Fake News, Real Problems for Brands: The Impact of Content Truthfulness and Source Credibility on consumers' Behavioral Intentions toward the Advertised Brands

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Abstract

The presence of fake news via Internet media compels researchers and practitioners to understand the consequences of this phenomenon on marketing activities. Surprisingly, no marketing study to date has analyzed the effect of fake news on consumers' evaluations of a brand advertised on the same webpage. To fill this gap, this study empirically investigated whether individuals' perceptions of fake news transfer to an adjacent brand advertisement. Specifically, we manipulated news truthfulness and source credibility, observing the change in individuals' responses while distinguishing between objective truthfulness and the perceived credibility of the news.

The results confirmed that the news' objective truthfulness exerts no direct effect on behavioral intentions toward the brand (i.e., intention to purchase, spread word-of-mouth, or visit the brand's store). However, we did uncover a chain of effects whereby the impact of fake news on behavioral intentions was fully mediated by people's perceptions of the news' credibility, which affected the perceived credibility of the sources, which then influenced brand trust, which finally translated into brand attitudes. From a managerial perspective, this study's results can partially reassure brand managers that their brand advertisements will not suffer from appearing next to fake news when the source itself is credible.
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Keywords: Fake news; Brand attitude; News truthfulness; News credibility; Source credibility; Brand trust

Introduction

In the wake of the social media revolution, the Internet has made publishing and distributing content more accessible to a great swath of people. One negative byproduct of this trend is the proliferation of so-called 'fake news,' which we take to mean intentionally false, realistic and fabricated stories which can potentially be verified (e.g., Allcott and Gentzkow 2017; Fulgoni and Lipsman 2017; Lazer et al. 2018). Due to the web's low barriers to entry, producers of fake news have economic incentives to craft deceptive content: Sensationalist headlines can easily generate clicks and traffic that increase advertising volume and, by extension, revenues (e.g., Ormond

et al. 2016). Commercial and tabloid websites using fake news are at the center of a growing controversy over misinformation on the Internet, since they are often intentionally designed so that commercial ads appear next to a fake news headline as a form of click bait (Blom and Hansen 2015; Nicas 2016). This system is made possible by the fact that big brands advertise their products through automated platforms, which select target sources with a maximum likelihood of reaching the appropriate audience. As a consequence, brands can lose control over their communication strategy and practice (Allcott and Gentzkow 2017; Fulgoni and Lipsman 2017).

This situation will only further proliferate as the Internet continues to replace previous information media such as print newspapers or television—and individuals, in turn, alter their information search activity (e.g., Gentzkow 2007; Geyskens, Gielens, and Dekimpe 2002; Xu, Kim, and Van Ittersum 2014). In fact, the Internet has already emerged as the primary source

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of information for many individuals (cf. Mitchelstein and Boczkowski 2010): Sixty-seven percent of Americans in 2017 received at least a portion of their news from social media sites (Gesenhues 2017), which can disseminate several news sources irrespective of their objective truthfulness.

In the midst of this complex information scenario, no marketing study has so far investigated whether fake news impacts the effectiveness of companies' web advertising strategies. In other words, does the truthfulness of news influence consumers' attitude and behavioral intentions toward a brand advertised on the same webpage? The academic literature has analyzed deception in marketing communication (Chaouachi and Rached 2012; Craig et al. 2012; Darke and Ritchie 2007; Munzel 2016; Nelson and Park 2015; Pan and Chiou 2011), but not the particular relationship between fake news and consumers' attitudes toward an adjacent advertised brand, and its consequences for people's behavioral intentions toward the brand (e.g., consumer intention to purchase the advertised product or to spread positive word-of-mouth).

In the following, we present the results of an experimental study that addresses this gap. Substantiating our case with relevant literature in communication and marketing, we investigate the effects of fake news on online advertising. Specifically, we explore a mediation chain that considers individuals' perceptions of news and source credibility. We empirically test the model by means of an experimental study that measures Internet users' reactions to a webpage containing a news story and an advertised brand. To do this, we manipulated news truthfulness (i.e., whether the news is real or fake) and source credibility (i.e., whether the source is perceived to be reliable), then observed the change in individuals' responses toward the news, the source, and the advertised brand. We used a preliminary study to select the experimental stimuli for the main study, as well as refine the measurement scales for the dependent constructs. Building on the findings of the preliminary study, the main study experimentally assesses whether individuals perceive different levels of news credibility, source credibility, and brand trust, and thereby demonstrate different attitudes toward the brand displayed on the news webpage and different intentions toward that brand.

After discussing the results, we highlight their theoretical and managerial implications for brand evaluations.

Theoretical Background

Tandoc Jr., Lim, and Ling (2018) recently developed a taxonomy of fake news and observed that from 2003 to 2017, there were only 34 articles published about fake news (as indicated via Google Scholar). Fulgoni and Lipsman (2017, p. 127) recently noted that fake news represents a form of "digital pollution" that makes the environment hard for marketers to navigate. The political science literature has delved into the phenomenon, following the spread of fake news during the 2016 US elections. For instance, Allcott and Gentzkow (2017) conceived fake news as "distorted signals uncorrelated with the truth" (p. 212) and defined them as "news articles that are

intentionally and verifiably false, and could mislead readers" (p. 213). Overall, social sciences are increasingly interested in the topic (e.g., Lazer et al. 2018), but the effects of fake news have not been adequately investigated from a marketing perspective. In this vein, a good definition of "fake news" should incorporate the fact that they are fabricated stories that are intentionally false (Allcott and Gentzkow 2017; Lazer et al. 2018), yet perceivably realistic, i.e., consistent with an individual's previous beliefs (Fulgoni and Lipsman 2017). Since we are dealing with perceptions, we concentrate on the news' perceived truthfulness, (i.e., *news credibility*) and relax the assumption about its objective verifiability. Based on these considerations, we adopt the following definition throughout the present paper: *"Fake news are fabricated stories that are intentionally false, realistically portrayed, and potentially verifiable"*.

While there are myriad content generators contributing to the development of fake news, there are no strict controls in place to ensure that shared information is essentially truthful. As a result, fake news recently outperformed real news in terms of popularity and engagement in some electronic environments, i.e., Facebook (cf. Price 2017). However, it is crucial for companies to understand if this proliferation may harm their marketing efforts (cf. YouGov 2017)—whether, in a sort of a spillover effect (Chaturvedi Thota, Song, and Biswas 2012), individuals' perceptions related to the fake news may be transferred to the brand advertised in the same webpage (e.g., through a banner), since the two stimuli (news and ad) are presented in conjunction. In this vein, researchers should go beyond merely investigating the direct effect of the ad and address the broader set of causal relationships involved in the formation of brand attitude and purchase intentions. Because this involves a complex set of perceptions and reactions, we need to empirically quantify and test hypotheses on the contingent nature of the causal relationship between the independent and dependent variables (Hayes 2018). In the present study, the independent variable is the objective truthfulness of a news article and the dependent variable is the set of behavioral intentions toward a brand advertised alongside the news. Between these two variables, we argue, is a chain of effects that determines the transfer of attitudes through the webpage itself.

