is to generate empirical evidence based on the combination of different methods (qualitative and quantitative) across cultures (U.S. and Spanish), enriching the theoretical implications of the findings. Despite the differences between Study 1 and Study 2, this article makes a systematic effort to create a convergent discussion within a particular theoretical umbrella: understand how people navigate and identify fake news and the intended corrective actions to curtail their spread. Study 1 explores how people detect and correct fake news, and Study 2 examines the cognitive mechanisms behind fake news corrective actions. Accordingly, the article provides two studies aiming to independently answer different research questions. Admittedly, our approach to knowledge production could be deemed as heterodox, but it strategically contributes to widening research paradigms and increases the richness of empirically based knowledge.

Study 1

Fake News and Credibility Evaluations

Prior research has defined fake news as an "entirely fabricated and often partisan content that is presented as factual" (Pennycook, Cannon, & Rand, 2018, p. 1865). A review of studies has suggested that fake news encompasses several techniques, including political satire, news parodies, state propaganda, and false advertising (Tandoc et al., 2018). The distinctions between fake news, misinformation, and disinformation have also been discussed by extant research, suggesting that fake news is a specific type of disinformation. In short, misinformation refers to "the inadvertent sharing of false information," whereas disinformation entails the "deliberate creation and sharing of information known to be false" (Wardle, 2017, p. 1).

Recent scholarship on social media effects has consistently shown the potential deleterious effect of fake news exposure on citizens' attitudes, beliefs, and political behavior (Guo & Vargo, 2020). From the perspective of information processes and heuristics, a burgeoning literature has empirically examined how users cognitively appraise news cues to judge their credibility (Metzger, Flanagin, & Medders, 2010; Sundar, 2008). We build on this line of inquiry to inductively explore how users identify and reflect upon fake news in social media.

Credibility has traditionally been defined as the believability of information (Flanagin, Winter, & Metzger, 2020) and research has largely demonstrated that credibility levels are contingent upon citizens' perceived source trustworthiness and expertise (Flanagin, Winter, & Metzger, 2020; Metzger & Flanagin, 2015; Sundar, 2008). To account for individuals' credibility appraisals, two interrelated theories are arguably the most prominent: the Limited Capacity Model of Motivated Mediated Message Processing (LC4MP) and cognitive heuristics. On the one hand, the LC4MP states that individuals cannot cognitively process all aspects of mediated information they encounter and must therefore select salient features to encode, store, and retrieve from memory (Lang, 2000). On the other hand, cognitive heuristics state that citizens efficiently process information and thus ignore some material to make decisions faster. Accordingly, heuristic processing limits the cognitive effort needed to examine information and to reach accurate decisions (Metzger & Flanagin, 2015).

Drawing upon both perspectives, extant research has also examined the cues that explain content credibility (Flanagin et al., 2018; Metzger & Flanagin, 2015). For instance, Fogg and colleagues (2003) found 18 different cues accounting for websites' credibility appraisals, including author reputation, website navigability, and writing tone. Subsequent studies incorporated supplemental cues (Metzger & Flanagin, 2015), systematizing them in terms of whether they are a feature of the source, message, author, or receiver. Similarly, recent works on cognitive heuristics have identified the shortcuts to assist in the process of credibility assessments (Metzger et al., 2010; Sundar, 2008), which can be summarized into six heuristic rules of thumb: endorsement, reputation, constancy, expectancy violation, self-confirmation, and persuasive intent; see Metzger and Flanagin (2015), for further explication.

All in all, despite the accumulated quantitative evidence accounting for citizens' credibility appraisals of online information (Flanagin et al., 2020; Metzger et al., 2010; Sundar, 2008), it remains unclear how citizens identify fake news based on their verbalized real-live experiences. Prior studies have focused on the causal cues that clarify credibility assessments of online content, mostly through experimental designs and quantitative techniques (Metzger & Flanagin, 2015; Sundar, 2008), neglecting as a result the richness of inductive analysis to answer two relevant issues: (1) users' reflections on credibility assessments and (2) the specific application of such appraisals to fake news based on their verbalized day-to-day experiences. This study extends prior scholarship by inductively exploring users' credibility judgments about fake news, underscoring individual practices for their identification. Specifically, Study 1 first explores:

RQ1: How do citizens reflect upon cognitive processes for fake news detection on social media?

Fake News Correction

Corrective actions are reactive actions taken by news consumers to correct or rectify the content they consume and make an impact on others (Rojas, 2010). So far, algorithmic and professional corrections

have been effective tools to reduce misinformation effects on social media (Amazeen et al., 2018; Vraga & Bode, 2017). For instance, prior scholarship has documented that Facebook algorithms can correct false information about health issues by creating "related stories" (Bode & Vraga, 2018). Likewise, fact-checking organizations can significantly reduce beliefs in incorrect information by pointing out its misleading nature (Amazeen et al., 2018).

