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Fighting Fake News

A Generational Approach

Edited by

Eugène Loos and Loredana Ivan

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About the Editors

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Editorial

Special Issue "Fighting Fake News: A Generational Approach"

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To reach a state of equal opportunity in our society, access to credible, accessible information [1,2] across all generations is of the utmost importance. Access to (digital) information about services and products is crucial [3]. Van den Hoven [4], referring to Rawls [5,6], goes so far as to refer to accessible information as a "primary good". As all citizens have an equal right to information, Bovens [7], Bovens and Loos [8] even advocate granting citizens' information rights, following along the lines of the classic (freedom) rights.

We define fake news as "any kind of misleading information that could mistakenly be considered accurate, regardless of the mechanisms that led to its propagation" [9]. See [10] for a typology of scholarly definitions and [11] for a discussion of related terms, such as mis-, dis- and mal-information. Fake news endangers the accessibility of information for younger and older citizens [12–14], see also https://www.stopcoronafakenews.com/en/ (accessed on 5 March 2022). The question we are confronted with now is how to fight fake news so that all generations can continue to have access to credible, accessible information.

One approach involves introducing legal measures requiring tech platforms, such as Google, Facebook and Twitter, to self-regulate themselves. These platforms have been requested by the EU to provide monthly reports on the actions they have taken to combat the dissemination of fake news (https://reut.rs/3o19Kg8, accessed on 5 March 2022). Dumitru et al. [9] state that "As part of these self-regulatory measures, Facebook and Google committed to a more stringent policing of the content that is tolerated on their platforms" (https://about.fb.com/news/2020/04/COVID-19-misinfo-update/, https://blog.google/outreach-initiatives/google-news-initiative/news-brief-april-2021-updates-google-news-initiative/, accessed on 5 March 2022). Additionally, Twitter stated that "as the global community faces the COVID-19 pandemic together, Twitter is helping people find reliable information, connect with others, and follow what's happening in real time (. . .)" (https://blog.twitter.com/en_us/topics/company/2020/COVID-19#protecting, accessed on 5 March 2022)." Another such measure is the development of a code of conduct (https://digital-strategy.ec.europa.eu/en/policies/code-practice-disinformation, accessed on 5 March 2022). Dumitru et al. (in press) [9] point to the statement issued by the Sounding Board of the multistakeholder Forum on Disinformation on 24 September 2018, which declared that "[. . .] the "Code of practice", as presented by the working group, contains no common approach, no clear and meaningful commitments, no measurable objectives or KPIs, hence no possibility to monitor progress, and no compliance or enforcement tool: it is by no means self-regulation, and therefore the Platforms, despite their efforts, have not delivered a Code of Practice". They conclude: "In short, the extent to which a legal approach using self-regulation and a code of principles really works to fight fake news remains unclear".

Technological innovation has opened the door for a second approach in the form of automatic deception detection [15,16]. Google has already started checking the factualness of the news presented on their platform, and Facebook recently introduced a new oversight board (an international committee of judges, journalists and academics) that will help steer the company's policy on the freedom of expression. For more information, see the

following EU initiative: https://www.poynter.org/international-fact-checking-network-fact-checkers-code-principles (accessed on 5 March 2022). Traditional fact checking and innovative technological detection might help to fight fake news to some extent, but they are not a solution in themselves. Apart from technical feasibility, fake news will become increasingly sophisticated and harder (if not impossible) to detect. Moreover, there is an even more fundamental issue: Who has the authority to decide the criteria for the credibility of online information—the state, the platform companies or the press? Using sophisticated tools to withhold certain news from citizens could in the end threaten their access to credible information, which eventually erodes democracy.

It may therefore be argued that a more durable solution would be to empower citizens so that they themselves are able to judge the credibility of information. We distinguished a third, educational approach based on media literacy [9,12,17] (see also https://www.stopcoronafakenews.com/en/toolkit-educatieve, accessed on 5 March 2022) focusing on interventions at schools, other educational institutions and community centers: "Media literacy should not only focus on people's ability to use certain devices and technologies, but also on promoting a deep understanding of modern forms of media, how these work and how they produce and use news items, all of which may be attained through systematic media education programs [18]. It is not only important to investigate the feasibility of interventions at an early age to empower young citizens such that they are able to establish the trustworthiness of news. It is also essential to involve other generations as due to the paucity of studies in this field, it would be naive to assume that they are not vulnerable to fake news" [9].

This Special Issue of *Societies* comprises seven papers that present empirical research in Bosnia and Herzegiovina (1×) [19], one multiple-country study (Argentine, Australia, France, Ireland, Italy, Netherlands, Spain, United Kingdom, USA, Qatar, New Zealand and Costa Rica) [20], the USA (3×) [21–23], Romania (2×) [24,25], focusing on how different generations perceive fake news, including young and middle-aged groups of people [19], multiple age groups [22,25], university students and adults in general [20], elementary students (grades 1–5 in USA [21], children and adolescents [24], and paying attention to age, education and gender [23]. The use of an ad hoc analysis sheet, validated by the interjudge method [20], could represent an interesting approach to investigate how people in different professions discern reliable information from fake news, whereas descriptive observational data [21] might provide insights into how different age groups search for information and how often they are exposed to fake news. Some authors [19] used thematic analysis to investigate differences between generations in perceiving fake news; others [25] used surveys to describe the differences between generations in the perceived incidence of fake information. Study [23] used surveys to assess the impact of the characteristics of online articles and their authors, publishers and sponsors on perceived trustworthiness to ascertain how readers make online article trust decisions. In other studies [22,24], experiments were conducted to explore the rationale people use when deciding what information to trust. Overall, this Special Issue provides insights into the different methodologies available to research fake news from a generational perspective across different age groups.

