

EVOLUTION OF AN EMERGING CONCEPT: CHARACTERISTICS OF FAKE NEWS AND POSSIBLE IMPLICATIONS FOR THE EDUCATION SYSTEM

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Abstract

Worries about the diffusion of fake news and its impact on society have grown considerably in the last few years. Researchers in different fields have recognized the need to better understand the reasons behind its spread and identify strategies to combat it. This article resumes the main results achieved in different fields of knowledge, to define a theoretical framework. We performed a systematic review of recent literature (2013–2018), which showed that even if the concept of “fake news” has attracted a great number of researchers there still isn’t a clear definition of the phenomenon nor a plan on how to combat it. The results suggest the need for education and schools to promote programme and policies that may support pupils in recognizing and defending themselves from fake news at national and international levels.

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Abstract.

Worries about the diffusion of fake news and its impact on society have grown considerably in the last few years. Researchers in different fields have recognized the need to better understand the reasons behind its spread and identify strategies to combat it. This article resumes the main results achieved in different fields of knowledge, to define a theoretical framework. We performed a systematic review of recent literature (2013–2018), which showed that even if the concept of “fake news” has attracted a great number of researchers there still isn’t a clear definition of the phenomenon nor a plan on how to combat it. The results suggest the need for education and schools to promote programme and policies that may support pupils in recognizing and defending themselves from fake news at national and international levels.

Keywords: Fake news, Education, Digital literacy, Critical thinking

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Evolution of a rising concept: characteristics of fake news and possible implication for the education system.

Nowadays, being familiar with the concept of fake news and how to recognise and deal with it is becoming a key skill in many disciplines. Researchers in the field of Journalism, Communication Sciences, Political Sciences, Law, Medicine, Behavioural Sciences, Psychology, Sociology, Philosophy, as well as Computational and IT Sciences are trying to get a clearer view of what fake news is, and its consequences in their specific field of research. In the last few years, fake news has become a “hot” topic, often connected with political elections and events, but also to scientific information, satire and rumour mongering. This is testified by the attention given to the phenomenon by mass media and the copious number of articles on the subject printed in Italian and foreign daily information journals. In 2018 alone, *Corriere della Sera*, one of the most prominent Italian newspapers, published more than 700 articles mentioning the word “fake news”. In the last two years (2017-2018), the Ministry of Education in Italy promoted several actions and events to sensitise high-school teachers and pupils to the phenomenon of fake news. These interventions have also helped focus the collective attention of the population on fake news and its impacts.

In the last 5 years, the production of articles and papers in the academic world on the theme of fake news has been more consistent. The largest number of papers have been written in the USA, during the Trump-Clinton campaign period and in the UK, making reference to the Brexit phenomenon. After 2016 a conspicuous number of articles began to analyse the phenomenon of fake news, starting from different epistemologies and with different approaches, testifying to the high complexity of the phenomenon. But even in the light of the flourishing production of papers, articles and news about this topic, there

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is still no common definition of fake news, nor agreement on how to differentiate it from the classical concept of “misinformation” (Lewandowsky, Ecker, & Cook, 2017a).

Some researchers have empirically explored the effect of fake news on the culture and habits of populations (D. M. J. Lazer et al., 2018a) but, to our knowledge, no one has tried to measure the consequences on society in the long term. In spite of the increasingly important consequences of fake news on the daily life and choices of people at a global level, the direct connection and causality between fake news and individuals’ behaviours is hard to demonstrate. This is particularly true when researchers try to analyse complex phenomena such as political elections or medical and economic trends (Malakoff, 2017). Two things that we know for sure today are that fake news possesses great potential for conditioning human choices, and it is hugely pervasive in people’s lives. This is due to the fact that fake news travels primarily through social media channels – the use of which has increased exponentially in the past few years, becoming often the first source of news both for consumers and “old” media alike (meaning newspapers, radio and television; Allcott & Gentzkow, 2017; Fuchs, 2017; Newman, Fletcher, Kalogeropoulos, Levy, & Nielsen, 2017).

So far, little is known about the impact of fake news in the educational field. In education, defining fake news could help identify the fundamental skills needed to recognise, interpret, and analyse this content. This would then inform the development of pupils’ cognitive abilities necessary for contextualising and thinking critically about fake news. Our work is inspired by the hypothesis that building these intellectual capabilities, as a part of schools’ curricula from a very young age, together with the development of new forms of critical thinking connected to the use of ICT tools, could have great benefits for individuals (pupils, teachers, family members) and society as a whole. Thus, fostering

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teachers' and students' capacities to exercise a critical and informed approach to news should justifiably become a fundamental task of education in every country. This is already stressed by various European and Global agencies (Gabriel & de Cock Buning, 2018)

To ensure that educational policies, practices and research are informed by available, rigorously established evidence, this review seeks to describe, appraise and synthesize the theoretical and empirical research on fake news and the methods used to detect it. We decided to consider studies made between 2013 and 2018, asking ourselves the following research questions:

1. Who is currently studying fake news?
2. What are the characteristics of the definitions adopted by different studies?
3. How is the relation between fake news and education approached?

This review then aims to critically discuss the scientific literature produced about fake news in the last five years: to propose a shareable definition, distinguishing it clearly from previous phenomenon – misinformation and disinformation; and to open up a debate about fake news and education in new media and digital literacy.

Method.

This section explain how data was searched, chosen, analysed and elaborated.

Search and selection process

ERIC, Scopus, Google Scholar, ScienceDirect, and Mendeley were explored using the following search terms and keywords: “fake news”; “fake news & education”; “fake news” & “training”; “fake news” & “critical thinking”; “fake news” & “alternative reality”; “fake news” & “social media”; “fake news” & “new media”.

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The search covered literature from January 2013 up to and including December 2018. Some older publications were also included, when considered particularly important or interesting for the debate to come. These were mainly found by means of snowballing (Cordingley, Bell, Thomason, & Firth, 2005; Petticrew & Roberts, 2006), that is, literature cited in the already included articles. At the end of the literature research process 153 articles were retrieved and selected for in-depth reading and examination.