Aside from these sources, other social media users themselves may engage in corrective action to prevent misinformation from taking root, showing a positive effect (Vraga, Kim, Cook, & Bode, 2020). This includes behaviors such as commenting on the post, reporting the post, or reaching out to the person who shared the fake news (Lim, 2017). Social media peers may also be able to reduce the effects of misinformation by creating a space for observational correction (see Vraga et al., 2020) by which users can watch others be corrected. For example, Bode and Vraga (2018) found that a correction from another Facebook user can dampen evaluations of the original post. Echoing this finding, Bode, Vraga, and Tully (2020) showed that a corrective Twitter reply can counter misperceptions irrespective of how civil the corrective reply is.

Although corrections may reduce misperceptions generated by misinformation, a recent meta-analysis shows that corrections do not entirely mitigate them (Walter & Tukachinsky, 2020). Sometimes these corrections may prove ineffective, given the role of individuals' motivated reasoning in maintaining one's misperception (Bode & Vraga, 2018). This means once a belief is adopted, it triggers users to accept opinion-reinforcing information and reject evidence that challenges their existing beliefs (Jerit & Barabas, 2012). Consequently, at times, corrective actions on social media may not achieve their intended effect. Altogether, extant research suggests that corrective actions in social media are contingent upon citizens' prior beliefs, the corrector's credibility (Vraga & Bode, 2017), and the provision of an alternative account (Lewandowsky et al., 2012). Moreover, research has suggested it is even more difficult to correct fake news that is emotionally arousing and plausible (Tan, Lee, & Chae, 2015).

The motivations for implementing corrective actions hinge on different interrelated factors. Arif and colleagues (2017) identify three main components of this process: locus of responsibility, corrective objective, and the imagined audience. The locus of responsibility entails consideration of who is to blame for spreading false information, as well as the agent in power to potentially correct it. The corrective objective identifies the main objective for correcting false information, putting the spotlight on oneself, another user, or the information space. Finally, the imagined audience aims to consider who one's audience is, conceptualizing it not only as the people we typically interact with and their reactions but also "how they will act upon the information we share with them" (Arif et al., 2017, p. 165). In this regard, research has shown that users' corrective actions, or lack thereof, are largely shaped by the importance, awareness, and concerns about how the imagined audiences can be affected.

Even when peer corrections may prevent misinformation from taking root, social media users' corrective action is relatively uncommon. Tandoc and colleagues (2020) surveyed a national sample of social media users in Singapore and found that most individuals (about three in four) said they ignore fake news when they encounter it on social media. Another study reported similar results with individuals generally expressing minimal intentions to take corrective action against misinformation on social media, but when they do reply to misinformation, the content of their responses is generally accurate (Tully, Bode, & Vraga, 2020), potentially reducing the credibility of the misinformation posted (in an experimental study of a meme containing false

information; Vraga, Tully, & Bode, 2022). Similarly, Boulianne, Belland, Tenove, and Friesen (2021) suggested that younger generations are the most likely to implement corrective actions, especially if they typically use fact-checking websites. Finally, Chadwick and Vaccari (2019) found that one-third of social media users reported being corrected by other social media users, whereas only 8.5% reprimanded others for sharing fake news.

All things considered, and despite the potential revelatory importance of these findings, we still lack a context-driven account that inductively examines the rationale behind implementing corrective actions. Building upon prior research, this study explores how and under what circumstances users' trade-offs between social media friendship and democratic ideals shape their online behavior. Accordingly, Study 1 examines:

RQ2: What are citizens' motivations to correct fake news on social media?

Method

Study 1 independently examines the cognitive processes behind fake news detection and corrective responses to misinformation. We conducted 51 in-depth, face-to-face interviews with Spanish social media users to address our research questions. By conducting in-depth interviews, this study seeks to clarify the types of actions that constitute the practices of fake news identification and correction "across a whole range of situations and contexts" (Couldry, 2004, p. 110) and to find patterns from the "thick descriptions" offered by participants. For the recruitment of potential respondents, we combined snowball sampling techniques (see Goyanes & Demeter, 2020; N = 25) with ad hoc interviews in public spaces such as libraries, cafes, or bookstores (N = 26). No substantial differences between both types of interviews in terms of length and quality of evidence were identified.

A maximum variety sampling technique was used (Patton, 2002), and participants were recruited to mirror the Spanish social media users' census. This includes respondents from different rural and urban geographies, ages, income, and working profiles. One of the coauthors and a team of trained research assistants carried out the semistructured interviews between May and June 2020. All respondents were informed about the aims of the study and intended dissemination of the findings.

All interviews were transcribed by a research assistant and lasted between 40 and 60 minutes. Although participants provided consent for revealing their identities, this information is kept anonymous to respect individuals' privacy. All quotes are thus attributed to pseudonyms. The interviewee guide was divided into three different sections. The first part dealt with respondents' general social media use. The second section inquired about respondents' fake news detection strategies, and the third section problematized how and under what conditions citizens correct fake news.

For the data analysis, the transcribed material and the notes taken during the personal interviews were used. A thematic analysis (Braun & Clarke, 2006) was implemented to examine and identify patterns in the data (i.e., themes). Accordingly, six different phases were strictly followed: (1) familiarizing oneself with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing the report. After this analytical process, the different codes and themes

that emerged from the data were discussed with two independent scholars to refine our conceptualizations and themes (Goyanes & Demeter, 2020).