Conflicts of Interest: The authors declare no conflict of interest.

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Article

Assessment of Factors Impacting the Perception of Online Content Trustworthiness by Age, Education and Gender

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Abstract: Online content trustworthiness has become a topic of significant interest due to the growth of so-called 'fake news' and other deceptive online content. Deceptive content has been responsible for an armed standoff, caused mistrust surrounding elections and reduced the trust in media, generally. Modern society, though, depends on the ability to share information to function. Citizens may be injured if they don't heed medical, weather and other emergency warnings. Distrust for educational information impedes the transfer of knowledge of innovations and societal growth. To function properly, societal trust in shared in information is critical. This article seeks to understand the problem and possible solutions. It assesses the impact of the characteristics of online articles and their authors, publishers and sponsors on perceived trustworthiness to ascertain how Americans make online article trust decisions. This analysis is conducted with a focus on how the impact of these factors on trustworthiness varies based on individuals' age, education and gender.

Keywords: online content; factor assessment; trustworthiness; age; gender; education level

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1. Introduction

In 2004, Keyes posited that the modern era was one of "post-truth" [1]. He noted, referring to interpersonal activities, that "deception has become commonplace at all levels of contemporary life" and highlighted the numerous lies that are told frequently in society [1].

Twelve years later, in 2016, the British referendum on European Union membership (see [2]) and the U.S. presidential election brought the concept of deceptive online content into the public consciousness. In the UK, Brexit was fueled by an army of Twitterbots [3], illegal profiling using online data [4], foreign online content influence [4] and "hyperpartisan" content [3]. In the U.S., so-called "fake news" stories circulated on Facebook and other social media [5]. Grinberg, et al. say that approximately 6% of all news, during this period, was fake (which they identified based on the journalistic practices, or lack thereof, of the distributing site)—however, less than 1% of the population received 80% of the fake news content [6]. On Twitter, Bovet and Makse [7] found that 25% of tweets, during this period, were "fake or extremely biased news", based on linking to websites that they identified as "fake and extremely biased".

Over the intervening five years, the term "fake news" grew in usage [8] and changed in meaning [9]. Initially, the term was used for "describing the threat of disinformation online"; however, this shifted "to a more normalized and broad usage of the term in relation to attacks on legacy news media" [9]. Despite the change in meaning being temporally connected to the 2016 U.S. presidential election, Cunha, et al. [8] have shown that this change was prevalent in at least 20 countries. In some cases, modern uses of the term have little to do with a story's accuracy and instead seek to "discount and discredit ideologically uncongenial media sources" [10]. Tong, et al. [11] showed that a "weaponization of fake news" had occurred.

Lee [12] argues that "fake news" is a "sinister force" that presents a threat to democracy itself. Given the concern that deceptive content has raised, a variety of techniques for mitigating and responding to it have been proposed. These have ranged from filtering content [13], to content detection and removal [14], to limiting access to the internet [15], to content labeling [16]. Labeling is perhaps the most democratic of these proposals, as it leaves the decision to read or not to the information consumer. It also benefits from not limiting speech in a way that may run afoul of the United States' First Amendment, which (in addition to its free speech benefits) may make its implementation more feasible. Other approaches, though, may be more effective at preventing the problems caused by fake news, albeit at the considerable expense of impairing speech freedom.

To assess the prospective impact of different forms of solutions and what solutions may be effective, understanding how individuals make content trustworthiness decisions is critical. This article focuses on intentionally deceptive online news content presented in textual form (potentially with supporting media, such as pictures), in particular. This is content that purports to be a news article via using the presentation typically used for news articles, but which has goals other than the accurate presentation of the information, as it is understood by the author (mirroring the definition presented in [17]). This work seeks to determine which characteristics individuals rely upon in assessing news-style article trustworthiness and whether the weight given to these characteristics varies by the age, educational level or gender of the individual. The characteristics studied in this paper were first proposed by Fuhr, et al. [18]. This content is of particular interest due to its prominence and ability to rapidly spread via social media and other channels. The data analyzed herein will inform analysis regarding whether content labeling can be effective (or not) or if alternate solutions are better to pursue.

This paper continues with a review, in Section 2, of prior work that this work builds on. Section 3 describes the study that was carried out. Next, in Section 4, the impact of an article's title, article, publisher and other related details on trustworthiness is assessed. Following this, Section 5 assesses the trustworthiness impact of other article characteristics, such as the number of opinion statements present and reading level. In Section 6, the implications of the analysis presented in Sections 4 and 5 are discussed. Finally, Section 7 discusses key conclusions and needed future work.