In the following, we hypothesize a causal path whereby the effect of the news' truthfulness on brand intentions (i.e., consumer behavioral intentions toward an advertised brand such as intention to purchase, to spread word-of-mouth, and to visit the brand's store) is mediated by the news' perceived credibility and the source's perceived credibility, which affect the extent to which consumers trust the brand: news truthfulness ➔ news credibility ➔ source credibility ➔ brand trust ➔ brand attitude ➔ brand intentions. The moderated mediation model, illustrated in detail in the remainder of this section, is summarized in Fig. 1, below.

From news truthfulness to news credibility: As the expression suggests, *fake news* are realistic and fabricated stories that can potentially be verified (e.g., Allcott and Gentzkow 2017; Fulgoni and Lipsman 2017). The defining
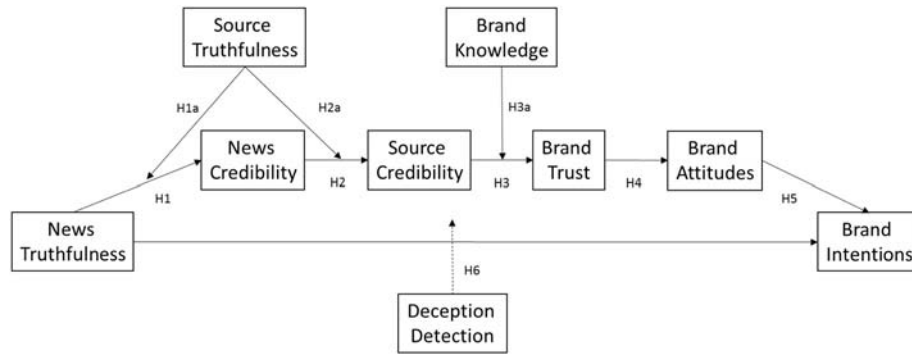
Fig. 1. The hypothesized mediation model.

element of *fake news* is the duplicitous intent and process of the publisher (Lazer et al. 2018); in this regard, it is important to highlight that the news' (lack of) objective truthfulness may affect its perceived credibility. The importance of *news credibility* is so high that this factor may be capable of determining the social and commercial success of a communication medium (Schweiger 2000). Furthermore, as pointed out by Schweiger (1998), credibility may become an important heuristic element for content screening and selection in the face of information overload. Because news is a common part of any communication medium, academic studies suggest distinguishing between the credibility of the source, the media and the message (Thielsch and Hirschfeld 2018; Tandoc Jr. et al. 2017; Metzger et al. 2003; Metzger, Flanagin, and Medders 2010). In the context of news, *news credibility* (i.e., an individual's perception of the truthfulness of a message's content), is a central concept that depends on the news' perceived accuracy, authenticity and believability (Appelman and Sundar 2016; Gunter et al. 2009). Consequently, we can posit that:

H1: *News truthfulness* positively affects *news credibility*.

In the wake of the Internet, there has been a proliferation of publishers who provide sensationalistic and/or intentionally false content as part of a click-bait technique. Recent academic research highlights that individuals use heuristics to infer the truthfulness of online contents, and such heuristics can "influence credibility judgments more strongly than the content of the message itself" (Westerman, Spence, and Van Der Heide 2014, p. 173). It follows that the same news can be perceived at different levels of credibility as a function of the news' source (Sundar 1998). Since a source's truthfulness comprises a set of characteristics that lie outside an individual's response (e.g., Westerman, Spence, and Van Der Heide 2014), we supposed that its influence on perceptions constitutes a moderation effect. Consequently, we can put forward that:

H1a: The *source truthfulness* moderates the path from *news truthfulness* to *news credibility*.

From news credibility to source credibility: The communication literature has repeatedly stressed the need to measure perceptions of credibility for different but related objects (e.g.,

Appelman and Sundar 2016; Metzger et al. 2003; Meyer et al. 2010; Schweiger 2000), such as between news and its provider (Harmon and Coney 1982; Kiousis 2006; Pan and Chiou 2011). Relatedly, credibility appears to be a crucial factor in information evaluations, as individuals tend to pay less attention to media perceived as scarcely credible (Johnson and Kaye 1998). In this vein, certain authors have defined *source credibility* as the degree to which a receiver believes in what an identified source is claiming (Gunther 1992; West 1994). From this, one might define a credible source as a communication medium that is seen as providing correct information, relatively free of bias (Hass 1981). *Source credibility* is therefore linked with the credibility of the news provided. In fact, recent developments of the source credibility theory (Ayeh 2015; Hovland, Janis, and Kelley 1953; Pornpitakpan 2004) in the online context (see: Lowry, Wilson, and Haig 2014 for a review) highlight the fact that simple cues determine the credibility of a source. In particular, individuals rely on surface (i.e., first impression) judgments—including the color setting, the logo, and the design of the website—to assess source features. Based on little more than the aesthetics, users appear to make credibility judgments in the first few seconds of their interaction with the website (Faiola et al. 2011). Adding to this, people's evaluation of a message source has been significantly correlated with their individual assessment of the news/story credibility (Greer 2003; Oyedeji 2007). Consequently, a fake news or text might affect online users' perception of a webpage's credibility. Since the former characterize *fake news*, and the latter is the source, we advance that:

H2: The perceived truthfulness of a news article affects the credibility of the source.

Nevertheless, research has not yet identified which variable is critical in affecting the perception of credibility (e.g., Hughes et al. 2014; Pornpitakpan 2004). According to the source credibility theory (Ayeh 2015; Hovland, Janis, and Kelley 1953; Lowry, Wilson, and Haig 2014), the perceived credibility of a source may depend on characteristics like online popularity (Jin and Phua 2014), an institutional name, or reputable sources (Flanagin 2017; Flanagin and Metzger 2007; Metzger and Flanagin 2011). In the context of online settings, in particular, source credibility theory has found that color schemes and other

visual elements predict perceptions of credibility (Lowry, Wilson, and Haig 2014). Accordingly, we further posit that:

H2a: The *source truthfulness* moderates the path from *news credibility* to *source credibility*.