Results

Fake News Identification in Social Media (RQ1)

Our interviewees seem to agree that the different affordances of social media permeate distinctive uses that, in turn, generate unique gratifications. Whether for passing time; chatting with friends, family, and acquaintances (Goyanes & Demeter, 2020); or getting news about current affairs, most of our respondents shared a myriad of reasons to rationalize how they use and domesticate these platforms. Hence, although for some respondents a platform like Twitter or Facebook provides a good deal of entertainment, for some others, it affords a quick and interesting glance of "what is going on out there."

Not surprisingly, all participants acknowledged they had come across fake news in social media. Depending on the frequency of use and type of platform, exposure to such misleading contents varies. The most referenced platforms are Instagram or WhatsApp and, above all, Facebook and Twitter. Our respondents rely on a panoply of cognitive mechanisms and resources to identify and make sense of fake news. We conceptualize these repertories as *fake news identification* and define them as the cognitive processes and media resources at hand available to logically and intuitively detect and appraise fabricated content in social media. Briefly, fake news identification encompasses citizens' common responses to news content that seem suspicious, do not fit well into regular news appraisals, and accordingly must be carefully judged before being integrated into one's beliefs.

Our respondents seem to agree that misleading content typically includes impactful news or exaggerated information aimed at capturing someone's attention, changing their mind about a particular issue (i.e., persuasion), or increasing website traffic. Most of our interviewees acknowledge that the most common type of fake news they encounter is related to politics. Other thematic patterns were also mentioned, including scientific discoveries or gossip. Although the intention of fake news related to politics is typically to convey attention, manipulate audiences, or change citizens' opinion or vote, soft news is typically aimed at generating Web traffic.

We divide the fake news identification process into two distinctive layers: cognitive processes related to news content appraisals and consideration of different media resources and comments.

First Layer of Fake News Identification

Delving deeper into the initial layer, our respondents first cognitively appraise the form and content of the information (i.e., application of long-standing journalistic canons and principles). After such cognitive processes are complete, most of our respondents indicate that they rely on online newspapers and fact-checking organizations. Regarding the first layer, our respondents discussed application of common sense, recognition of bylines and news organizations, and above all identification of news standards.

Application of Common Sense

A typical response to detect fake news is relying on common sense or general logic. According to some of our respondents, some fake news content is so ridiculous, speculative, crazy, or dodgy that it is easily spotted with minimal cognitive effort. These news stories tend to be illogical, and our respondents offered some illustrative examples, including a piece of news in which a paparazzo caught Donald Trump nude or a new vaccine to cure all types of illness.

Recognition of Bylines and News Organizations

The vast majority of participants feel that they detect fake news when they are not able to identify the author or the news organization that backs it up. As a rule of thumb, respondents tend to be skeptical when the information they encounter is not signed or when the journalist is unknown. Likewise, news content not published or supported by a traditional or news media is typically quarantined. As María, a tour operator, states:

> There are news organizations that you have never heard of. In such cases you must worry because you do not know the background of the newspaper. Other features such as the journalist's signature, if the signature does not appear, are quite suspicious too.

Identification of News Standards

The most common strategy to identify fake news is to cognitively evaluate the encountered news with traditional journalistic norms and values. These cognitive processes include the ability to recall the principles of journalism and recognize traditional news standards stored in memory. Felipe, an industrial worker, describes this process as follows:

> I look at the headline; if it is too exaggerated or sensational, it already makes me hesitate. Later, when I go to read the complete news, I pay attention to the sources that appear in the news, [to ensure] that all the data come from official or relevant sources.

Second Layer of Fake News Identification

The second layer of fake news identification is based on the consideration of various media resources and comments. These include the following:

Contrasting Information With Other Media Companies

When our respondents encounter potential fake news on social media, they typically try to contrast and compare it with related news content published in trusted media companies or news aggregators. "If I am interested [in the news], I try to contrast it with more recognized news organizations such as online newspapers," Rodrigo, a police inspector, maintains. Similarly, Rebeca, a college sophomore in biology, describes: "I found out that that information was false because I read several news stories in digital newspapers where they denied the information and said it was fake."

Consulting Fact-Checking Organizations

A growing strategy to identify fake news is based on the reliance of official fact-checkers. Most of our respondents refer to two distinctive organizations: Newtral and Malditobulo. Jorge, a waiter from Barcelona, illustrates this fake news detection in his own terms: "Currently, I also access fact-checkers such as Newtral or Malditobulo, which normally when there is a viral fake news, they deny it."

Checking Comments

Finally, some respondents go beyond news organizations and fact-checkers and rely on the comments generated. By reading the suggestions and thoughts of other users, our respondents make sense of the potentially misleading nature of the news content. This strategy is not conclusive, however, so for many respondents, the strategy is typically deployed to ascertain the potential veracity of the potentially fabricated content.

Fake News Corrective Action

Most of our participants candidly shared that when they spot fake news, they do not often react by correcting or commenting. Indeed, some respondents stated that they fully ignore fake news. Interviewees provided several reasons for such behavior, including the inappropriateness of engaging in discussions on social media, apathy, or simply because they feel that their role is not to announce or correct misleading information.