2. Background

This section provides an overview of prior work in several areas that provide a foundation for the work presented herein. In Section 2.1, the evolving and varied definitions of the term "fake news" over the last two decades are discussed. In Section 2.2, prior work on fake news and deceptive online content is presented. In Section 2.3, methods for identifying and classifying fake news are discussed. Finally, in Section 2.4, the problem created by fake news is reviewed.

2.1. Defining Fake News from 1475 to 2022

According to Higdon [19], fake news traces its lineage back at least as far as 1475 when "the Christian city of Trent was so outraged by the false story of a Jewish man killing a two-year-old boy that they imprisoned and tortured the local Jewish population as punishment". However, the term fake news has not always meant factually inaccurate content. At least as early as 2005, the term "fake news" was used to describe satirical works such as "The Daily Show" and "The Onion" which are designed to inform the public on current events while providing a humorous slant [20]. This definition of the term continued to be in popular use as late as 2014, with work in this decade devoted to comparison of the value of real news versus its satirical counterparts with regards to keeping up with current events [20,21]. During this era, from approximately 2005–2014, "fake news" referred almost exclusively to "satirical news." That is, media designed to inform the public through a humorous or satirical take. The viewer was always intended to be in on the joke in this form of entertainment news. Some media such as Saturday Night Live's "Weekend Update"

would go so far as to describe themselves directly as "fake" in the introduction of the material, opening with the phrase "and now for the fake news" [22]. Other media such as "The Onion," self-described as "America's Finest News Source," would instead present themselves with the conceit of being real news [23]. This phenomenon is similar to kayfabe in professional wrestling, where the actors, writers and audience are aware that what is happening is fake but continue to treat it seriously to better appreciate the presentation [24]. Yet, in all these cases, there is an understanding that the audience does know that what is being presented is satirical and now to be read as fact.

By 2014, a new form of usage of the term "fake news" was appearing in research works [25]. In this form, users of social media platforms such as Twitter and Facebook would intentionally share images and memes describing fake, often politically charged information, to win political debates using misinformation. While "satirical news" such as the Daily Show would attempt to ensure that the audience was in on the joke, this new variant of "fake news meme" was designed to be believable enough to be accepted as fact while also being difficult to either verify or debunk. The humorous or outrageous design of the fake news meme helped it to spread more rapidly than it could be fact-checked. It could be spread intentionally by users who knew the information was false but wanted to use this misinformation to shift political opinions. It could also be spread unintentionally by users who were not "in on the joke" and truly believed the misinformation to be legitimate. There was little means by which to distinguish between these two behaviors, given that the distinction seemed only to be the spreader's intention.

By 2015, the term "fake news" had extended to include entire "fake news articles" written to appear even more legitimate than the "fake news memes" [26]. By 2016, the meaning of the term began to blur as it entered the public vernacular. It became necessary to describe works as "so-called fake news" in cases where there were differences of opinion as to whether a particular source was fake or legitimate. This led to what was described as a "narrative battle" between competing organizations attempting to selectively provide legitimate news while "spinning" its meaning and how the public ought to react to the facts [27]. This form of "opinion-based news" draws a line by not presenting false information but instead providing a non-objective viewpoint meant to elicit a certain type of reaction.

With this blurring definition, by 2016 the term "fake news" began to find use as a pejorative to be directed at any news media which the speaker simply disliked [28]. This misuse of the term created an even greater level of disinformation, where even speaking about the concept of "fake news" could be misconstrued as speaking about "news I do not like." Higdon [19] suggests that the term "became an omnipresent idiom in American discourse" due to an exchange between U.S. president Donald Trump and CNN reporter Jim Acosta in January 2017. During this exchange Trump stated, in response to a request from Acosta, "I'm not going to give you a question. You are fake news" [19].

Even as recently as 2022, it is not uncommon for the term "fake news" to be written with caveats, quotations and question marks or described as "potential 'fake' news" [29]. It remains a politically charged term which, nonetheless, is used to have a shared discourse on the topic.

In response to this division over the definition of "fake news", Tanocc, Lim, and Ling [30] conducted a review of 34 prior academic articles that used the term "fake news" between 2003 and 2017. Categories included news satire and parody, advertising and public relations works (made to appear as though they were neutral news reports on a product, person, company or service, news fabrication containing no factual basis—also called disinformation) and photo and video manipulations ranging from simple (modification of color saturation on the image) to complex (making a politician appear to be at an event when that was not the case). The authors proposed a four-quadrant model for the typology of fake news categories based upon the level of "facticity" (how accurate the article is) and the "intention to deceive." For example, advertisement of a product may have high facticity but also a high intention to deceive. This is a form of mal-information which is based upon fact but used in a manner to manipulate the consumer (convincing them to purchase a

product). While both news satire and news parody share a low intention to deceive, news satire is distinct in having a high level of facticity (making humorous reports about the facts) while news parody's facticity is low (reporting humorous invented "facts").

Higdon [19] notes that scholars have had difficulty arriving at a consensus on the meaning of the term "fake news" with some basing the classification on form and intent to deceive others, while others suggest that the term implies propaganda content. Both of these definitions, though, have gaps, such as ignoring oral news transmission, legitimate errors, fabrications for career advancements and prank news [19]. A commonly accepted definition of fake news, which will be used herein, is "fabricated information that mimics news media content in form but not in organizational process or intent" [17]. There is observed overlap of this classification with "misinformation" which is either false or misleading and "disinformation" which is purposely spread to deceive people. "Fake news memes" would fall into these later two categories, while "fake news" would require that the source actively mimic the appearance of a legitimate news source while acting to the purpose of misinforming or disinforming the public.