The first selection process encompassed three steps. In the first step, the title and abstract, were judged based on the following criteria for inclusion: (a) the article or the paper had to be peer reviewed, (b) fake news had to be the main topic of the article (c) the article had to report a discussion about fake news in the new media scenario or hypothesis about why fake news can be accepted as true even when the content is clearly false.

In the second phase, the selected articles' research questions, method, results, and conclusions were analysed, reading the full text for a deeper evaluation of its utility for our aims: making an overall description of fake news' definition in different fields of knowledge and opening a debate about how they could interrelate with education and educational policies.

Using these three criteria, plus the integral reading of the selected text, it was then decided whether the article would be included in the review or not. Finally, 36 articles were considered eligible, and divided into groups based on the main field of knowledge represented by each of them (Table 1).

In total eight fields of study that have been interested in the investigation on fake news were identified.

Journalism and media are surely the most prolific, being directly affected by the diffusion of Fake News awareness and concerns. Most of the articles focus on the ethical

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aspect of the journalistic work and the impact of the new platforms and media channels.

ICT science is mainly concerned with the identification of useful algorithms for automatic detection of fake news, while cognitive psychologists are working on the assessment of the role played by cognitive biases, often adopting an experimental approach.

Economics articles focus on how fake news can affect the economy by leading large numbers of people to buy specific products, but also by diffusing false narratives that affects their behaviours and decisions. The same mechanism is also reported in studies conducted in the sociological and political fields, where attention is mainly pointed towards the consequences the massive diffusion of fake news through social media can have: people choices change the world in which we are living.

This is also the reason why in legal and medical fields researchers are asking themselves how the fake news phenomenon could be controlled from a legal perspective, but also with the diffusion of correct information.

Data-analysis

To perform the data-analysis we used a qualitative model of content analysis (Krippendorff, 2004). Content analysis involves the description and analysis of text to represent its content. We chose the qualitative version for the assessment of the words and terms used in the different articles. Content analysis differs from hermeneutics, in that its focus is based solely on the description of the contents of the text: “*Content analysis establishes ‘meaning’ only in the sense of what is explicit in the words used in the text*” (Miller & Brewer, 2011, pp.44).

The data-analysis consisted of five steps:

1. First, a list of all fields of knowledge present in the sample of articles was created.

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This list was then clustered into five categories. The five categories identified were: Journalism and Media Studies, Cognitive Psychology, ICT Sciences, Philosophy, Sociological and Political Sciences. Each article was assigned to a field of knowledge. These identifications were used to determine the primary research and/or field from which each article originated. When one article appeared to hold more than one perspective it was assigned to more than one field of knowledge.

2. All the selected articles were then examined. This examination analysed (a) what definition of fake news was proposed and used as a base for the developing of the article, (b) whether, and by what method, they investigated detection methods, (c) whether and how they analysed the phenomenon in relation to the reason why fake news is different from simple misinformation (d) whether and how they have the potential to engage with public opinion and modify or radicalise it (e) whether and how they confronted the fake news problem within an educational context or in relation to educational policies.
3. The next step was the creation of a model containing the main characteristics provided by the fake news definitions taken from each article, with consideration also of the different detection method proposed.
4. Models were then critically analysed and compared in order to highlight common traits and specificities, as well as strong points and weaknesses.
5. Finally, where and if present, information on the relation between fake news and education was analysed, compared, and used to inform the final discussion.

Defining fake news

This step of the analysis focused on the definitions adopted by the selected articles, to identify all relevant aspects taken into account. Shared categories are created and shown

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in the following table (Table 2). Of the 33 articles analysed, 32 adopted an explicit definition of fake news, while 1 did not specify what kind of content was included under the “fake news” label and moved directly to discussing the topic of the article. In 24 cases, the articles included historical reflections highlighting the continuity of fake news with previous phenomena and providing contextual information. Different characteristics were included in the adopted definition of fake news, some of them more widely shared by academics, and other less common, as shown in Table 2.

Despite becoming one of the most popular and used words in the past few years, the concept of “*fake news*” is hard to define. In literature we find different definitions, from authors who consider “*satirical tv shows*” as a form of fake news, to those who define fake news only as only false claims created to generate web traffic towards a specific and often fraudulent website (click-bait). Other authors give an intellectual and more philosophical frame to the phenomenon, linking it to concepts such as “*post-truth era*”, “*post-fact*”, “*alternative facts*” or “*subjective reality*”. Finally, there are the authors trying to study fake news from a psychological (mostly cognitive) point of view. More than seeking just a definition, these authors are usually in search of the reasons that make fake news such an important, influential, and highly diffused phenomenon.

Some researchers claim that “...the term fake news has lost all connection to the actual veracity of the information presented, rendering it meaningless for use in academic classification” (Vosoughi, Roy, & Aral, 2018). When speaking about news they chose to use what they considered more objectively verifiable terms as “true” or “false”. This choice, however, obliges them to ignore the fact that in “false” news there can be an element of wilful distortion of the truth which always implies a certain level of intentionality and a defined (often even openly declared) strategic aim.

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In other authors' analysis, the element of intentionality can be clearly seen in the construction of the definition of fake news, even when it is not openly declared. For instance, one of the most complete definitions of fake news we could find is from Grech's (2017b) work. He categorised fake news under seven possible layers: 1. Satire or parody, which has no actual intention to harm but has the potential to deceive and confuse; 2. False connection, when headlines or visuals of captions fail to support the real content of the message; 3. Misleading content, when there is a cynical and possibly hypocritical use of information to frame an issue or an individual; 4. False content, when genuine content is shared with false contextual information; 5. Imposter content, when genuine sources are impersonated with false, fabricated sources; 6. Manipulated content, where the news is actually true, but is presented in a highly partisan way; 7. Fabricated content, which includes mostly outright false information (Grech, 2017b).

A similar way to identify different typologies of fake news is presented in Tandoc, Lim, and Ling, (2017), who categorise fake news as: "*news satire, news parody, fabrication, manipulation, advertising, and propaganda*". Here, in the "fabrication" and "manipulation" fake news subcategory, the intention to deceive starts to be highly visible. They are also particularly attentive to the way fake news looks: "*fake news appropriates the look and feel of real news; from how websites look; to how articles are written; to how photos include attributions. Fake news hides under a veneer of legitimacy as it takes on some form of credibility by trying to appear like real news*" (Tandoc, Lim, et al., 2017).