Jose Maria, a car mechanic from Santander, feels apathetic when it comes to engaging in discussions with users that he feels will not come to reason. He states that he usually enjoys engaging in political discussions but feels that social media users typically provide weak or meaningless arguments. Luis, a senior electrician from Granada, believes that his function as an informed citizen is to consume news but not to correct or refute information virally circulating on social media. Other respondents indicated that they seldom consume news on social media and thus say that fake news corrective actions are beyond their habitual activities.

However, other respondents stated that they typically react to fake news by commenting on its misleading nature. According to these testimonies, reactions are generally triggered under two conditions: (1) when respondents are somehow attached to the issues subjected to fabrication, and (2) when the individuals involved are friends and family they care about.

Isabel, a nurse from Logroño, provides an illustrative example of the first scenario. As a frontline medical worker during the pandemic, when she encounters fake news stories, she usually combats them by commenting about their misleading content and pointing out that the images, data, or arguments are fabricated. When such corrective action is triggered, our participants typically report one rationale for the described civic behavior: to stop potential hoaxes from going viral (i.e., discussing the spread of fake news circulation) and prevent sensible citizens (mainly elderly individuals) from integrating the false information into their belief system.

Many respondents also counterattack fake news when the individuals involved are friends and family they care about. The most common rationale for such a response is to make beloved ones aware that the news

they share or consume, especially on WhatsApp and Facebook, is misleading. Xavier, a factory worker from Ourense, states that he does not usually comment on misleading information on Facebook, but when friends share it, he normally points out to them the reasons why the information is false. Similarly, Carmen, an employer at a car dealership, states that when her father shares fake news in their family WhatsApp group, she makes him aware that such content is false and explains to him why it is false or fabricated.

Discussion of Study 1

This inductive study provides two insightful contributions to the literature on credibility appraisals (Flanagin, 2017; Flanagin et al., 2020) and corrective action (Lewandowsky et al., 2012; Tan et al., 2015; Vraga & Bode, 2017). First, it clarifies the cognitive mechanisms and media resources involved in fake news detection. We conceptualize these repertoires as *fake news identification* and explain how they unfold in two layers: cognitive processes related to news content judgments, and consultancy of different media resources and comments. Second, and in line with previous quantitative work (Tandoc et al., 2020; Tully et al., 2020), our inductive study suggests that citizens are not typically inclined to take corrective action when they come across fake news in social media. According to our empirical evidence, when citizens deploy such behavioral responses, two main rationales are involved: (1) users feel invested in the issue or (2) users know the individual involved.

Study 2

In our first study, we sought to explore the practices underlying fake news identification and the main rationales that activate users' corrective behavior. Our findings provide preliminary evidence suggesting that users deploy cognitive processes to identify fabricated content, raising questions as to whether more effortful processing of the content could catalyze a corrective behavioral response. In Study 2, based on quantitative survey data from the United States, we complement these findings and thus parallelly and independently examine the potential direct influence of news use and the role of cognitive elaboration in facilitating citizens' corrective behavior against misinformation and fake news.

News Use, Cognitive Elaboration, and Fake News Correction

For democracy to thrive, citizens must be accurately informed about current affairs and must be civically and politically engaged. News use is thought to play an important role in this regard, such that heavy consumers of traditional news are more inclined to report engaging in political participation than light consumers (Kim & Han, 2005). Similarly, news consumption through social media has also been shown to foster political participation online and offline (Gil de Zúñiga, Molyneux, & Zheng, 2014). If we assume that corrective action against fake news may be, among other things, an act of pro-civic behavior, it should be the case that news use leads to fake news correction.

Citizens who regularly consume the news may have greater knowledge of current affairs, potentially making it easier for them to discern false from true information relative to individuals who are not regular news consumers. In addition, individuals who regularly consume traditional news may feel a greater sense of duty to correct false information when they encounter it on social media, motivating them to actually do so. These arguments suggest there could be a direct link between traditional news use and fake news corrective behavior.

However, communication researchers have recognized that the influence of news media use on behavior is largely indirect (Jung et al., 2011). The communication mediation model (Sotirovic & McLeod, 2001) and the "Orientation-Stimulus-Reasoning-Orientations-Response" (OSROR) framework (Cho et al., 2009), for instance, specify the intrapersonal and interpersonal processes by which media exposure may indirectly impact political behaviors. In Study 2, we chose to focus on cognitive elaboration as the mechanism that could explain the link between media use and corrective actions, such that greater news use might indirectly lead to greater corrective action by way of enhanced news elaboration.

By elaboration, we mean the cognitive process in which the individual mentally draws connections between the information and one's prior experiences or between two previously unconnected concepts (Eveland, 2001; Gil de Zúñiga, 2017; Petty & Cacioppo, 1986). Our qualitative findings illustrate how social media users employ mental shortcuts when they encounter potentially misleading content, which begs the question of whether more effortful processing of news-related content could catalyze corrective action online.

Evidence for this line of thought comes from the OSROR framework (Cho et al., 2009), which states that media consumption (S) can indirectly lead to political and civic engagement (second R) through reasoning behaviors (first R) and then psychological processes (second O). In integrating the role of reasoning behaviors, including cognitive elaboration, the OSROR framework drew from the cognitive mediation model (Eveland, 2001), which maintains that attention to the news must be followed by cognitive elaboration for political learning to occur.