2.2. Fake News and Deceptive Online Content

The Pew Research Center has tracked Americans' news usage on social media since 2013 [31–34]. As of 2020, approximately 71% of adults in the USA get at least some of their news (a term which the study didn't define for respondents) from social media platforms, with 23% reporting they do so "often." This percentage is up from 68% in 2018 and 62% in 2016. Of adults in the USA who get news on social media, most use only a single source (65% in 2013 and 64% in 2016) and relatively few use more than two sources (9% in 2013 and 10% in 2016). The percentage of each social networking site's users who get their news on the site has increased across multiple platforms from 2013 to 2018, as shown in Figure 1. This shows that most users of Reddit, Twitter and Facebook, since at least 2016, sometimes get their news from their social media site of choice. In a related survey question from the 2020 study, 59% of Twitter users, 54% of Facebook users, and 42% of Reddit users stated that they "regularly" get their news from their respective social media platform rather than simply "sometimes."

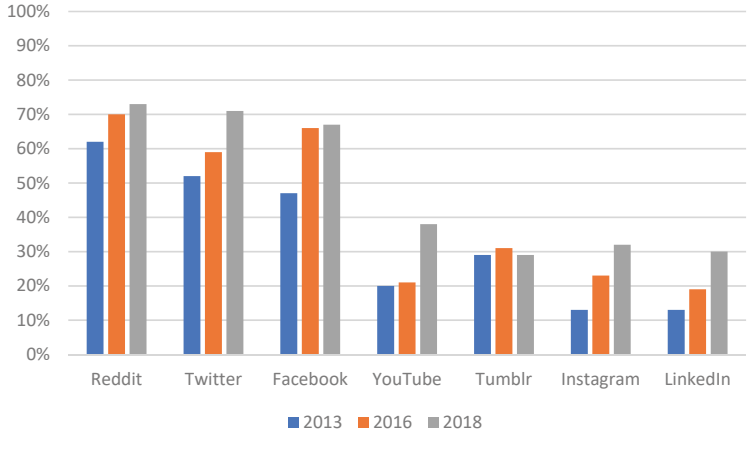

Figure 1. Percentage of each social networking sites' users who get news on the site in 2013, 2016, and 2018 (data from [31–33]).

Despite these trends, a majority of social media news consumers (57% in 2018 and 59% in 2020) say they expect the news they see on social media to be "largely inaccurate." Almost half of respondents (48% in 2018 and 47% in 2020) state that social media has "not made much of a difference" in their understanding of current events, with an increasing number of users (15% in 2018 up to 23% in 2020) stating that social media has instead

made them more confused about current events. Yet, increasingly, adults in the USA use social media—and usually only a single social media site—as a news source. The lack of perceived accuracy does not appear to be a sufficient deterrent from using these sources, with 21% of 2018 respondents citing "the convenience" as the thing they like most about using social media as a news source.

2.3. Identification and Classification of Fake News

Identifying fake news can be key to combatting it. This section discusses prior work on this topic.

Zhang, et al. [35] described three key characteristics of fake news which increase its negative impact. The first is its volume, as fake news is easily written, revised, and circulated by anyone interested in producing such content [35]. Second, the variety of formats which fake news can take (such as fake news articles versus fake news memes) makes it difficult to identify with a precise and predictable definition [35]. The third is the "velocity" of fake news, as fake news sites may be created, distributed, consumed, affect change in a population's beliefs, and subsequently be deleted entirely before detection is performed [5]. Fake news frequently targets current events, meaning that real-time detection and removal must occur in parallel with real-time creation, consumption, and distribution. With such a vast supply, the numerous moving targets can have a great impact on public perception. By the time fact-checkers have time to respond, the fake news cycle may have moved on to a new interaction, either promoting a different story or even calling into question the fact-checkers themselves.

Four major components to consider were identified by Zhang, et al. [35] when classifying content as "fake news." These were the creator/spreader, the target victims, the news content, and the social context. Creators can be human or non-human agents, either working independently or through a centralized network. The intent of the creator can vary from either producing intentional misinformation to simply doing a poor job of investigating the facts before creating the content. Victims may be targeted based upon their purchasing habits, voting habits, age, nationality, or other socio-economic or demographic factors which could make them either particularly vulnerable or necessary to the underlying agenda of the creator. The news content is broken down between its "physical" and "non-physical" aspects. Physical aspects of news content include the title, the body of text, images, videos, audio clips and other physical media. Non-physical aspects include its emotional content, opinions, sentiments of the author and artistic choices in formatting of the media. Social context is determined based upon the social system within which distribution takes place. Fake news spread via Facebook will mostly be shared with and communicated about amongst friends and family members, while fake news spread via Twitter is more likely to reach an audience extending to followers-of-followers. As such, the type of communication of content will vary. A creator may selectively develop fake news of differing constructions to target at different social spaces.