Appearance is a key factor in fake news because it helps in the deception process of the reader. This is underlined by Lazer et al. (2018a), when they define fake news as "*fabricated information that mimics news media content in form but not in organizational*

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process or intent". In their vision, one of the main features that distinguishes fake news from "*real*" news in their construction process is the ethical commitment to which the production and diffusion of "*real*" news by professional journalists is bound. In fact, they state that fake news "*lack[s] the news media editorial norms and processes for ensuring the accuracy and credibility of information*" (Lazer et al., 2017). The same authors claim that fake news, understood as a category, often overlaps with "*other information disorders, such as misinformation (false or misleading information) and disinformation (false information that is purposely spread to deceive people)*" (Lazer et al., 2018b).

Reading this definition, we can see how much the "***intentionality to deceive***" is important in order to discriminate fake news from other form of news manipulation, like satire or parody, which usually have an intention to amuse whilst nevertheless raising people's consciousness of an issue – but lack the intent to direct behaviour and have no intent to deceive.

Other definitions of fake news can be found in the 'Word of the Year' 2016 selections – produced by the editors of the Macquarie and Oxford dictionaries (Flood, 2016). Fake news is described as: "*Disinformation and hoaxes published on websites for political purposes or to drive web traffic*". In another article it is also highlighted and stressed that "*The incorrect information (has) being passed along by social media*" (Hunt, 2017). Both these features had been chosen by Pearson (2017) as critical parts of fake news' definition, introducing and analysing also the aspect of "hoax" as a possible distinctive trait of fake news, and the fact that they are, above all communication channels, spread on the internet using blogs and social media.

With regard to "hoax" and its relationship with fake news, Victoria, Rubin & Conroy (2015) describe how deceptive news can be harvested, crowdsourced, or mimicked by

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people. They analyse three different types of fake news, suggesting that there are at least three distinct characteristics that can connote fake news: fabrication, hoaxing, and satire (Rubin, Chen, & Conroy, 2015). Again, we see how fake news can be considered as a *“snappy identifier of a kind of a fraudulent media product”* (Corner, 2017).

The use of fake news for political purposes is harder to delineate, due to the frequently improper use of the term *“fake news”* often made by politicians. This leads to the opening of two sets of questions: the first is linked to the degree of prevalence of the concept of “false” within the news ecology, while the second concerns the use of the term made by governments to denounce news and rumours which conflict with their own public image or partisanship (Corner, 2017). The misuse and abuse of the term is seen to be founded in power: *“anything can now be called fake news, as long as the accuser possesses the power (i.e., the platform) to publicize his or her claims”* (Joselit, 2017). Read from a philosophical and phenomenological point of view, *“all news is fake news from someone’s point of view, and as a corollary, any conceptual category —such as fake news itself— may be unmoored from its anchoring signification and begin “trending” as a polysemous slogan”* (Joselit, 2017). Others simply conceptualize fake news as distorted signals uncorrelated with the truth, and define fake news as news articles that are intentionally and verifiably false, but could mislead readers (Allcott & Gentzkow, 2017).

The Spread of Fake news

Another focus of the researches was the identification of the factors related to the spread of fake news. The role of social media has already been highlighted by its recurrence in the analysis of the definitions and it plays a relevant role also in the identification of the specific ways fake news can spread among networks (typically but not exclusively virtual). The reviewed papers focus on aspects that facilitate the diffusion

of fake news, and discuss the role played by different factors (Table 3).

Role of the audience

The role of the audience is a fundamental factor in the study of fake news, especially if we ask ourselves whether fake news remains fake if it is not perceived as such. While news is constructed by journalists, the more common perception is that “*fake news are co-constructed by the audience*” (Tandoc, Lim, et al., 2017): in the continuous process of sharing they are modified and evolve. There has been a change in the patterns of individuals' news consumption, devolving the traditional role of journalists as gatekeepers (Coddington & Holton, 2014; Jang & Park, 2017) to an audience made of non-expert individuals. Websites where fake news is published are generally run by “*amateurs, hobbyists, and advertisers whose reporting can often be highly opinionated, sensationalized, misinformed, misleading, unverified, or otherwise unreliable*” (Chen, Conroy, & Rubin, 2015).

The audience of online news seems to be characterized by a specific attitude to the articles they read: “social media users appear to have lost the notion of deep reading by adopting a posture of deep monitoring and, when they see a catchy headline the default is to share” (Schifferesa et al., 2014). Plus, as users bypass traditional media gatekeepers to consume primary information directly, the gatekeeping function automatically shifts from content producers to content consumers (Lin, Spence, & Lachlan, 2016). This is possible, some affirm (Joselit, 2017), in large part because people now accumulate rather than critically judge information: “we function more as profiles than as citizens”.

Lazer et al. (2017) report that most people who share fake news, share lots of news in general. But knowing how many individuals share or read fake news is not the same as knowing how many people are affected by it. Evaluations and studies of the medium-to-

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long term impact of exposure to fake news on audiences are non-existent in literature. We can only make some inferences from our general knowledge about the effects of media, which suggests there are “*many potential pathways of influence, from increasing cynicism and apathy to encouraging extremism*” (D. M. J. Lazer et al., 2018a). A widespread culture of misinformation can change collective preferences (Reedy, Wells, & Gastil, 2014), which in turn can affect public discourses and outcomes (Fowler & Margolis, 2014), and so also individual decisions (Tafuri et al., 2014).

Recent works (Bessi, Coletto, et al., 2015; Bessi, Scala, Rossi, Zhang, & Quattrociocchi, 2014; Mocanu, Rossi, Zhang, Karsai, & Quattrociocchi, 2015) have shown that the more people are exposed to false information, fake news and rumours the more their tendency to be credulous will increase. Belief formation and revision are deeply influenced by the way different social spheres attempt to make sense of events or information. This phenomenon is undeniable when considering internet users, who, embedded in homogeneous clusters (or filtered bubbles; (Aiello et al., 2012; Bessi, Petroni, et al., 2015), process information through a shared system of meaning (Bessi, Zollo, et al., 2015; Zollo et al., 2015) and “*trigger collective framing of narratives that are often biased toward self-confirmation*” (Del Vicario et al., 2016).