From source credibility to brand trust: Wu and Wang (2011) found a direct and positive relationship between *source credibility* and *brand trust*. They also suggested that, irrespective of the individual level of involvement, message source credibility represents an important factor influencing the formation of brand trust. Adding to this, Marshall and WoonBong (2003) found that the different levels of source credibility associated with printed versus online sources might affect how audiences evaluate brand-related messages. Meanwhile, Lowry, Wilson, and Haig (2014) analyzed the credibility that users derive from their initial impressions of an online environment, finding that source credibility is sometimes formed and acted upon immediately when a user interacts with a source, like a firm's website.

The previous studies naturally lend themselves to the idea of a spillover effect. Chaturvedi Thota, Song, and Biswas (2012) described the "spillover effect" as the phenomenon through which evaluations of a stimulus are "transferred" to another when the two stimuli are presented in conjunction with each other. Indeed, prior research in social psychology has shown that the interaction between a target stimulus and an accompanying contextual cue may result in an assimilation or contrast effect, depending on the direction of the context effects (Martin, Seta, and Crelia 1990; Meyers-Levy and Sternthal 1993). For instance, a positive assimilation effect might occur if a site hosts a favorable brand (through a banner) on its website. Conversely, a negative contrast effect could occur if a site exposes consumers to the banner ads of an unfavorable brand (Chaturvedi Thota, Song, and Biswas 2012). Although some studies have considered how the perceived credibility of biased or misleading information can spillover to a host site (Chung, Nam, and Stefanone 2012; Johnson and Kaye 2010), none to date have explored this effect in the opposite direction. Indeed, there is an open question about whether *source credibility* influences viewers' perceived trust toward a brand (i.e., *brand trust*) advertised on the same webpage. In sum, we put forward that:

H3: The credibility of the news source affects the trust in the adjacent advertised brand.

However, it is possible that a consumer's *brand knowledge* inhibits or enhances the effect of *source credibility* on *brand trust*. In particular, well-known brands benefit from a tighter association with defined characteristics (Keller 2003) and might therefore be less susceptible to the credibility of the webpage where they are advertised. In other words, *brand knowledge* may act as a shield against credibility issues. Since knowledge of a brand is an objective characteristic of the stimuli, and not a direct reaction of individuals to the news, we can posit that:

H3a: *Brand knowledge* acts as a moderator in the path from *source credibility* to *brand trust*.

From brand trust to brand attitude and intentions: Brand trust is one of the most important factors behind the creation of brand value (Delgado-Ballester and Munuera-Alemán 2001). Indeed, several authors (e.g., Fournier 1995; Morgan and Hunt 1994) highlight the importance of trust in consumers' ability to develop positive and favorable attitudes toward a brand. For instance, brand trust has been shown to strongly influence not only customers' attitudes and loyalty (Chaudhuri and Holbrook 2001; Delgado-Ballester, Munuera-Alemán, and Yague-Guillen 2003), but also their brand-related behaviors such as purchases and referrals (Becerra and Badrinarayanan 2013; Jones and Kim 2010). Furthermore, in both the e-commerce (Grabner-Kräuter and Faullant 2008) and mobile advertising (Okazaki, Katsukura, and Nishiyama 2007) contexts, scholars have found that brand trust exerts a direct and positive effect on attitudes and behavior. Finally, prior research (e.g., Teng 2009; Wu and Lo 2009) suggested that brand attitude influences consumer purchase intention.

Based on these considerations, we put forward that:

H4: The trust in the brand advertised alongside the news affects brand attitude,

H5: Brand attitude affects the behavioral intentions toward the brand.

The role of individuals' self-perceived ability to detect deception: Individuals may vary in terms of how they process the news, as well as in their ability to fact-check the news (Balmas 2014; Nelson and Park 2015). In this vein, the literature has defined *deception detection self-efficacy* as an "Internet user's perception of her or his own ability to identify a source or message as misleading" (Ormond et al. 2016, p. 201). Accordingly, we maintain that individuals' ability to discern real from fake content might affect their credibility perceptions, thus preventing (or minimizing) the aforementioned spillover effect from the news to the advertised brand. However, deception detection self-efficacy represents an individual characteristic and therefore cannot be assimilated with either an individual's reaction or a stimulus' characteristics. Consequently, this factor acts as a covariate at each stage of the hypothesized chain of effects from *news truthfulness* to *brand intentions* (H1–H5) and cannot be included as a mediator or a moderator. Therefore, we put forward that:

H6: *Deception detection self-efficacy* acts as a covariate on the transfer of attitudes and intentions from the news to the brand.

Preliminary Study

We designed a fictional webpage that served as the experimental stimulus. The webpage included three main sections: (i) an area on the top of the page where the name of the source was reported, (ii) a central area with the news, and (iii) the advertising banner, which appeared randomly on the

left or right side of the news. Accordingly, the preliminary study sought to establish that: (i) individuals perceived our manipulated news sources as having significantly different levels of trustworthiness; (ii) the news that we used as the experimental stimuli actually displayed different levels of credibility based on whether they were said to be true or false, and (iii) participants actually noticed the brand advertised in the lateral banner, in order to rule out the possibility that individuals' perceptions of the ad arose from inattention to it rather than from the manipulated elements.

In order to select two news sources that are associated with different levels of credibility, we chose to pre-test BBC and BuzzFeed, which are respectively perceived as highly and minimally truthful, according to previous research (Pew Research Center Report 2014). A news credibility study by the Pew Research Center (2015) found that the BBC is ranked among the more trusted news sources across three generations (Millennials, Gen Xers, Baby Boomers), while BuzzFeed is ranked in the lowest trust category for all three age groups. The news messages that were pre-tested fell into two categories that frequently comprise fake news stories on international media: gossip and science. We identified such news stories by browsing the web for real and fake news thatwere published within the month prior to data collection, with the goal of obtaining high levels of realism in the selected stimuli. We determined which stories were real by cross-checking them with reports on prominent fact-checking websites (e.g., Emergent.info, BuzzSumo, Snopes). This procedure yielded a total of eight news messages, equally split between the gossip and science categories. Of the four gossip articles, two were real news (1: "Bruno Mars becomes dad, Jessica Caban is pregnant"; 2: "US rapper Kanye West disappears from social media") and two were fake news (1: "DNA results confirm Michael Jackson is biological father of Bruno Mars"; 2: "Kanye West banned from all future public award ceremonies"). Analogously, two of the science articles were true (1: "Cassini probe heads towards Saturn 'grand finale'"; 2: "Genetically-modified foods are safe to eat, say scientists") and two were fake (1: "Green moon in July 2017"; 2: "Doctors confirm first human death officially caused by GMOs").

Finally, we selected a real advertisement from a world-famous automotive brand (i.e., Audi) that was being broadcast on the Internet at the time of data collection. The ad appeared immediately underneath the article heading (see the Appendix A for sample stimuli).