Although the cognitive mediation model is ultimately focused on learning from the news as an outcome of elaboration, when it comes to how people react when they encounter fake news, one could argue that greater elaboration about the news (or greater elaboration about fake news, for that matter) could also result in users engaging in corrective action because their extensive reflection helps them recognize the fabricated nature of the content, compelling them to do something. Consistent with this logic, Shahin, Saldaña, and Gil de Zúñiga (2021) found that news elaboration predicts greater online political participation. In this way, corrective action against fake news can be thought of as the second R within the OSROR framework, indirectly spurred by news use (S) if it is preceded by news elaboration (first R).

Also relevant is recent work from Pennycook and Rand (2019, 2020), who have put forth two explanations for why people are susceptible to fake news. The motivated reasoning explanation suggests that analytic, effortful elaboration of (false) information translates into greater motivation to process the information through an ideological lens, bringing one's political views into play and widening partisan gaps. The second explanation, which the authors refer to as classical reasoning, suggests that people are susceptible to misinformation not because they engage in ideologically motivated reasoning but because they are engaging in minimal processing effort. In other words, heuristic, intuitive processing predominates when people encounter misinformation (i.e., low cognitive elaboration), leading them to take what they see on social media at face value.

In several studies, Pennycook and Rand (2019, 2020) have found support for the latter account. This suggests that misinformation uptake could be curtailed by encouraging media users to effortfully process the information they encounter online. If we assume that heightened news elaboration can predict action to correct

misinformation online just as it predicts reduced receptivity to the misinformation, greater cognitive effort exerted to process news content (i.e., elaboration) could lead to more corrective action taken.

In sum, drawing on the earlier arguments, we test a conceptual model in Study 2 that relates the concepts of news use (distinguishing traditional media and social media), fake news exposure, cognitive elaboration about the news, and corrective action (see Figure 1). Because research has not yet provided clear evidence for the direction of these relationships, we offer research questions (RQs) in lieu of formal hypotheses. Our model locates traditional news use, fake news exposure, and social media news use as exogenous predictors of corrective action (RQ1, RQ5, and RQ6, respectively). We also include elaboration about the news as an explanatory mechanism: traditional news use, social media news use, and fake news predict elaboration (RQ2, RQ3, and RQ4, respectively), and elaboration in turn predicts corrective behaviors (RQ7). Thus, this model simultaneously examines (1) the direct relationships between different forms of news exposure and taking corrective action and (2) how these forms of exposure might indirectly predict corrective action via cognitive elaboration.

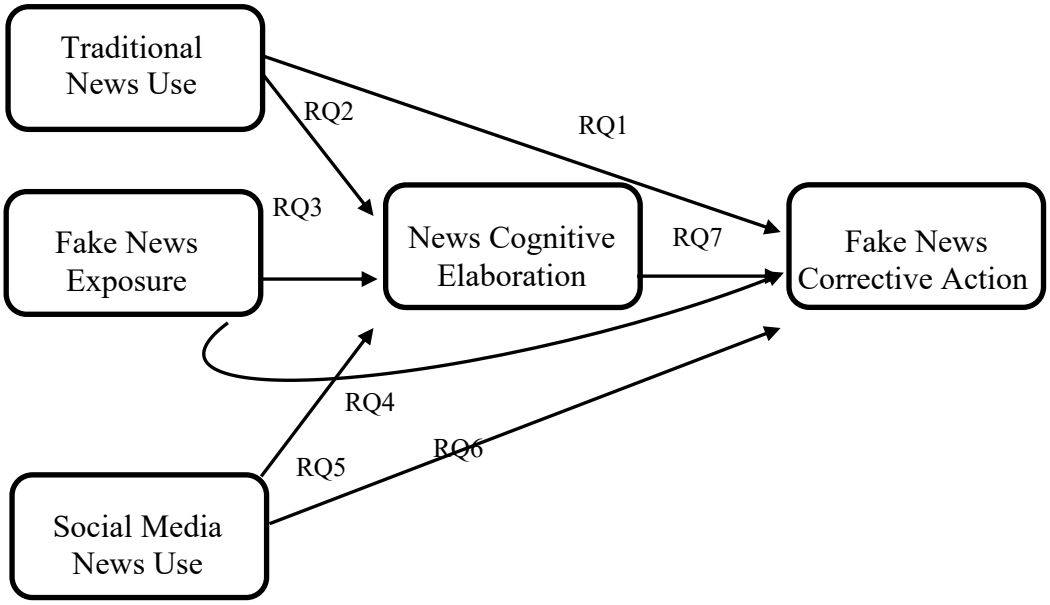

Figure 1. Conceptual model exploring research questions.