Some researchers focus their reflection on the fake news that fall into the conspiracy theory category, highlighting the role played by social reinforcement from peers. The growth of knowledge, fostered by an interconnected world, combined with the unprecedented acceleration of scientific progress, has exposed society to an increasing level of complexity, which is hard both to explain and to understand. The problem lies in the nature of the different narratives. For example, conspiracy theories usually tend to reduce the complexity of reality, creating a more understandable content that, with its

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false simplicity, can contain the uncertainty generated by high volume news and information. This is also why this content is easily shared by people and generates a high level of commitment by consumers. Conspiracy theorists create a climate of mistrust, encourage disengagement from the mainstream problems of society and officially recommended practices which often requires an effort for the citizen to understand (Bessi, Coletto, et al., 2015). The mainstream news and views become read as plots conceived by powerful individuals or organizations in an attempt to hide the truth (Mocanu et al., 2015).

Social media role

In the early 2000s, the growth of online news prompted a new set of concerns. The World Economic Forum, in its 2013 report (Howell, 2013), listed “*massive digital misinformation*” as one of the main risks for the modern society. People’s perceptions, knowledge, beliefs, and opinions about the world get (in)formed and shaped through the information they can access. The World Wide Web, and in particular social media platforms, with their high level of accessibility, have changed the way we access information and pursue intellectual growth.

Social media has become deeply embedded in our daily life. It can facilitate our interpersonal relationships (Ledbetter et al., 2011), affect our personal well-being (Kim & Lee, 2011, Mura & Diamantini, 2013), facilitate social coordination (Ling and Lai, 2016), and shape the way people approach news (Lee & Ma, 2012). On these platforms people come across news and stories often by accident, just because they are using them (Antunovic, Parsons, & Cooke, 2018). On social media people can publish what they witness, comment on every news item, and share articles with their networks (Singer, Domingo, Heinonen, Quandt, & Vujnovic, 2011). Social media has also increased

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people's ability to customize information to their personal interests (Bennett, 2012).

These changes, linked to the use of social media in our daily life, have important implications. As Sunstein (2018) has warned, constant exposure to one set of views is likely to lead toward errors of judgment and confusion. By accessing only news conforming to their own perspectives, or the perspectives of their social sphere, audiences risk losing the ability to engage in meaningful debates. The shift toward news disseminated among social networks redefines role and authority of information producers and consumers (Tandoc, Ling, et al., 2017).

It is commonly recognised that the medium of the internet (and social media, in particular) has been the perfect tool for fostering the process of creation and proliferation of fake news. This is the reason why "*fake news*" has sometimes been defined as "*the online publication*" of false statements of fact (Klein & Wueller, 2017). Fake news is not a new phenomenon in itself, but forms a potent mix when combined with online social media that enable audience-specific manipulation of cognitive biases and heuristics (Gelfert, 2018; Khaldarova & Pantti, 2016). The fact that on social media platforms there are still no third-party filtering, fact-checking, or editorial judgment is one of the main reasons why social media platforms appear to be especially conducive to fake news; and is also considered to be a key reason that people believe so easily in fake news (S.S. Sundar, 2016). Finally, there is the format in which news is shared on social media platforms — slices of information, mostly composed of just a captivating title and an image, made to be consumed fast. Within a supporting context, this can make it almost impossible for the individual to judge an article's veracity (Allcott & Gentzkow, 2017).

The internet has undoubtedly changed the dynamics of information. Relevance of facts, in particular when connected to social issues, are often combined with half-truths

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and untruths to create informational mixtures that users discover and share with their online network. The information then enters a process of cascading reshares and modifications, which may ultimately reach a large number of people. Analysis has shown also how users tend to aggregate around certain contents, giving birth to well defined groups with similar information consumption patterns (Bessi, Coletto, et al., 2015). The internet has also created direct paths from producers to consumers of content. This has changed the way users search for information, debate between groups, and form their opinions (Brown, Broderick, & Lee, 2007; Kahn & Kellner, 2004; Kumar, Mahdian, & McGlohon, 2010; Quattrociocchi, Caldarelli, & Scala, 2015; Quattrociocchi, Conte, & Lodi, 2011). This disintermediated environment can foster confusion and thus encourage speculation, rumours, and mistrust in official media (Del Vicario et al., 2016).

Authors even say that “*social media is the lifeblood of fake news*” (Tandoc, Lim, et al., 2017) because these platforms are far more efficient and affordable than traditional media (Joselit, 2017; Tandoc, Ling, et al., 2017). Allcott & Gentzkow (2017), identified that the sheer diversity of viewpoints on the news available to people makes it easier for like-minded citizens to form “*echo chambers*” or “*filter bubbles*” (Pariser, 2011; C. Sunstein, 2001).

A 2018 report for the EU Commission states that we keep moving towards, and within an increasingly digitised environment, and it is undoubtedly clear that the same technologies and platforms can both enable and contribute to the creation and dissemination of entirely legitimate information, as well as allow various forms of potentially harmful disinformation to be propagated. The challenge today is to find ways to increasing societies’ resilience to the threats of disinformation while maintaining an open environment that can facilitate the circulation of ideas and information and find a

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way to combat the fake news phenomenon without undermining the ways in which digital media are empowering citizens, societies, and economies (Gabriel & de Cock Buning, 2018).

Heuristics

The vast majority of what we claim to know is distributed knowledge and it has usually been acquired and transmitted throughout our lifetime by others. So, most of our decisions do not come from our individual rationality but from shared group narratives (Matter, Fernbach, & March, 2017). Thus, our receptivity to information depends more on heuristics and social processes than from individual rationality. This is particularly important in the social media context, where users are confronted continuously by information overload (Tandoc, Ling, et al., 2017). Individuals are more dependent on cues and heuristics when they are confronted with written and fast communications – as we find on social media – than they would be in face-to-face communications. In these particular kind of situations people tend to engage in cognitive heuristic processing because that requires the least effort (Lin et al., 2016). As Sundar (2008) wrote: “*people are known to be “cognitive misers” and will not expend more cognitive energy than necessary to arrive at a particular inference, and so will rely on cognitive heuristics*”. This is the main reason why effortless information judgments are triggered prior to cognitive analysis.