Fact checking attempts to combat misinformation with correct information. Multiple online fact-checking resources exist, including Factcheck.org, Factmata.com, PolitFact.com and Snopes.com. Additionally, Wikipedia maintains a database (https://en.wikipedia.org/wiki/Wikipedia:Reliable_sources/Perennial_sources) of news sources rated by their reliability, with some earning a "generally unreliable" or even "blacklisted" rating. This listing includes summary details for why the given rating exists. It is managed by volunteer contributors. Research-based approaches to fake news detection include user analysis (identification of creators, spreaders and likely victims) [36,37], content and sentiment analysis (identification of physical and non-physical aspects of fake news content) [35] and social context analysis (identification of anomalous social behavior surrounding fake news) [35,38]. Once analysis is conducted, a second question is how to best preset it to users.

2.4. The Fake News Problem

Even with an understanding of what it is and how to potentially combat it, fake news is a problem. Monsees [39] characterizes the fake news problem as "a war against truth" and notes that it has expanded from being "a very specific concern regarding the spread of information via social media" to a broader "security concern". Its impacts are pronounced, ranging from election impact [6,7] to reducing trust in traditional media [40]—especially among the young [41]—to physical violence, such as the Pizzagate incident in the United States [42] and an assault based on a fake kidnapping incident in Mexico [43].

Fake news has been shown to have a disproportionate impact on a small group of individuals and to be associated with "confirmation bias, selective exposure, and lack of analytical thinking" [43]. Youth have also been shown to have difficulty identifying fake news. A US-based study found that only 11% of children could correctly identify a hoax website and a similar study in the Netherlands found that only 7% could correctly identify a hoax website [44]. College students evidenced another related issue: the indicated that they expected news content on social media to be inaccurate [33]. Despite this, though, those in the 18 to 29 age group were shown to use social media with greater frequency and trust those sources more than other age groups [33,45].

Other studies suggest that the media literacy of youth may be somewhat higher. While early work identified young people as having a low level of media literacy, potentially leaving them susceptible to fake news (see for example [46] and [47]), empirical evidence suggests that young people may be less likely to click on fake news links [48].

In some cases, fact checking—presenting those influenced by fake news with accurate information—has even been shown to be ineffective [43]. For the general public, in the United States, the exposure to fake news content is limited. Allen, et al. suggest that it comprises only 0.15% of Americans' daily media consumption, based on the proportion of time spent on visits to websites that have been identified as providing "fake, deceptive, low-quality, or hyperpartisan news" [49]. Notably, all news, a term broadly defined by Nielsen to include traditional news programming, entertainment news and even "late-night comedy shows", is approximately 14.2% American's media consumption [49].

While this article focuses on online intentionally deceptive content, fake news is not just an online phenomena. The term has been widely applied to traditional media sources, as well; however, this labeling is problematic as it includes content classified as "fake" by those that seek to discredit content that they do not like. Richardson notes that the term fake news is an "existential challenge to journalists dealing with an audience losing its faith" [50]. Those that seek to discredit traditional media purport that "'truth' and 'accuracy' are pliable concepts in the hands of the mainstream media" [50]. Lees goes even further, contending that the term is used to "plant mistrust in the media, stop stories being published, and even imprison journalists" [51]. However, traditional media is not without its inaccurate and, in some cases, deceptive news. A 1972 study showed that while 7.2% of television time (including both news and non-news content, including advertising) was devoted to "health-related content", 70% of the content "was inaccurate or misleading or both" [52]. Benkler, Faris and Roberts [53] explain how another traditional news venue, radio, has led to news consumer confusion through "talk radio" programs, which are still ongoing. Faris, et al. [54] also demonstrate traditional media's role in the dissemination of misinformation in a study specifically surrounding COVID-19. Beyond potential bias and other issues of traditional media sources, themselves, traditional media also can spread online misinformation via reporting on social media trends and embedding [55] social media within an article. Zucker [56] explains how problematic false news information is—applying equally to traditional and online media—as "even after individuals learn that a piece of information is false, they still tend to believe it, at least to some extent, because of the difficulty of removing information once it has been encoded in memory."

In considering the scope of the fake news problem, it is important to note that most news content is consumed from television—not online (approximately five times as much) [49]. There is a notable exception: while the youngest age groups assessed (18 to 24

and 25 to 34) consume the least amount of news, more of their consumption occurs online. Individuals who are 18 to 24 consume slightly under 10 min of television news per day and approximately 5 min of online news per day.

Both categories of consumption go up by approximately 50% for the 25 to 34 age group. Those in the 45 to 54 age group, alternately, consume approximately 50 min of television news and just over 10 min of online news each day and those in the 55+ group consume over 80 min of television news each day and approximately 13 min of online news. The percentage of online news that is 'fake', based on coming from sites that have been identified to be "sources of fake, deceptive, low-quality, or hyperpartisan news", is small: less than 10% across all age groups.

Dentith [57] contends that the fake news problem is a symptom of a "polite society" where topics are "ignored or glossed over", suggesting that allegations of content inaccuracy and deception must be taken more seriously even if it causes individuals to be upset. Greg [58] contends, somewhat conversely, that it is a "symptom of a deeper problem"—namely of a current "negative cycle in politics" caused by an ideological conflict. Savino [59] notes that the lack of liability for the content is also problematic, as it removes incentive to reign in content by those posting or publishing it.