Method

Sample

To answer our research questions for the quantitative study, data came from a stratified survey instrument fielded in June of 2019 by IPSOS Austria and administered via a Qualtrics account associated with the principal investigator's university. The contracted company curates a diverse U.S. online panel of thousands of individuals. From this large pool of subjects, a stratified subsample of 3,000 individuals were

drawn, matching key demographic elements from the U.S. census (see Table A1 in the Online Appendix: Online Supplement 1.[1] The study final sample yielded 1,338 valid cases with an overall cooperation rate of 45.5% (American Association for Public Opinion Research [AAPOR], 2018). Control variables employed and a zero-order correlation table of key variables (Table A2) are also reported in the Online Appendix: Online Supplements 2[2] and 3.[3]

Endogenous and Exogenous Measurements

Fake News Corrective Action

This construct involves participants' disposition to correct the further dissemination of fake news. Following extant research (Jang & Kim, 2018), it was operationalized with the following items: "When I clearly identify fake news, I tend to report it," and "When a person forwards or shares information that I clearly identify as fake news, I will make them aware of the false information" (two-item average scale, 1 = *strongly disagree*, to 10 = *strongly agree*; Spearman-Brown Coefficient = .65; *M* = 5.49; *SD* = 2.61).

News Cognitive Elaboration

This construct taps into respondents' frequency of mental reflection and elaboration on the news they consume (Eveland, 2001): "I think about what I have encountered in the news," and "I try to relate the news I encountered to other things I know" (two-item average scale, 1 = *never*, 10 = *all the time*; Spearman-Brown coefficient = .90; *M* = 5.29, *SD* = 2.70).

Traditional News Use

This construct is operationalized through the average scores obtained to questions about participants' consumption of different traditional media (10-item average scale, 1 = *never*, 10 = *all the time*; Cronbach's alpha = .83; *M* = 4.26; *SD* = 1.95)

[1]https://www.dropbox.com/s/ch8m5fqsxvaup04/IJoC%202022%20Appendix%20Demographic%20Profile%20-%20Understanding%20Fake%20News%20Corrective%20Action%20-%20A%20Mixed%20Method%20Approach.pdf?dl=0.

[2]https://www.dropbox.com/s/nihmw8ohby42hrd/IJoC%202022%20Appendix%20Study%20Controls%20-%20Understanding%20Fake%20News%20Corrective%20Action%20-%20A%20Mixed%20Method%20Approach.pdf?dl=0.

[3]https://www.dropbox.com/s/0jw6tbqs2gfnpjm/IJoC%202022%20Appendix%20Correlation%20Table%20-%20Understanding%20Fake%20News%20Corrective%20Action%20-%20A%20Mixed%20Method%20Approach.pdf?dl=0.

Fake News Exposure

Respondents' level of fake news exposure (Egelhofer & Lecheler, 2019) was measured by asking participants how often they think they see "fabricated information that mimics news media content and could mislead readers," "articles that originate from satirical websites but were transformed by others and put in a misleading context," and "stories containing deliberatively misleading elements making the reader believe it is correct" (three-item average scale, 1 = *never*, 10 = *all the time*; Cronbach's alpha = .88; *M* = 6.04; *SD* = 2.32).

Social Media News Use

This construct encompasses how often respondents get "local news on social media" and "national news on social media." In addition, this construct taps into respondents' use of social media to "stay informed about current events and public affairs," and "stay informed about my local community" (four-item average scale 1 = *never*, 10 = *all the time*; Cronbach's alpha = .85; *M* = 4.78; *SD* = 2.56).

Results

Direct Effects (RQ1–RQ7)

RQ1 and RQ2 explore the association of traditional news use with fake news corrective action (RQ1) and news cognitive elaboration (RQ2). The analysis revealed that traditional news use positively predicts fake news corrective action ($\beta = .110$, $p < .05$). However, traditional news use's relation with news cognitive elaboration yielded a nonsignificant relationship. Therefore, those users who consume more news from traditional media outlets are more directly prone to correct misleading information in social media.

RQ3 and RQ4 explore the association of fake news exposure with news cognitive elaboration (RQ3) and fake news corrective action (RQ4). The analysis revealed that fake news exposure positively predicts users' news cognitive elaboration ($\beta = .145$, $p < .05$) but has a nonsignificant relationship with fake news corrective action. Therefore, those users who report greater levels of fake news exposure are more prone to reflect upon news they consume.

RQ5 and RQ6 explore the association of social media news use with cognitive news elaboration (RQ5) and fake news corrective action (RQ6). The analysis revealed that social media news use positively predicts users' cognitive elaboration ($\beta = .185$, $p < .05$) but does not significantly predict fake news corrective action. Therefore, those users who report greater levels of social media news use are more prone to reflect upon the news they consume. Finally, RQ7 inquires about the association between news cognitive elaboration and fake news corrective action. The structural equation model reports a positive association ($\beta = .075$, $p < .05$). Therefore, users who cognitively elaborate on the news they consume are more prone to correct misleading information in social media.

Indirect Effects (RQ8–RQ10)

RQ8, RQ9, and RQ10 explore the underlying mechanism by which traditional media use (RQ8), fake news exposure (RQ9), and social media use (RQ10) predict fake news corrective action. The mediation analysis from the structural equation modeling revealed that fake news exposure (β = .011, p < .001) and social media news use (β = .014, p < .001) facilitated fake news corrective actions through news cognitive elaboration. Therefore, users who reported higher levels of fake news exposure and social media news use are more prone to cognitive elaborate on the news they consume, thereby predicting their likelihood of engaging in fake news corrective actions (see Figure 2 for the modeling test and Table 1 for the indirect effects).

Table 1. Indirect Fixed Effects Model Effects on Fake News Corrective Action.