Heuristics connected with our focus of interest are often related to *source credibility*, which profoundly affects the social interpretation of information (Baum & Groeling, 2009; Greenhill & Oppenheim, 2017; Swire, Ecker, & Lewandowsky, 2017). It is undeniable that individuals more easily trust information coming from well-known sources and even more from sources that align with their worldview. In sociological

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terms, trust has been seen as the glue that holds society together, as it enables people to act in uncertain situations, while distrust leads to atomization within society. Trust is a heuristic which allows people to act because they assume certain effects will follow their actions while other effects will not. In new media, it is based on the belief that a news item is reliable. Sundar (2008) also reflects on the inversion of role between users and creators of contents on the web, which “*makes credibility a supremely key concern in the new media environment, necessitating the constant need to critically assess information while consuming it*”. Also, “*credibility is classically ascertained by considering the source of information*”. This suggests that the application of heuristic cues to guide the public toward credibility judgments has become a common process in assessing contents and news. In the past, individuals did not need to spend cognitive energy on assessing news items; trust was assumed. Today, a message will be perceived as credible mostly when the source is perceived as credible (Kang et al., 2011). Trusting a source, whether it is a single author or an aggregator of news, lessens a user’s cognitive load in evaluating a message.

Another important fact is that humans are “*biased information-seekers*”: everyone prefers to receive information that confirms their already existing system of knowledge (C. R. Sunstein, 2016). When the information received is oppositional to that already known it is easily ignored. This tendency, studied since the 1960s, is known as selective exposure: people prefer to consume news that reinforces what they already believe. This process is in turn rooted in a psychological phenomenon known as *confirmation bias* (Del Vicario et al., 2016; Waldrop, 2017). These processes are so automatically triggered by unconscious cues that they usually occur without people being aware of them (Bakir & McStay, 2017).

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Sundar (2008) identifies the impact of a number of heuristics in the evaluation of the credibility of a message. For example, a long message is immediately connected with the “*length cue*”, which can trigger the “*length implies strength*” heuristic, leading to the conclusion that the message must contain strong arguments and so it must be true. This judgement doesn’t even take into consideration the actual content of the message.

Another judgmental rule relevant to credibility evaluations is the “*expertise heuristic*” which is often triggered by the citation of an expert source in the very first part of the message. “*The presence of the expert is the cue that serves to trigger the expertise heuristic in receivers’ minds*”.

Sundar identifies a second family of heuristics, strictly connected with the problem of identity. One of them is the “*authority heuristic*”, which has been identified also as one of the “*major criterion for assigning credibility to a website*” by assessing “*whether the source is an official authority or not*”. But it is also consistent with the perceived reliability of a message content. This kind of heuristic relies on endorsement but is especially effective in impacting young individuals who are more reverential towards authoritative figures, and social networking and information aggregation on social media can provide both, giving potential for peer-to-peer credibility assessment. As we said these kind of heuristics are usually triggered by identity cues. Identity cues are those that trigger credibility perceptions based on the allowance of users’ self-identity assertion through social media. The association of information to an influential source increase the perceived quality of its content.

Another type of agency cue, strongly connected to the previous one, is the “*bandwagon heuristic*”. It triggers information credibility for individuals following the logic: “*if others think that this is a good story, then I should think so too*”. Bandwagon

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heuristics have been identified as the most powerful cognitive shortcuts for evaluating online news. Algorithms such as collaborative filtering and related technological advancements have dramatically simplified the ability of digital media to dynamically collect and display information about what others that are part of our “online niche” are watching, reading, and even thinking.

To close this section, it seems important to point out that, as recent research is demonstrating, trying to correct misinformation does not necessarily change people’s beliefs about a particular topic (Flynn, Nyhan, & Reifler, 2017). On the contrary, research shows that presenting people with challenging information can have a backfire effect, fortifying initial beliefs instead of correcting them (De Keersmaecker * & Roets, 2017; Lewandowsky, Ecker, & Cook, 2017b). This is mainly due to a common bias often present in our cognitive process, which can be called “*familiarity and fluency*”. As we have already said with other words, it means that the more a story is heard and becomes familiar to an individual, the more the individual will be likely to believe it (Pennycook, Cannon, & Rand, 2017; Putnam, Sungkhasettee, & Roediger, 2017). As a result, “*exposure to misinformation can have long-term effects, while corrections may be short-lived*” (D. Lazer et al., 2017).

Emotional engagement role

Narrators often use the personal pronouns “we” or “you” when they write. In this way, a personal story becomes collective, and the “we” pronoun is used even when the narrator didn’t actually live the experience. “*This suggests that the deep story may have been lodged not in directly lived experience, but in the shared stories of the group*”(Bakir & McStay 2017). Sharing stories helps to constitute a group, reinforcing its values and demarcating its boundaries. Narration also reinforces collective and partisan identities.

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Bakshy, Messing, and Adamic (2015) show how social network platforms provide the opportunity for ideologically segregated groups to find a place where they can share coherent content.

There are a multitude of mechanisms that can facilitate the flow and acceptance of incorrect and untrue information, which in turn can create false beliefs: beliefs that can rarely be corrected once adopted by an individual as true (De Keersmaecker * & Roets, 2017). The process of acceptance of any claim to truth may be driven by social influence or by the individual system of beliefs. That is why information-based communities are formed around shared narratives. It is this way of sharing visions and opinions among relatively closed communities, creating their own narratives, that contribute to the emergence of political rumours and alternative information sources, often with the aim to organize and influence the public (Mocanu et al., 2015).