A variety of solutions for fake news have been proposed including filtering content [13], content removal [14], limiting internet access [15], and content labeling [16]. Higdon [19] suggests that none of these will necessarily be effective and that media literacy education is lacking and severely needed in the United States. A study by Guo [60] furthers this conclusion by suggesting that most of the non-educational solutions may be ineffective by demonstrating the spread of 'fake news' on China's government news media sites. Bernal [61] proffers that while social media is used "there is little that can be done to reduce the impact of fake news and misinformation" and questions whether "the benefits to freedom of expression that social media brings mean that this is a price worth paying".

Informed by the considerable challenges presented by fake news and deceptive online content, this paper seeks to understand how individuals make news consumption decisions. This knowledge will be key to understanding which techniques may be effective at combatting the negative impacts of fake news while seeking to maintain individuals' rights to speak freely and read the content of their choosing.

3. Survey, Data Collection Process, Respondents and Methodology

To understand individuals' news consumption decision-making, a survey was conducted. This section discusses the survey instrument and data collection process that was used to collect the data presented herein. First, the survey instrument is discussed. Then, the data collection process is reviewed. Finally, analysis of the respondents' demographic characteristics is presented.

3.1. Survey Instrument

The survey instrument that was used for this data collection was based on and modified from the survey utilized in [62]. It was edited for brevity (to meet a target response time of 15 min or less) and combined content from the three surveys that were administered independently to collect the data analyzed in [62]. While most editing focused on the removal of questions (those that were redundant between the combined surveys or selected for removal to meet response time goals), the surveys were reviewed again by the authors and Qualtrics survey staff before use. A limited pilot study phase was also used to validate the instrument before the large study commenced. As no issues were detected with the pilot study, these responses were applied to relevant demographic quotas and included in the dataset, in line with Qualtrics' standard survey administration practices.

Questions on the survey instrument related to multiple perceptual filters. They asked respondents about their own perceptions, their perceptions of others, and their perceptions of the ideal. This was performed via asking questions in the following forms (the example of article title is used):

- How much of an impact does the title of an article have on your personal perceptions of trustworthiness and or credibility of an article?
- How much of an impact do you believe the title of an article has on other people's perception of the trustworthiness and or credibility of an article?
- If you were acting in an ideal manner, to what extent should the title of an article impact your perception of the trustworthiness and or credibility of an article?

For each question of this type, respondents were given a choice of five responses on a Likert-like scale:

• A great deal • A lot • A moderate amount • A little • None at all

By asking respondents about these three perceptual filters, analysis is able to compare respondents' perceptions of their own actions and beliefs as well as what they perceive others as doing and what they believe they and others should be doing. Comparing respondents to others is indicative of how they perceive their own actions and beliefs as fitting in with those that they regularly interact with. The comparison of self and others' actions and beliefs to ideal ones is particularly interesting as it may aid in the understanding of areas where respondents may be readily open to changing their behaviors, as they already believe that they should be different than they are. All of these comparisons can be helpful in assessing the likelihood of label use adoption and identifying barriers and pathways to label use adoption.

3.2. Data Collection

The data that is analyzed in this paper was collected using a quota-based stratified sampling technique. It was collected by Qualtrics International Inc. using the survey instrument described in the previous section. Respondents were recruited based on seeking population proportionate representation of gender, age, income level and political affiliation. Approximately 550 responses to the survey were collected in October of 2021, of which 500 were part of the population representative sample. Respondents were given an incentive based on the submission of a complete survey, so most responses were complete. This paper analyzes all responses which include an answer to the relevant demographic and response questions being analyzed.

3.3. Respondent Demographics

Respondents are well distributed across numerous demographic groups. Approximately 49% were male and 51% were female. Non-binary gender respondents made up less than 1% of responses and, thus, couldn't be further analyzed due to the small sample size.

Respondents' ages are presented in Table 1. Approximately 11% of respondents were 18–24, 25–29 and 30–34 (each). Respondents aged 35-39 comprised 10% of the responses. There were 9% of respondents who were aged 40–44, 7% who were aged 45–49, 6% who were aged 50–54 and 14% who were aged 55–59. Those aged 60–64 made up 12% of respondents and 11% of respondents were 65 and older.

Table 1. Respondents' age distribution [63].

18–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 and Older
10.57%	10.93%	11.29%	10.04%	8.96%	6.63%	6.09%	12.54%	12.19%	10.75%
59	61	63	56	50	37	34	70	68	60

Most respondents fell into three groups, with regards to educational attainment. Respondent educational attainment levels are presented in Table 2. Approximately a quarter have only graduated high school and another quarter had completed some college but not a degree. An additional 22% had completed a bachelor's degree. Only 3% of respondents had a Ph.D., 5% had not completed high school, 10% had a master's degree and 12% had completed an associate's degree.

Table 2. Respondents' education distribution [63].