Indirect Fixed Effects	β
Fake News Exposure → Cognitive Elaboration → Fake News Corrective Action	.011**
Social Media News → Cognitive Elaboration → Fake News Corrective Action	.014**

Notes. Standardized regression coefficients (β) reported. ** p < .01 (two-tailed). N = 1,338

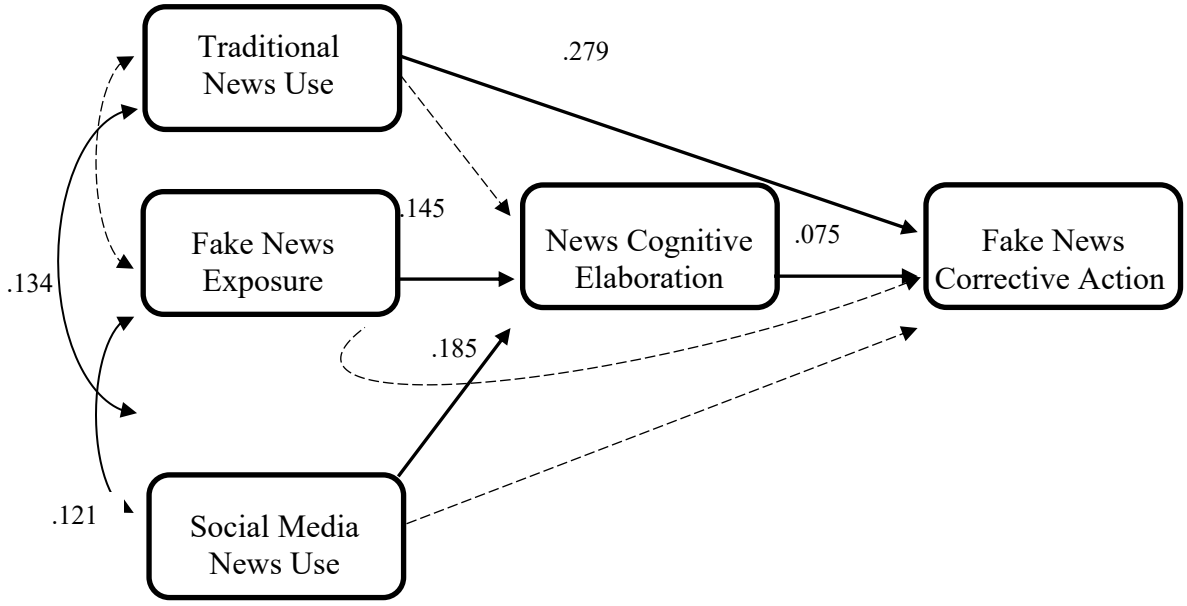

Figure 2. Structural equation model of fake news exposure, traditional news use, social media news use on news cognitive elaboration and fake news corrective action.

Note. N = 1,338. Continuous path entries are standardized SEM coefficients (p < .05). Dashed lines are not statistically significant. The model includes all control variables reported in the online appendix. The model bootstrapped 1,000 iterations. Goodness of fit: χ^2 = 2.51; df = 3; p = .47; RMSEA < 0.001, CFI = 1.000, TLI = 1.000, SRMR = .011. Explained variance of criterion variables beyond variance explained by controls: News Cognitive Elaboration, R^2 = 6.2%; Fake News Corrective Action, R^2 =8.5%.

Discussion of Study 2

In our second study with a large sample of U.S. participants matched to national quotas, we find that fake news exposure and social media news did not directly predict corrective action against fake news. It was only when fake news exposure and social media use led to cognitive elaboration that they indirectly promoted corrective action. Traditional news use, in contrast, demonstrated the reverse pattern. That is, traditional news use was unrelated to cognitive news elaboration but exhibited a direct relationship with corrective responses. We elaborate on the implications of these results and integrate them with our qualitative findings in the following section.

General Discussion

Communication researchers have paid increasing attention to the consequences of fake news dissemination on social media (Gil de Zúñiga & Kim, 2022; Lee, Gil de Zúñiga, & Munger, 2023) and the extent to which corrections can reduce misperceptions (Bode & Vraga, 2018). Although peer corrections have been shown to be effective in this regard (Vraga & Bode, 2017), surprisingly little research has considered the motivations for why users take corrective actions, such as reporting the information or alerting the person who shared the problematic information (Sun, Chia, Lu, & Oktavianus, 2020; Tandoc et al., 2020; Tully et al., 2020). The findings from this mixed-method, parallel investigation help to fill this research gap, leveraging qualitative and quantitative methods to explore the decision-making factors involved in fake news identification and to examine motivations for performing corrective behaviors. It is only by understanding social media users' perceptions, motivations, and psychological processes related to fake news detection and correction that social scientists (and policy makers as well) can develop a clearer picture of how misinformation can be stopped.

First, our participants described an array of strategies they use when evaluating potentially misleading information on social media, which we conceptualize as *fake news identification*. These detection strategies include a primary layer in which users cognitively appraise the news content (e.g., applying common sense, considering the information against journalistic norms) and a secondary layer in which users consider factors outside the news story itself (e.g., checking comments on the story, consulting fact-checking websites). These findings add to current theories on heuristic processes (Metzger & Flanagin, 2015; Metzger et al., 2010), the users' reflections on credibility assessments of fake news. Specifically, our findings illustrate users' paths for fake news detection, suggesting that the detection of fake news is typically tackled trough two interrelated mechanisms: cognitive appraisals of news content and consultation of media resources.