Measures

After being exposed to the mock-up news webpage, participants completed a questionnaire that assessed their perceived levels of *source credibility* (Harmon and Coney 1982) and *news credibility* (Appelman and Sundar 2016). Furthermore, to ensure that participants noticed the advertised brands, we collected a measure of brand recognition by asking participants to identify the brand actually advertised in the previous page from a list of seven brands (as in Petty, Cacioppo, and Schumann 1983).

Results

We recruited 250 participants for this preliminary study from groups on social media. We randomly presented participants with one of the fictional webpages, which served as the experimental stimuli. Eight participants were then removed since they did not pass an attention check ("If you are reading the questions, please select answer option 3") placed within the questionnaire, thus yielding a total of 242 usable questionnaires.

As an initial step, we factor analyzed the *source credibility* and *news credibility* scales (extraction method Maximum Likelihood, Oblimin rotation), which yielded a factorial structure in line with the original studies that developed the scales (i.e., with high factor loadings on separate factors). The results from the pre-test confirmed the reliability of the two scales drawn from the literature, with Cronbach's alpha equal to 0.94 for *source credibility* and 0.84 for *news credibility*. Accordingly, we formed single measures for both *source credibility* and *news credibility* by averaging their respective items.

Then, we compared the levels of *source credibility* associated with the two sources serving as experimental stimuli. The results from the pre-test confirm that the "highly trustworthy" source (i.e., BBC) is perceived by individuals as significantly more credible than the "less trustworthy" source (i.e., BuzzFeed; $M_{BBC} = 4.04$; $M_{BuzzFeed} = 3.33$; $F(1, 241) = 23.69$, $p < .001$, $\eta^2 = 0.09$), and that the "true" news stories were perceived as more credible than the "fake" news ($M_{Fake} = 3.15$; $M_{True} = 3.63$; $F(1, 241) = 10.10$, $p = .002$, $\eta^2 = 0.04$). However, planned pairwise contrasts between the true and fake version of the same news yielded a significant difference in *news credibility* only for the gossip news dealing with Bruno Mars ($M_{Fake} = 2.62$; $M_{True} = 3.59$; $F(1, 59) = 11.79$, $p = .001$, $\eta^2 = 0.15$), and the science news dealing with astronomy ($M_{Fake} = 2.93$; $M_{True} = 3.92$; $F(1, 59) = 11.24$, $p = .001$, $\eta^2 = 0.16$); there were no significant differences for the remaining two pairs of stories. Accordingly, we only retained the first two aforementioned pairs of news messages as the experimental stimuli in the main study.

Finally, we examined the brand recognition of the ad. Overall, 163 (68%) out of 242 participants correctly recognized the "Audi" brand from the list, thus suggesting that the majority of respondents visually processed the ad.

Main Study

Through the preliminary study, we selected experimental stimuli that evoked maximum realism. In the main study, we manipulated *source truthfulness* by varying the name of the source on the top of the page (i.e., BBC vs. BuzzFeed). We manipulated *news truthfulness* by means of the two real and two fake news messages, belonging to either the gossip or science category. In addition, we manipulated the *brand knowledge* of the advertised brand in order to rule out that consumers' perceptions and intentions toward said brand are due to its intrinsic knowledge and reliability rather than the

presence of fake news. The ads serving as experimental stimuli appeared immediately below the article heading, exactly as in the preliminary study. The software randomized which brand appeared in the ad (Fiat versus Toyota). We chose these two brands because they represent a low and high level of US marketshare, respectively (WSJ Market Data Center 2018). Within these brands, we identified two competing car models (i.e., Fiat 500 and Toyota Aygo). Although both ads featured the brand and car, we had them slightly edited so as to feature the same background color and accompanying text (i.e., the car model name); in this way, we sought to avoid any possible confound related to the ad design. Underneath the news, we added a set of non-functional social media icons, like those available on most online webpages, in order to enhance visual realism.

Method

We gathered 400 respondents (53% males; median age = 31; from US) from Prolific and randomly assigned them to one of the sixteen experimental conditions resulting from a 2 (news topic: gossip vs. science) × 2 (news truthfulness: true vs. false) × 2 (source truthfulness: reliable vs. truthfulness) × 2 (advertised brand knowledge: low vs. high) between-subjects experimental design. First, participants were asked to look at the fictitious webpage mimicking an online news website, where they saw the heading and a short description of one of the eight topic-news-source combinations, as well as an adjacent advertisement.

Participants were told that they could click on any section of the page as if they were actually on the news webpage: By clicking on the source name, they would be re-directed to the homepage of the website; by clicking on the short description of the news, they would be allowed to read the full text of the article; by clicking on the ad banner, they would be re-directed to the brand's landing page; by clicking on any of the social media icons, they could share the news on the corresponding social media (sample pictures of the fictitious webpages are available in the Appendix B). We provided these instructions to increase realism, but in reality, the Qualtrics software registered the section they clicked and then re-directed them to the next section of the study. In other words, after their click—if any— all the participants followed the same path in order to rule out the possibility that subsequent measures would be affected by the different content or amount of information they were exposed to while reading the news. In the following section of the study, participants received a questionnaire aimed at measuring the dependent constructs and covariates of the study, as detailed in Measures section below.

Measures

In this section of the questionnaire, respondents completed a set of scales that measured the key constructs for this research: *intentions to purchase* (Holzwarth, Janiszewski, and Neumann 2006), *intention to visit the dealer* (Matzler et al. 2016), *intention to spread positive word-of-mouth* (Brüggen, Foubert,

and Gremler 2011), *brand attitude* (Till and Busler 2000), *brand trust* (Chaudhuri and Holbrook 2001), *source credibility* (Harmon and Coney 1982), and *news credibility* (Appelman and Sundar 2016). Furthermore, we measured individuals' perceived ability to detect deception—which the extant literature has identified as a significant covariate—by means of the *deception detection self-efficacy* scale developed by Ormond et al. (2016). Finally, participants were tested for suspicion, thanked and debriefed.

Results

A factor analysis confirmed the reliability of the five scales drawn from the literature, with Cronbach's alpha equal to 0.97 for *news credibility*, 0.94 for *source credibility*, 0.89 for *brand trust*, 0.96 for *brand attitude*, 0.90 for *deception detection self-efficacy* measure, and 0.92, 0.97, and 0.92 for intention to visit the dealer, to spread positive word-of-mouth, and to purchase a car from the advertised brand, respectively. Accordingly, we averaged the items of the aforementioned scales to define the factors for the subsequent analyses. Table 1, below, displays the items, inter-item correlations, and Cronbach's alpha for the considered measures.

First, we examined if participants differed in their clicking behaviors across the experimental condition. We found that the number of individuals interacting with the page in any way was extremely low (1%), in line with the *1% rule* (e.g., Carter, 2013). We then conducted a logistic regression model, with sharing as a dependent variable, but this yielded no significant differences in the clicking behavior as a function of the source, news category, or news truthfulness.