Another pull derives from the pleasure that comes from reading and sharing news items that are catching the public's attention. Jean-Noel Kapferer (2013), an expert in the literature on rumours, argues that "*rumors are a kind of conversational capital*". To make a clear distinction, Vosoughi and colleagues define news as any story or claim with an assertion in it and rumors as the social phenomena of a news story or claim spreading or diffusing through the social media network. That is, rumours are inherently social and involve the sharing of claims between people. News, on the other hand, is an assertion with claims, whether it is shared or not (Vosoughi et al., 2018). The person sharing the rumour "*provides information that is scarce, exciting, and moving*" (Kapferer, 2013). In return, the sharer gains the pleasure of pleasing others and has the sensation of being listened to. It does not even matter if the rumours are true or not. Or, as Gary Alan Fine (2007) puts it, rumours are "*too good to be false*". Sharing rumours also produces a

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feeling of solidarity inside the group. Above all, as Fine (2007) underlines, if the rumours reflect a distrust towards social institutions, it creates a sense of trust in the rumour-sharer (Fine, 2007). When this dynamic is activated, sharers do not think they have to assess the validity of the story and this is another way to signal how much a person feels their commitment to the group. The use value of the story in reinforcing a specific identity is more important than the true value of the story (Polletta & Callahan, 2017).

Following Potthast et al (2017), we can say that in social media a certain kind of “news” spreads much more successfully than others, and that this ‘news’ is “*typically extremely one-sided (hyper partisan), inflammatory, emotional, and often riddled with untruths*”. They also notice how “*fake news are hardly ever devoid of truth. More often, true facts are misconstrued using argumentative fallacies to influence a person’s opinion*” (Potthast et al., 2017). This observation seems particularly important when we think about social media, where information is exchanged, leading to a constant and hyper-fast negotiation of meanings. This extremely rapid exchange of large volumes of information adds an important layer to the construction and spread of fake news, since the power of the content lies also in how well it can penetrate different social spheres (Dahlberg, 2007). As we have just seen, social spheres are commonly strengthened by information and narration exchange; therefore, the quality of information becomes secondary.

Discussion and Conclusion

The World Economic Forum in 2013 started to list massive digital misinformation as one of the main risks for modern society¹. Disinformation is considered harmful for citizens and society at large, as it can lead to threats to democratic political processes and

¹ <http://reports.weforum.org/global-risks-2013/title-page/>

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can undermine trust in the information society. From this perspective, disinformation represents a danger that we have to confront collectively and try to contain to realize fully democratic, societal, technological and economic progress, whilst keeping in mind respect for the freedom of expression (Gabriel & de Cock Buning, 2018).

One of the features that we found most interesting to distinguish fake news from other kinds of potentially deviant forms of news is the “intentionality” of authors in their content construction, and the “willingness” to spread false contents, using the Internet as a means by which to do it. These creators gain maximum advantage by using all the instruments the internet is now able to give them (websites, blogs, social media). As Klein & Wueller (2017) wrote: *“whether described as rumors, “counterknowledge,” misinformation, “post-truths,” “alternative facts” or just lies, these false statements of fact typically are published for profit or social influence”*. Now, more than ever, citizens are in critical need of media literacy skills. By providing every individual with a potential mass audience, social media has broken traditional journalism’s monopoly over news (Tandoc & Vos, 2016). Alone in this overwhelming context, individuals must rely only on their own judgment of the source and of a subjective credibility of the message. As we have already seen, when this does not provide a plausible metric of credibility, the only option left is to turn the social sphere to “authenticate” the news (Tandoc, Ling, et al., 2017).

But in our digital age, the ability to critically judge the quality of information is an essential skill, although it is still lacking in a very large segment of the population. Even the so-called “digital natives” have significant gaps in digital literacy. Many students, despite their digital savviness, lack the ability to make distinctions in content, between real facts and fiction, and are not able to evaluate the reliability of a source (Kshetri &

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Voas, 2017). Education, age, and total media consumption are strongly associated with a more accurate evaluation of the information contents. This association, between education and capacity to distinguish correct beliefs and information from rumours should be highlighted because it undoubtedly gives a social return. On the one hand, education should increase people's ability to discern fact from fiction. On the other hand, in the presence of motivated reasoning, education gives people better tools to counter argue against incongruent information (Allcott & Gentzkow, 2017).

Development for Education and research

One of the main problem is that despite various governments' signalling of interest in the impact of fake news, and the presence of both a need and an opportunity for new media and digital literacy instruction, there is still a lack of material resources and support both for theoretical and applied educational research in the field (Chen et al., 2015). Notwithstanding, digital and new media literacy education should be a public right and a common good in democratic society (Joselit, 2017).

In time, thanks to the contribution of many academic researchers and international debates, some pathways for combating fake news have started to emerge (Mele et al., 2017), although there are considerable differences between them. Some are more connected with the technical side of the internet and are focused on the research of algorithms that can detect fake news without human intervention (but were not treated in this article). Conversely, it is our duty to linger on the literacy debate. As its main argument, the literacy approach suggests that educative intervention about new media and digital literacy should be implemented into schools to intensify individuals' cognitive ability to discern fact from fiction (Allcott & Gentzkow, 2017; Jang & Kim, 2018). However, this kind of proposal, which sees literacy intervention as a complete solution

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against the dissemination of fake news, has received various criticisms and disapproval for what is seen as an oversimplification of the problem (Mihailidis & Viotty, 2017) that does not take into consideration the cultural context of information consumption that we have created over the last 30 years (Boyd, 2017), and for the lack of concrete didactic planning and substantial interventions (Boyd, 2014).

The only examples we were able to find in our literature review about meaningful actions and thoughts for the planning of new media and digital literacy are the ones deduced from journalists' training. As we have previously underlined, journalists have always been the gatekeepers of information. For this reason, they have always been trained to apply forms of critical thinking when testing the veracity of sources and news. So, many curricular and pedagogical approaches have been developed and adopted by journalism educators. The most adopted approaches in the last decades are the ones derived from the work of the famous educationalist Donald Schön (1991), where concepts like 'reflective practice' or 'reflection-in-action' have been stated. This happened because of the need for journalists to be equipped with the skills to pause and reflect during a very chaotic context, and to report and produce news to the best of their capability. To achieve this in practice, Pearson and colleagues (Gunaratne, Pearson, & Senarath, n.d.; Pearson, 2014, 2017) have developed one particular approach which they call "*mindful journalism*". (Pearson, 2017)

Up until now there have been various efforts to inject training of critical-information skills into primary and secondary schools, but it is still uncertain whether such efforts improve the ability of student assessments of information credibility, or if any such effects will persist over time. It could also happen that putting too much emphasis on fake news might produce the unintended consequence of reducing the perceived credibility of

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real-news outlets (D. M. J. Lazer et al., 2018a).