Most participants reported rarely engaging with fake news online, which is consistent with previous observational and experimental findings (Tandoc et al., 2020; Tully et al., 2020). When they do take corrective action, it is because the issue is personally relevant to them or because they have a close relationship with the individual who shared the content. These motivations closely mirror those reported by Tandoc and colleagues (2020) in their study on the prevalence and predictors of fake news corrective action, so although little research has explored why people engage in corrective behaviors, the available evidence

consistently points to the importance of a sense of connection—either to the subject matter or the individuals involved—in driving peer corrections.

Our findings also align with dual information processing theories like the elaboration likelihood model (Petty & Cacioppo, 1986): People should be more engaged with information that they are able to process (presumably because they are knowledgeable about the subject matter) and motivated to process (because the topic is personally relevant and/or because they are close to the person who posted the content). A productive path for future research would be to experimentally manipulate the personal relevance of fake news information as well as the closeness of the sharer to examine their independent (or interactive) effects on corrective responses.

Individuals reporting greater elaboration in response to news were more disposed toward corrective actions, suggesting that news elaboration may serve as a buffer against fake news spread. This finding complements an emerging body of work that shows misinformation uptake is largely a function of low cognitive elaboration (Pennycook & Rand, 2019, 2020). These findings also illustrate the utility of applying the cognitive mediation model (Eveland, 2001) and the OSROR framework to fake news corrective action (Cho et al., 2009). In the latter case, exposure to fake news or social media news (S) prompts cognitive elaboration (first R), which in turn translates into corrective responses to fake news (second R). In addition, social media nudges (like the feature Twitter began testing in 2020 that invited users to open an article before retweeting it) may serve as helpful cues to encourage elaboration and maybe corrective responses by extension (Vincent, 2020).

More puzzling is the finding that those who reported consuming more traditional news were not more likely to cognitively elaborate on the news. This null relationship contradicts the basic tenets of the cognitive mediation model and the OSROR framework and thus warrants additional scrutiny. One speculative explanation is that news elaboration has less to do with where one consumes the news (traditional platforms vs. social media) and more to do with whether exposure is deliberate. Our measures of news consumption cannot disentangle incidental from intentional exposure, but recent work offers support for a peripheral elaboration model in which intentional news use promotes greater elaboration than incidental news use (Shahin et al., 2021). Moreover, there may be contingent effects of incidental news exposure on elaboration depending on whether the information encountered is judged as personally relevant, such that the effect of exposure on cognitive engagement is stronger when the individual perceives the content to be relevant.

We did observe a direct link between traditional news use and corrective action that was unmediated by news elaboration. This direct relationship begs the question of what mechanisms other than cognitive news elaboration might be at play. Knowledge seems a likely candidate in that greater consumption of traditional news leads to greater knowledge about current affairs, which in turn may increase the chances of detecting and then correcting fabricated information online (Jung et al., 2011). Efficacy beliefs are also worth investigating because previous work illustrates that those possessing higher levels of internal efficacy are more inclined to perform online political behaviors (Jung et al., 2011). Indeed, social media users report being less likely to take corrective action against fake news if they feel that their efforts will be fruitless to change the mind of the person who posted it (Tandoc et al., 2020). We also learned from our in-depth interviews that social media users often feel no personal responsibility to correct fake news, so we

recommend researchers consider personal accountability beliefs as predictors of inaction, perhaps drawing from the bystander intervention literature (see Tully et al., 2020).

These contributions aside, we wish to acknowledge a few limitations. First, our survey data are cross-sectional, so we cannot definitively make causal claims that news exposure precedes elaboration, which precedes corrective action. However, our data are consistent with a considerable amount of theorizing that positions news use as a precursor to downstream political outcomes, mediated by psychological mechanisms like cognitive elaboration (Cho et al., 2009; Eveland, 2001). Nonetheless, the exact nature of these relationships is worth confirming with experimental or longitudinal methods.

Self-reported data are linked to several limitations, such as individuals' cognitive ability to recall accurately the amount and reach of fake news exposure. In addition, respondents may consciously misreport their fake news exposure because of social desirability bias. Accordingly, future research may rely on observational measures. Relatedly, our corrective action measure does not include all possible actions one could take to react to fake news, and we do not know whether the corrective responses people say they provide to the original sharer are fact based—though the available evidence suggests corrective replies tend to be accurate (Tully et al., 2020). Despite the two-item scale showing acceptable internal consistency and fairly representing users' intention to curtail the impact of fake news on others (Rojas, 2010), correcting and reporting information may be seen as either conceptually different or as a bidimensional construct. Finally, cognitive elaboration is a general measure to capture reflection upon news, no matter the news provenance of platform or outlet. However, the outcome variable modeled (i.e., corrective action) is fundamentally implemented on social media. Likewise, reflection upon news may consistently frame users to think in terms of traditional news rather than fake news or news on social media.

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