No differences emerged in terms of the perceived realism of the webpage across the sixteen experimental conditions ($F(15, 360) = 1.27$, $p = .216$, $\eta^2 = 0.04$), thus ensuring that our experimental manipulations did not affect the extent to which participants perceived the experimental stimuli to be realistic ($M = 5.06$; S.D. = 1.20 on a 7-point scale). In addition, manipulation checks revealed that the reliable source was actually perceived to be more credible than the unreliable source ($M_{BBC} = 4.72$; $M_{BuzzFeed} = 3.56$; $F(1, 395) = 68.58$, $p < .001$, $\eta^2 = 0.15$); that the real news was perceived as more credible than the fake news ($M_{Real} = 3.93$; $M_{Fake} = 2.91$; $F(1, 395) = 37.33$, $p < .001$, $\eta^2 = 0.09$), and that the two brands differed in their perceived popularity ($M_{Toyota} = 3.46$; $M_{Fiat} = 3.13$; $F(1, 395) = 3.61$, $p = .05$, $\eta^2 = 0.01$).

We predicted that the effect of news truthfulness on individual behavioral intentions toward the adjacent advertised brand would be serially mediated by perceptions of trustworthiness toward the news, the source, and the brand, and by brand attitude. Accordingly, we conducted a sequential mediation analysis with four mediators by using the Process macro for SPSS (Model 6; see Hayes 2018) to evaluate the causal sequence: news truthfulness ➔ news credibility ➔ source credibility ➔ brand trust ➔ brand attitudes ➔ behavioral intentions, which yielded a full mediation (Fig. 2). In the following paragraphs, we will describe the moderated mediation models that were run for each of the three dependent

Table 1
Constructs and measurements.

Construct (Number of items; Source)	Items	Inter-item correlation (minimum–maximum)		Cronbach's alpha
News Credibility (3; Appelman and Sundar 2016)	Accurate	0.89	0.94	0.97
	Authentic	0.91	0.93	
	Believable	0.89	0.91	
Source Credibility (6; Harmon and Coney 1982)	Trustworthy	0.49	0.90	0.94
	Good	0.51	0.90	
	Open-minded	0.46	0.76	
	Trained	0.53	0.88	
	Experienced	0.60	0.88	
	Expert	0.51	0.86	
	Well-known	0.49	0.60	
Brand Trust (4; Chaudhuri and Holbrook 2001)	I trust this brand	0.64	0.79	0.89
	I rely on this brand	0.56	0.64	
	This is an honest brand	0.56	0.79	
	This brand is safe	0.56	0.78	
Brand Attitude (3; Till and Busler 2000)	Strongly Like	0.87	0.88	0.96
	Favorable	0.87	0.92	
	Positive	0.88	0.92	
Deception Detection Self-Efficacy (3; Ormond et al. 2016)	Detecting deception in electronic communication is easy to do	0.70	0.72	0.90
	I am confident I can detect deception in electronic communications	0.70	0.85	
	I am able to detect deception in electronic communication without much effort	0.72	0.85	
Intention to Visit the Dealer (3; adapted from Matzler et al. 2016)	I can imagine to spend some time at the advertised car dealer	0.76	0.78	0.92
	I already thought about spending some time at the advertised car dealer	0.76	0.85	
	I intend to visit the advertised car dealer in the close future	0.78	0.85	
Word-of-Mouth (4; Brüggen, Foubert, and Gremler 2011)	I am likely to say positive things about the advertised brand to other people	0.82	0.90	0.97
	I am likely to recommend the advertised brand to a friend or colleague	0.86	0.92	
	I am likely to say positive things about the advertised brand in general to other people	0.87	0.90	
	I am likely to encourage friends and relatives to the advertised brand	0.82	0.92	
Purchase Intention (3; Holzwarth, Janiszewski and Neumann 2006)	I can imagine buying a car from the advertised company	0.78	0.78	0.92
	The next time I buy a car, I will take the advertised company into consideration and have them make me an offer	0.78	0.81	
	I am very interested in buying a car from the advertised company	0.78	0.81	

constructs of the analysis, namely *purchase intention*, *intention to spread positive word-of-mouth*, and *intention to visit the brand store*.

The effect of fake news on purchase intention

The indirect pathway from *news truthfulness* to *purchase intention* through *news credibility*, *source credibility*, *brand trust*, and *brand attitudes* was significant and did not include zero (indirect effect = 0.04, 95% CI: 0.012 to 0.070), thereby supporting our predictions. Meanwhile, the direct pathway from *news truthfulness* to *purchase intention* was not significant as it included zero (direct effect = −0.06, 95% CI: −0.31 to 0.20), thus suggesting a full mediation, as detailed in Fig. 2 below.

More specifically, *news truthfulness* was found to exert a significant and positive impact on *news credibility* (β = 1.08; t = 4.66; p < .001; CI: 0.63 to 1.154). This evidence supports H1, and is consistent with the manipulation check—which is to say that individuals tend to subjectively perceive objectively true news as more credible. We also expected to find the relationship between *news truthfulness* and *news credibility* to be moderated by the source on which the news appeared. However, our results do not support the moderating effect of

source (test of highest order unconditional interaction: R^2 change = 0.000; $F(1; 392)$ = 0.0007; p = .98); thus, H1a is not supported. *News credibility*, in turn, was found to positively affect *source credibility* (β = 0.56; t = 11.51; p < .001; CI: 0.46 to 0.65), indicating that there is also a backward effect of *news credibility* perceptions on *source credibility*, thereby supporting H2. Again, no moderating effect emerged with respect to the source (test of highest order unconditional interaction: R^2 change = 0.003; $F(1; 391)$ = 1.95; p = .16). Hence, the results do not support H2a, and suggest that such a backward effect on individuals' credibility perceptions from the news to the source takes place regardless of the source itself.