Some High School (No Degree)	High School Degree	Some College (No Degree)	Associate's Degree	Bachelor's Degree	Master's Degree	Doctoral Degree
4.68%	25.72%	23.20%	11.51%	22.12%	10.25%	2.52%
26	143	129	64	123	57	14

3.4. Methodology

Data was analyzed in Qualtrics and Microsoft Excel. Responses for each question were analyzed to identify the comparative impact of each assessed demographic characteristic on key metrics including respondents' perceptions of their own attitudes, beliefs and predicted actions, respondents' perceptions of others' attitudes, beliefs and actions and respondents' perceptions of ideal attitudes, beliefs and actions.

To evaluate the results of the survey, the implications of the responses to each of these three questions is considered. Through their choices, a respondent may indicate that they believe that their own behavior needs to change—either that they use a metric more than what is ideal or less than what is ideal. A respondent may additionally express that the behavior of others should change to either use a particular metric more or less than they currently do. When these beliefs are not common between self-perception and the perception of others, the respondent may either believe themselves to be better or worse than other people in their use of that metric. These paradigms may indicate different levels of buy-in for possible change. These paradigms are summarized in Table 3.

Table 3. Paradigms of survey respondents' beliefs based on the level of self-usage, others' usage, and ideal usage reported for each metric.

Self-Usage	Others' Usage	Ideal Usage	Belief Paradigm
Low	Low	Low	Metric should not be used, and it is not
Low	High	Low	Metric should not be used, but others do
Low	Low	High	Metric should be used, but no one does
Low	High	High	Metric should be used, but I do not
High	Low	Low	Metric should not be used, but I do
High	High	Low	Metric should not be used, but we all do
High	Low	High	Metric should be used, but others do not
High	High	High	Metric should be used, and we all do

When respondents believe that a current status of high matches the ideal, or that self-usage is not ideal and the metric should be used, label mechanisms and educational initiatives may be more likely to achieve buy-in from the public. For example, if respondents believe that they should be more concerned about the sponsors of an article, it is likely that they would be receptive to labeling news media with sponsor information. By contrast, if users indicate that they use a metric too much or the problem (deviation from ideal) is only others' usage levels, this can indicate a potential problem area where usage is not perceived as ideal, but there may be little incentive to change. For example, a problem with only others' usage may mean that most individuals consider themselves to be an exception and not in need of labels' assistance. Using these responses, thus, the categories of labels that could be implemented most immediately with positive reception can be identified. Categories that would not be well received, and those which may require educational support to build public understanding of the metric and how it can be used are also apparent.

For each question, the hypothesis that a logical correlation between the demographic characteristic and responses being measured existed was tested against a null hypothesis of no correlation existing. Each hypothesis was based on a particular type of information about the article, such as it's the identity of its creator, publisher or sponsors. The characteristics which were selected were based on their availability to news article consumers for decision-making and were selected as part of a prior study [62].

The data from each metric for each demographic are presented in Sections 4 and 5 and trends present in the data are assessed. In this trend analysis, a positive correlation means that the metric increased along with an increase in the demographic (e.g., more support with older age) and a negative correlation means that the metric decreases with an increase in the demographic (e.g., less support with older age). Qualifiers such as 'minimal' are used to indicate the magnitude of the trend and thus identify trends that may exist but not have practical significance.

4. Analysis of the Impact of Article Title, Author, Publisher and Metadata on Perceptions of Content Trustworthiness

This section analyzes the impact of several article characteristics and metadata elements on Americans' perception of content trustworthiness. These perceptions are integral to decisions that Americans make when consuming and otherwise using (e.g., posting or sharing) news content.

4.1. Article Title

The assessment in this section begins with article titles. The article title is, arguably, the most prominent feature of many articles (a lead picture may be more prominent in some cases). It tells the prospective reader what they may be reading about, should they choose to read the article, and is typically one of the first things the reader sees about the article—in many cases, seeing the title on a page that links to the actual article.

Given this, respondents were asked about the impact of an article's title on their perceptions of its trustworthiness. This data is shown in Appendix A in Figure A1. The vast majority of respondents felt that it was important, with a minimal number of respondents indicating that it had no impact at all. The impact of the title is the greatest for the 40–44 age group. The 18–24, 25–29 and 30–34 age groups also show high interest in this aspect of the article, with over 50% of respondents in these three groups indicating that they place a "great deal" or "a lot" of importance on this characteristic.

The impact of the article's title shows a negative correlation with educational level. Excepting a small resurgence for master's degree holders, the number of individuals indicating that it matters "a great deal" declines steadily with additional education. The pattern, when considering the "a lot" responses is less clear, with this second group reaching a similar level (when combined with the "great deal" responses across educational levels).

The impact of gender on the article title's impact on perceptions of trustworthiness is minimal. Male and female respondents both indicated placing "a great deal" and "a lot" of focus on the title with similar frequency. Males were more likely to place no weight on the title altogether, while females were more likely to place "a moderate amount" of focus on it than males.

Respondents were also asked how they believed the title impacted the trustworthiness perceptions of others. A demonstrable trend again exists between the 18–24 age groups and the 50–59 age groups with the number of respondents indicating "a great deal" consistently falling (with a slight resurgence in the 30–34 age group) throughout this range. This general trend, albeit with more fluctuations, also exists for the combined number of "great deal" and "a lot" respondents.