In conclusion, it is opinion of many in the field that the response to the problem of fake news and disinformation should be to increase the long-term resilience of citizens, communities, news organisations and governments, to empower people and help them recognize various forms of disinformation. It is important to ensure that responses to disinformation from educative authorities are always coherent with an ever-evolving context, which requires constantly monitoring the nature of the problem, designing adequate and innovative responses, and evaluating their efficacy. Finally, for new media and digital literacy to be effective, critical thinking targeted specifically at fake news should be implemented on a massive scale in school curricula and in teacher training curricula, “*with clear methods of evaluation and cross-country comparison and with reflection in educational rankings gauges*” – something that until now unfortunately remains missing. (Gabriel & de Cock Buning, 2018).

Limits of the study and future indications

Future research should evaluate how the world of education represents the problem of Fake News, and what viable actions can be taken, considering global characteristics of the phenomena as well as country-specific models of education. An interesting line of investigation is that of critical thinking and critical media literature, and an evaluation of its impact in connection with social news could produce useful information for the definition of policy and educational strategies.

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Tab. 1

Who is Studying Fake News?

Journalism and Media Studies	Articles: 17 Albright, 2017; Bode & Vraga, 2015; Chen, Conroy, & Rubin, 2015; Conroy, Conroy, Rubin & Chen, 2015; Corner, 2017; Johnson & Kaye, 2015; Lazer, Baum, Grinberg, Friedland, Joseph, Hobbs & Mattsson, 2017; Lin, Spence & Lachlan, 2016; Mo Jang, Geng, Queenie Li, Xia, Huang, Kim & Tang, 2018; Nelson, & Taneja, 2018; Pearson, 2017; Potthast, Kiesel, Reinartz, Bevendorff, & Stein, 2017; Schifferes, Newman, Thurman, Corney, Göker & Martin 2014; Potthast, Kiesel, Reinartz, Bevendorff, & Stein, 2017; Pearson, 2017; Tandoc, Lim & Ling, 2017; Victoria, Rubin & Conroy, 2015.
Sociological and Political Sciences	Articles: 5 Bessi, Coletto, Davidescu, Scala, Caldarelli, & Quattrociochi, 2015; Cook, Lewandowsky, Ecker, 2017; Lazer, 2018; Mocanu, Rossi, Zhang, Karsai, & Quattrociochi, 2015; Polletta, & Callahan, 2017.
Cognitive and Social Psychology	Articles: 5 De Keersmaecker & Roets, 2017; Del Vicario, Bessi, Zollo, Petroni, Scala, Caldarelli, & Quattrociochi, 2016; Lucassen & Schraagen, 2013; Vosoughi, Roy & Aral, 2018; Zollo, Novak, Del Vicario, Bessi, Mozetič, Scala, Preis, 2015.
Economy	Articles: 3 Allcott, & Gentzkow, 2017; Brigida & Pratt, 2017; European Commission, 2018.
ICT Sciences	Articles: 2 Joselit, 2017; Kshetri & Voas, 2017.
Philosophy	Articles: 2 Bakir & McStay, 2018; Gelfert, 2018.
Law	Articles: 1 Klein & Wueller, 2017.
Medical Studies	Article: 1 Grech, 2017.

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Tab. 2

What are the Characteristics defining Fake News?

Diffusion via social media	<p>30 Articles</p> <p>Tandoc, Lim, & Ling, 2017; Corner, 2017; Allcott & Gentzkow, 2017; Joselit, 2017; Victoria Rubin & Conroy, 2015; Mo Jang, Geng, Queenie Li, Xia, Huang, Kim, Tang, 2018; Potthast, Kiesel, Reinartz, Bevendorff & Stein, 2017; Schifferes, Newman, Thurman, Corney, Göker & Martin, 2014; Conroy, Rubin & Chen, 2015; Chen, Conroy & Rubin, 2015; Grech, 2017; Johnson & Kaye, 2015; Bessi, Coletto, Davidescu, Scala, Caldarelli, & Quattrociocchi, 2015; Chen, Sin, Theng & Lee, 2015; Lin, Spence & Lachlan, 2016; Lucassen & Schraagen, 2013; De Keersmaecker, Roets, 2017; Polletta & Callahan, 2017; Mocanu, Rossi, Zhang, Karsai & Quattrociocchi, 2015; Zollo, Novak, Del Vicario, Bessi, Mozetič, Scala, Preis, 2015; European Commission, 2018; Lazer et al, 2018; Lazer, Baum, Grinberg, Friedland, Joseph, Hobbs & Mattsson, 2017; Bakir & McStay, 2018; Batchelor, 2017; Bode & Vraga, 2015; Nelson & Taneja, 2018; Del Vicario, Bessi, Zollo, Petroni, Scala, Caldarelli & Quattrociocchi, 2016; Gelfert, 2018; Tandoc, Ling, Westlund, Duffy, Goh & Zheng Wei, 2017.</p>
Fabrication (the news is fabricated, ad hoc)	<p>16 Articles</p> <p>Tandoc, Lim & Ling, 2017; Allcott & Gentzkow, 2017; Joselit, 2017; Victoria Rubin & Conroy, 2015; Mo Jang, Geng, Queenie Li, Xia, Huang, Kim & Tang, 2018; Potthast, Kiesel, Reinartz, Bevendorff & Stein, 2017; Klein & Wueller, 2017; Pearson, 2017; Grech, 2017; Johnson & Kaye, 2015; Zollo, Novak, Del Vicario, Bessi, Mozetič, Scala, Preis, 2015; Vosoughi, Roy & Aral, 2018; Lazer et al, 2018; Bakir & McStay, 2018; Gelfert, 2018; Kshetri &</p>