Brand trust plays a pivotal role between the news- and brand-related variables in our model, as we predicted that the *source credibility* would impact individuals' trust in the brand being advertised alongside the news. In support of H3, the results show that *source credibility* significantly affects *brand trust* (β = 0.22; t = 3.84; p < .001; CI: 0.11 to 0.33), suggesting that individuals tend to trust a brand more if it is advertised on sources that are perceived to be credible. In contrast with H3a, however, we did not find *brand knowledge* to exert a moderation effect on the *source credibility-brand trust* relationship (test of highest order unconditional interaction:
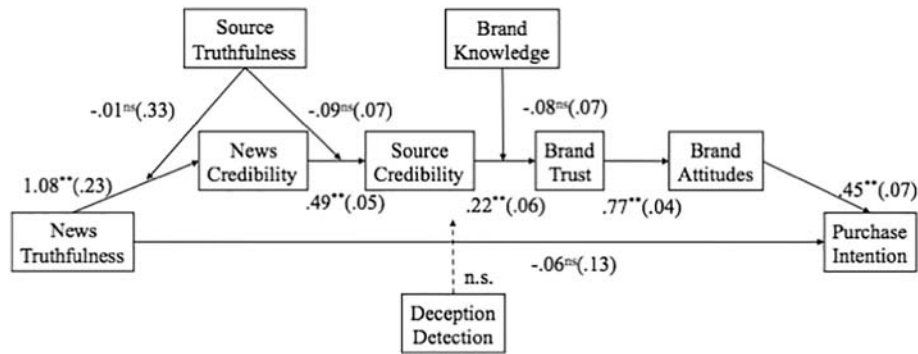
Fig. 2. Mediation model in which the direct effect of *news truthfulness* on *purchase intention* is mediated by *news credibility*, *source credibility*, *brand trust*, and *brand attitudes*.

R^2 change = 0.003; F (1; 390) = 1.17; p = .28): this finding therefore rules out the possibility that that the image transfer from news and source to the advertised brand occurs as a function of people's brand knowledge. *Brand trust* was found to significantly and positively affect *brand attitudes* (β = 0.77; t = 18.94; p < .001; CI: 0.69 to 0.85), which in turn determine higher levels of individual intention to purchase a product from the advertised brand (β = 0.45; t = 6.42; p < .001; CI: 0.31 to 0.59), thereby providing support to H4 and H5, respectively.

In terms of *deception detection self-efficacy*, this covariate did not exert a significant effect on any of the model's variables. This suggests that the causal pathway from *news truthfulness* to *brand attitudes* is not affected by individuals' perception of themselves as skilled in parsing real news from fake.

The effect of fake news on intention to spread positive word-of-mouth about the brand

A similar pattern of results was found with regard to the *intention to spread positive word-of-mouth*. The indirect pathway from *news truthfulness* to *intention to spread positive word-of-mouth* through *news credibility*, *source credibility*, *brand trust*, and *brand attitudes* was significant and did not include zero (indirect effect = 0.04, 95% CI: 0.013 to 0.071). The absence of a significant direct effect (direct effect = − 0.01, 95% CI: −0.252 to 0.227) suggests the existence of a full mediation. In particular, a significant effect emerged with regard to the *brand attitudes-intention to spread positive word-of-mouth* relationship (β = 0.47; t = 7.21; p < .001; CI: 0.34 to 0.60). Similar to the above case, we did not find any significant

effect exerted by individuals' *deception detection self-efficacy* perceptions. The results are briefly summarized in Fig. 3 below.

The effect of fake news on intention to visit the brand store

Finally, we ran the same moderated mediation with the intention to visit the car dealer set as the independent variable. Again, the indirect pathway from *news truthfulness* to *intention to visit the brand store* through *news credibility*, *source credibility*, *brand trust*, and *brand attitudes* was significant and did not include zero (indirect effect = 0.02, 95% CI: 0.01 to 0.04); likewise, *news truthfulness* had no significant direct effect on *intention to visit the brand store* (direct effect = 0.05, 95% CI: −0.30 to 0.20). Together, these results suggest the existence of a full mediation. Notably, *intention to visit the brand store* was significantly influenced by *brand attitudes* (β = 0.27; t = 3.90; p < .001; CI: 0.13 to 0.40).

As a covariate, *deception detection self-efficacy* did not display any significant effect across the entire pathway. The results are briefly summarized in Fig. 4 below.

That is to say, individuals exposed to *fake news* on a webpage exhibit lower intentions to (a) purchase, (b) spread positive word-of-mouth, and (c) visit the store of a brand advertised close to the fake news. The results show that such a negative effect is due to the fact that the presence of *fake news* on a webpage lowers perceptions of news credibility, generating a backward negative effect on the credibility of the source. Lower levels of *source credibility*, in turn, negatively affect individuals' trust in the brand advertised on the page, translating into lower attitudes toward the brand. Low levels of
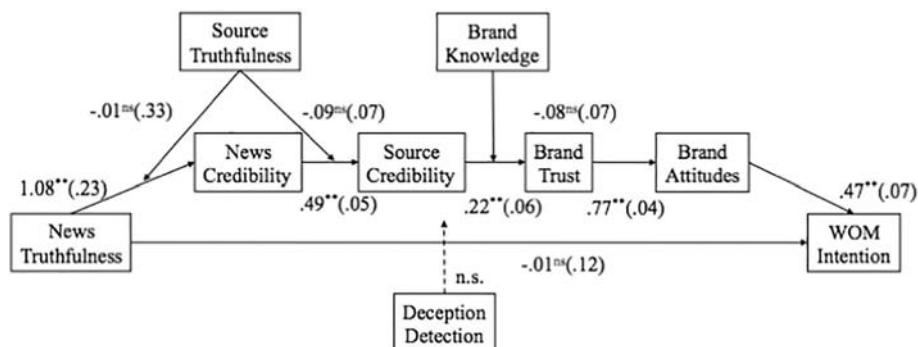

Fig. 3. Mediation model in which the direct effect of *news truthfulness* on *intention to spread positive word-of-mouth* is mediated by *news credibility*, *source credibility*, *brand trust*, and *brand attitudes*.
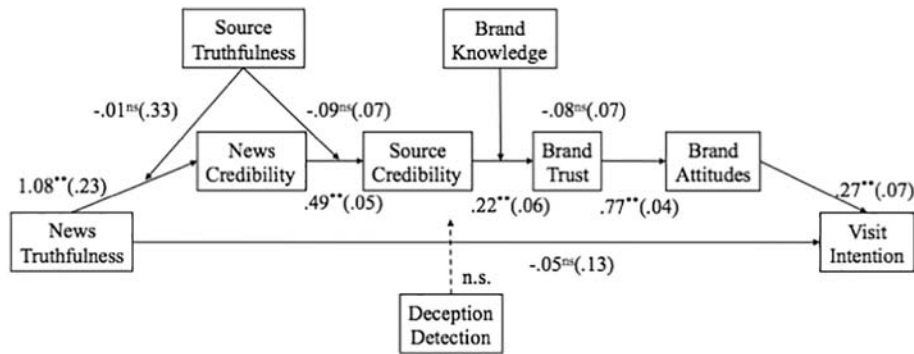
Fig. 4. Mediation model in which the direct effect of *news truthfulness* on *intention to visit the brand store* is mediated by *news credibility*, *source credibility*, *brand trust*, and *brand attitudes*.

brand attitudes ultimately lead to lower behavioral intentions. The details about the estimated pathways for the three models can be found in Table 2 below.

Ruling out alternative explanations

It may be that respondents who failed to recall the advertised brand did not transfer credibility between the news and the brand simply because they were inattentive to the ad's presence. One might argue that brand recall, in turn, might be affected by the *news truthfulness*, or by the source on which it appeared. To address this, we conducted a logistic regression model in which brand recall was set as the dependent variable while news type, *news credibility* and *source credibility* were set as the independent variables. The results yielded no main effects on brand recall. In order to investigate whether the brand-related consequences of the presence of *fake news* vary depending on individuals' ability to recall the brand, we ran a moderated mediation analysis using Process (model 6 with moderation pattern custom specification; Hayes 2018), as in the previous paragraph, but substituted *brand knowledge* with *brand recall* as a proposed moderator. The absence of any moderating effect by *brand recall* on either the *brand trust-brand attitudes* (test of highest order unconditional interaction: R^2 change = 0.000; $F(1; 331) = 0.008$; $p = .93$) or the *attitudes-*

purchase intentions (test of highest order unconditional interaction: R^2 change = 0.001; $F(1; 330) = 0.79$; $p = .38$) relationships suggests that the chain of effects (from fake news to brand attitudinal and behavioral consequences) holds regardless of individuals' ability to correctly recall the advertised brand. On one hand, this finding rules out the possibility that the effects on attitudes and behaviors are a function of individuals' brand knowledge; on the other hand, it suggests that such a chain of effects can occur both consciously and unconsciously (i.e., even for those who did not fully retain the details about the advertised brand).

Next, we checked whether participants who correctly guessed the purpose of the study (N = 60; 15%) displayed different reactions to fake news because of their understanding of the experiment's goal. Again, the ability to detect the study's purpose did not exert a moderating effect on either the *brand trust-brand attitudes* (test of highest order unconditional interaction: R^2 change = 0.001; $F(1; 391) = 0.99$; $p = .32$) or the *brand attitudes-purchase intentions* (test of highest order unconditional interaction: R^2 change = 0.003; $F(1; 390) = 1.69$; $p = .19$) relationships. This finding negates the possibility that individuals' reactions toward the advertised brand are biased by their understanding of the experiment, ruling out possible demand effects (cf. Verhoef, Pauwels, and Tuk 2012).

Table 2
Path coefficients and indirect effects for mediation models from *news truthfulness* to (A) *purchase intention*, (B) *intention to spread positive word-of-mouth*, and (C) *intention to visit the brand store.*

	Path Coefficients						
	to News Credibility	to Source Credibility	to Brand Trust	to Brand Attitude (BA)	(A) to Purchase Intention (PI)	(B) to Intentionto Spread PositiveWord-Of-Mouth (WOM)	(C) to Intention to Visit the BrandStore (VD)
News Truthfulness (T)	1.08** (0.23)	−0.66** (0.12)	0.08 (0.12)	0.12 (0.09)	−0.06 (0.13)	−0.01 (0.12)	−0.05 (0.13)
News Credibility (NC)		0.49** (0.05)	0.15** (0.04)	−0.01 (0.03)	0.08 (0.05)	0.03 (0.04)	0.14* (0.05)
Source Credibility (SC)			0.22** (0.06)	0.04 (0.04)	0.07 (0.05)	0.05 (0.05)	0.03 (0.05)
Brand Trust (BT)				0.77** (0.04)	0.42** (0.07)	0.38** (0.07)	0.47** (0.08)
Brand Attitude (BA)					0.45** (0.07)	0.47** (0.07)	0.27** (0.07)

Note: Standard error in parentheses. *N* = 396. * = *p* < .01; ** = *p* < .001.
Direct Effect (A) T → PI = −0.06 (0.13), *p* = .64, 95%CI: −0.32 to 0.20.
Direct Effect (B) T → WOM = −0.01 (0.12), *p* = .92, 95%CI: −0.25 to 0.23.
Direct Effect (C) T → VD = −0.05 (0.13), *p* = .71, 95%CI: −0.30 to 0.20.

By jointly considering individuals' clicking behaviors and stated perceptions, we observed that individuals do not react differently to real or *fake news* in terms of how they interact with the webpage (i.e., they do not click less frequently on the ad or share articles any differently based on truthfulness). However, the presence of *fake news* generates a set of negative reactions that spread like a halo from the news to the source, and then from the source to the brand(s) advertised on the webpage.

General Discussion

The present research investigated the potential impact of *fake news* on adjacent brand ads. More specifically, we examined whether the visual association of an ad with adjacent *fake news* leads to a credibility spillover—from the article/source to the brand. As predicted, we did not uncover any direct effect from *news truthfulness* to behavioral intentions toward the brand, either in terms of purchase intentions, the intention to visit the brand's car dealer, or to spread positive word-of-mouth about the brand. However, there are indirect paths by which *fake news* can impact people's perceptions of an advertised brand. Namely, we found evidence of a mediation chain by which people's perceptions of a news story's credibility affect the perceived credibility of the source, which then influences brand trust, which in turn impacts brand attitudes, which ultimately translates into behavioral intentions toward the brand.

Through our empirical tests, the present research helps to advance scholarly knowledge on the consequences of *fake news* for marketing. Indeed, the model presented herein accounts for the objective truthfulness of the news, the extent to which the news is perceived to be true by the audience, the truthfulness intrinsically associated with a source, and individuals' perceptions of the source's credibility. The results highlight that *fake news* can produce different consequences that spill over to the brand advertised alongside the *fake news* —encompassing not only brand trust and brand attitudes, but also behavioral consequences such as purchase intention, word-of-mouth referral and intention to visit the brand's store (in this case, the car dealer). To the best of the authors' knowledge, this is one of the first attempts in the literature to bridge *fake news* perceptions and brand perceptions. In this regard, the present research accounts for the entire set of causal relationships through which fake news affects adjacent advertised brands.

One novelty of our study is that we empirically distinguish between a source's stock of credibility (i.e., a priori truthfulness), which results from individuals' repeated exposure to said source, and individuals' credibility perceptions of the source following their exposure to specific news (i.e., perceived *source credibility*). In light of this, our results illustrate that consumers' perceptions about an advertised brand are (negatively) affected by the presence of *fake news*, regardless of the source's a priori credibility or individuals' positive a priori beliefs about the source. In other words, a negative spillover from the *fake news*

to the brand is likely to occur independently from the stock of truthfulness held by the source a priori. At the same time, our results suggest that source credibility perceptions are always affected by news credibility perceptions. This is consistent with previous studies, which highlighted the influence of message content on a source's perceived credibility (e.g., Slater and Rouner 1996; Wu and Wang 2011). In addition, our results show that the chain of effects from the news to the brand is not moderated by the accurate recall of the brand advertised alongside the news article. This seems to suggest that the set of causal relationships occurs at both a conscious and unconscious level. This is to say, the path from *source credibility* to *brand trust* holds regardless of individuals retaining a memory of the brand in the ad. This form of *inattentional blindness* (Simons and Chabris 1999) is consistent with previous studies that documented people's unconscious processing of web advertising (Yoo 2008).