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	Voas, 2017.
Scarce level of facticity	16 Articles Tandoc, Lim & Ling, 2017; Corner, 2017; Allcott & Gentzkow, 2017; Victoria Rubin & Conroy, 2015; Mo Jang, Geng, Queenie Li, Xia, Huang, Kim & Tang, 2018; Potthast, Kiesel, Reinartz, Bevendorff & Stein, 2017; Schifferes, Newman, Thurman, Corney, Göker & Martin, 2014; Grech, 2017; Johnson & Kaye, 2015; Bessi, Coletto, Davidescu, Scala, Caldarelli, & Quattrociocchi, 2015; Zollo, Novak, Del Vicario, Bessi, Mozetič, Scala, Preis, 2015; Vosoughi, Roy & Aral, 2018; Lazer et al, 2018; Bakir & McStay, 2018; Gelfert, 2018; Tandoc, Ling, Westlund, Duffy, Goh & Zheng Wei, 2017.
Manipulation: the content aims to manipulate the audience, mainly on political or scientific topics	12 Articles Tandoc, Lim & Ling, 2017; Corner, 2017; Joselit, 2017; Grech, 2017; Bessi, Coletto, Davidescu, Scala, Caldarelli & Quattrociocchi, 2015; Lin, Spence & Lachlan, 2016; Mocanu, Rossi, Zhang, Karsai & Quattrociocchi, 2015; European Commission, 2018; Vosoughi, Roy & Aral, 2018; Bakir & McStay, 2018; Gelfert, 2018; Kshetri & Voas, 2017.
Intention of deception	11 Articles Wardle, 2017; Grech, 2017; Tandoc, Lim, and Ling, 2017; Lazer et al, 2018, Lazer et al, 2017; Flood, 2016; Pearson, 2017; Victoria, Rubin & Conroy, 2015; Rubin, Chen, & Conroy, 2015; Corner, 2017; Allcott & Gentzkow, 2017.
Intent of propaganda	8 Articles Tandoc, Lim & Ling, 2017; Corner, 2017; Allcott & Gentzkow, 2017; Potthast, Kiesel, Reinartz, Bevendorff & Stein, 2017; Johnson & Kaye, 2015; Vosoughi, Roy & Aral, 2018; Lazer, Baum, Grinberg, Friedland, Joseph, Hobbs & Mattsson, 2017; Bakir & McStay, 2018;.
Satire/parody: content modified for satirical	7 Articles

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/parody is perceived as real	Tandoc, Lim & Ling, 2017; Allcott & Gentzkow, 2017; Victoria Rubin & Conroy, 2015; Potthast, Kiesel, Reinartz, Bevendorff & Stein, 2017; Klein & Wueller, 2017; Grech, 2017; European Commission, 2018.
Imitation of real news appearance	5 Articles Lazer et al, 2018; Tandoc, Lim, and Ling, 2017; Victoria, Rubin & Conroy, 2015; Rubin, Chen, & Conroy, 2015; Joselit, 2017.

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Tab. 3

How is Fake News Spread?

Role of the Audience	<p>23 Articles</p> <p>Tandoc, Lim, et al., 2017; Coddington & Holton, 2014; Jang & Park, 2017; Chen, Conroy, & Rubin, 2015; Schifferesa et al., 2014; Lin, Spence, & Lachlan, 2016; Joselit, 2017; Bessi, Coletto, et al., 2015; Mocanu et al., 2015; Gabriel & de Cock Buning, 2018; Bessi, Coletto, et al., 2015; Bessi, Scala, Rossi, Zhang, & Quattrociocchi, 2014; Mocanu et al., 2015; Aiello et al., 2012; Bessi, Petroni, et al., 2015; Bessi, Zollo, et al., 2015; Zollo et al., 2015; Del Vicario et al., 2016; Lazer et al., 2017; Lazer et al., 2018; Reedy, Wells, & Gastil, 2014; Fowler & Margolis, 2014; Tafuri et al., 2014.</p>
Social Media role	<p>23 Articles</p> <p>Howel, 2013; Ledbetter et al., 2011; Kim & Lee, 2011; Ling and Lai, 2016; Lee & Ma, 2012; Antunovic, Parsons, & Cooke, 2018; Singer, Domingo, Heinonen, Quandt, & Vujnovic, 2011; Bennett, 2012; Sunstein, 2018; Tandoc, Ling, et al., 2017; Klein & Wueller, 2017; Gelfert, 2018; Khaldarova & Pantti, 2016; Sundar, 2016; Allcott & Gentzkow, 2017; Bessi, Coletto, et al., 2015; Brown, Broderick, & Lee, 2007; Kahn & Kellner, 2004; Kumar, Mahdian, & McGlohon, 2010; Quattrociocchi, Caldarelli, & Scala, 2015; Quattrociocchi, Conte, & Lodi, 2011; Del Vicario et al., 2016; Gabriel & de Cock Buning, 2018.</p>
Heuristics	<p>17 Articles</p> <p>Matter, Fernbach, & March, 2017; Tandoc, Ling, et al., 2017; Lin et al., 2016; Sundar, 2008; Baum & Groeling, 2009; Greenhill & Oppenheim, 2017; Swire, Ecker, & Lewandowsky, 2017; Kang et al., 2011; Sunstein, 2016; Del Vicario et al., 2016; Waldrop, 2017; Sundar, 2008; Flynn, Nyhan, & Reifler, 2017; De Keersmaecker * & Roets, 2017; Lewandowsky, Ecker, & Cook, 2017; Pennycook, Cannon, & Rand, 2017; Putnam, Sungkhasettee, & Roediger,</p>

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	2017; Lazer et al., 2018.
Emotional engagement role	<p>14 Articles</p> <p>Bakshy, Messing, and Adamic, 2015; Allcott & Gentzkow, 2017; De Keersmaecker & Roets, 2017; Mocanu, Rossi, Zhang, Karsai, & Quattrociocchi, 2015; Kapferer, 2013; Vosoughi et al., 2018; Fine, 2007; Polletta & Callahan, 2017; Potthast et al, 2017; Dahlberg, 2007; Joselit, 2017; Tandoc, Ling, et al., 2017; Pariser, 2011; C. Sunstein, 2001.</p>