Interestingly, we did not find any effect for the *deception detection ability* as a covariate in the model. This suggests that the attitude formation path suggested by the model is quite robust and insensitive to individuals' perceived ability to discern real news from *fake news*.

These results might interest managers who are worried about *fake news* tainting their brand's image. In our study, the negative effects determined by *fake news* on *brand attitudes* and behavioral intentions take place regardless of the source where the news appears. In light of this, brand managers do not need to develop a 'black list' of sources on which they do not want their ads to appear, since the impact of *fake news* would be detrimental to the brand in any case. Rather, our results encourage brand managers to carefully monitor sources on which they appear since the likelihood of *fake news* to be published varies between sources. This oversight becomes especially cogent when considering that the negative associative impact of *fake news* is not confined to perceptions of *brand trust*, but extends to managerially relevant outcomes such as consumers' intentions to purchase, spread word-of-mouth, or visit the brand's store.

From a marketing perspective, the proliferation of *fake news* constitutes a growing risk for companies. Global Internet advertising expenditure is continually on the rise: In 2017, it exceeded US$200bn (Zenith 2017), thereby marking the first year in which more money was spent on Internet advertising than on traditional media (e.g., television). Concurrently, fake news is becoming increasingly ordinary: A recent Gallup poll (Swift 2016) revealed a continuing decline of trust and confidence in the mass media's ability to report the news accurately and fairly. These two trends will bring advertisements and *fake news* into increasing collision, which has significant implications for not only marketing, but also for companies' reputations. In order to avoid wasting their money and tarnishing their image, companies need to understand whether the appearance of an advertisement next to fake or misleading content may affect consumers' brand attitudes and behaviors. Fortunately, some remedies have been already implemented: Facebook
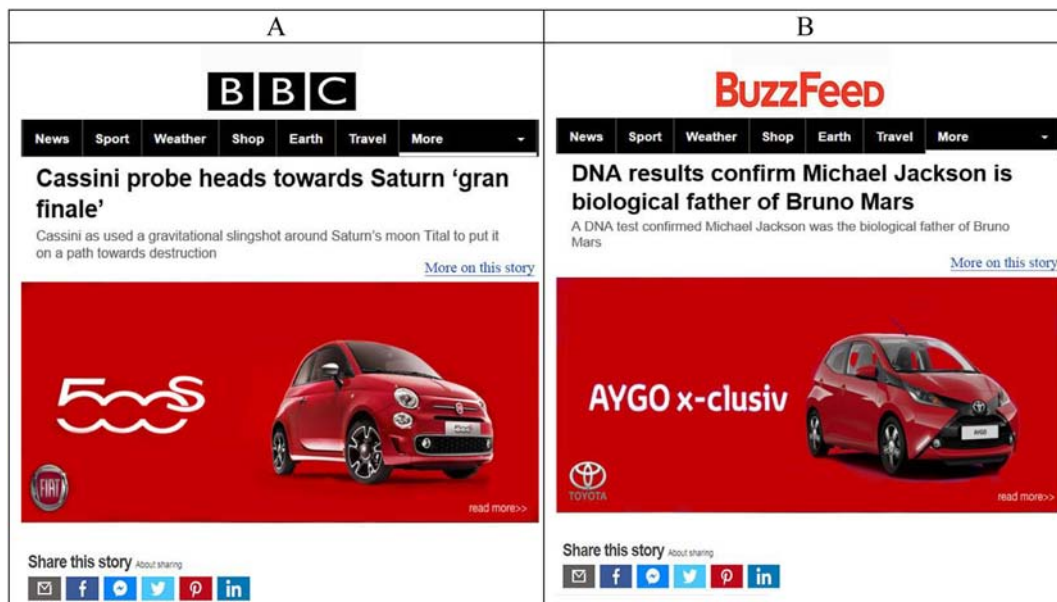
Appendix A

Examples of fictitious web pages used as experimental stimuli in the preliminary study.
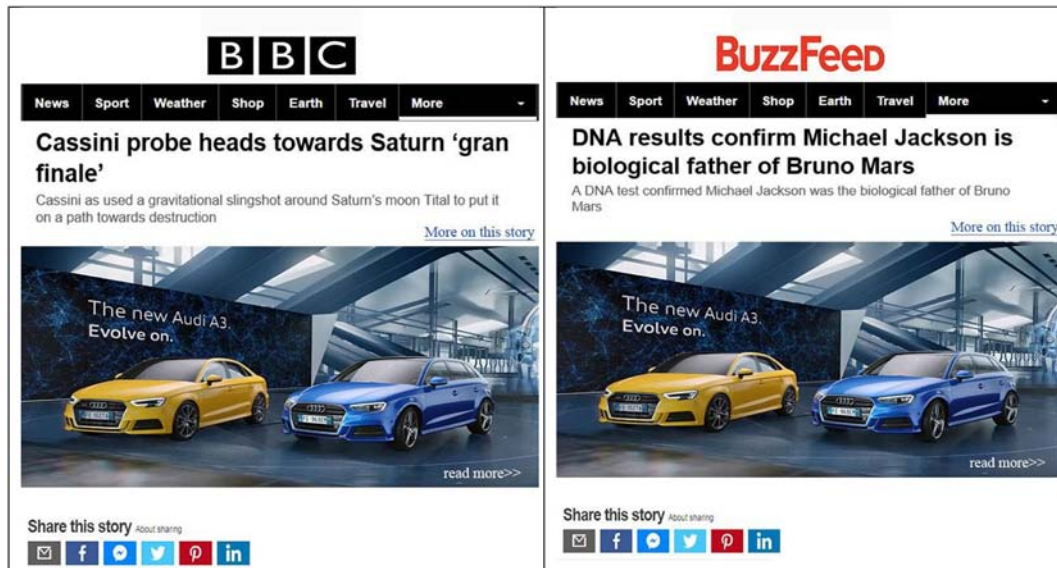
Appendix B

Examples of fictitious web pages used as experimental stimuli in the main study.

Note: A: News: Real; Type: Science; Source: BBC; Brand: Fiat. B: News: Fake; Type: Gossip; Source: BuzzFeed; Brand: Toyota.

and Google have promised to crack down on *fake news* by labelling suspicious stories in cooperation with independent fact-checking organizations (The Telegraph-AP 2017), as well as cutting off *fake news* publishers' access to their electronic advertising platform (Chavern 2017). However, the problem cannot be underestimated: As *fake news* continues to permeate societies, it will quickly become a very real problem for companies.

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