Comparing the results from Figures A1a and A2a, it is notable that, in most cases, more individuals indicated that others give "a great deal" of focus to the title than said that they themselves did. In all instances but one, the 25–29 age group, more individuals indicated that others gave either "a great deal" or "a lot" of focus to the title than indicated that they themselves did.

The educational level data, presented in Figure A2b, shows a minor trend amongst the some high school, completed high school and some college levels, with growth in the number of individuals indicating that others place both "a great deal" and "a lot" of focus on the title. Beyond this, there is a notable decline.

Comparing the self-perception and the perception of others, at most levels more respondents indicated that others placed either "a great deal" or "a lot' of focus on the title than they did themselves, with some exceptions. For example, the some high school level had nearly three times as many respondents indicating that they placed "a great deal" of focus on the title themselves, as opposed to others. Generally, though, respondents indicated that others paid more focus to the title than they themselves did.

Like with respondents' self-perceptions, there is minimal difference between male and female respondents regarding the level of focus others placed on the article title.

Respondents were asked what the ideal level of focus to place on the title would be. These results are presented in Figure A3. Notably, there is a very different trend present with this data than either the self-focus or perceptions of others' focus. The age group data shows (with the exception of the 35–39 age group) a gradual incline, up to the exception at the 35–39 level, and then a decline for the combined "great deal" and "a lot" responses. This is notably different than the trends visible in either Figure A1a or Figure A2a.

At many of the levels, more respondents indicated self-belief (considering "great deal" and "a lot" responses) in the title's importance than indicated it ideally being important. In all age groups except one (55–59), more respondents indicated others having a "great deal" or "a lot" of focus on the title than ideally would. The level of difference was particularly pronounced in the 18–24 age group, where 25% more respondents indicated others having focus on this (at the "great deal" or "a lot" levels) than ideally would.

No clear pattern is present between ideal title focus and educational level. There is also not a clear pattern between self-perception and ideal perception, with three educational levels having more self-perception than ideal, two having similar levels and two having less self than ideal perception of the importance of the article title. There is also minimal difference between male and females, with regards to ideal levels of focus on article title.

4.2. Article Publisher

The next characteristic assessed was the importance of the article's publisher. This data is presented in Figures A4–A6. In terms of age-related data, there is a notable drop in the level of importance of the publisher at the "great deal" level between the 18–24 and 35–39 age groups. It is also present in the combined "great deal" and "a lot" levels between the 18–24 and 30–34 age groups.

Comparing this to the data in Figure A4b is of particular interest as there is a demonstrable increase, at both the "great deal" and combined "great deal" and "a lot" levels between the some high school, high school completion and some college levels. This is the opposite of what might be expected, based on the age-related data. Of course, these levels also include individuals who reached that status sometime ago and are now older. Thus, these two trends—when juxtaposed—are of interest as they show that the age-associated trend is not attributable to education but instead to other factors and (similarly) that the education level-associated trend is not age-attributable but instead attributable to other factors.

While the gender data, in previous figures, has shown minimal difference, Figure A4c shows a notable difference between the two genders. While the "great deal" level is similar, males' "a lot" level is notably higher (40% as opposed to 30%). Thus, males seem to place more weight on the publisher of an article than females. Females also indicated no focus on the article publisher approximately twice as often as males.

Data regarding the respondents' perceptions of the importance that others place on the article's publisher is presented in Figure A5. No obvious trends are present in the age group data. The education level data shows a notable increase in publisher importance between the some high school, high school complete and some college respondents at both the "great deal" and "a lot" levels. This mirrors the trend shown in the self-perception data. The gender data shows that males have a perception of others' importance of the publisher of an article that is similar to the importance they place on it themselves. More males indicated a "great deal" and "a lot" of importance than females. There are, also again,

about twice as many females indicating attributing no importance to an article's publisher, as compared to males.

Next, the respondents indicated the ideal level of focus to place on the publisher of an article. The decrease in focus with increasing age at the youngest age levels, that was present in the self-perception data, was also present in the ideal data, with a notable decrease in importance between the 18–24 and 30–34 levels, at both the "great deal" and "a lot" levels.

Comparing Figures A4a, A5a and A6a, it is notable that, in most cases, respondents feel that they and others are placing too much focus on the publisher. More respondents indicated placing personal focus at the "great deal" and "a lot" levels on the publisher than indicated these levels of ideal focus in seven of the ten age groups. Similarly, more respondents indicated believing others focused on the publisher, at the "great deal" and "a lot" levels, then indicated this as being ideal. Again, seven of the ten age groups indicated more focus than ideal.

4.3. Publication Date

Next, focus turns to the publication date of the article. Data related to the level of focus paid to the publication date is presented in Figures A7–A9. A trend of declining importance being placed on the publication date with advancing age is present in the youngest age groups and starting at the 25–29 age group and continuing through the 65 and older group.

Looking at the education level data, there is a notable increase between the some high school and bachelor's degree focus at the combined "great deal" and "a lot" levels. The most educated individuals (master's and doctoral degree holders), though, placed less importance on the publication date (but not as little as the some high school group).

Comparing the genders, males tend to place less importance on the publication date than females, with more females reporting placing a "great deal" or "a lot" of importance on the publication date than males.

With regards to the perceptions of respondents regarding others' perceived importance of the publication date, what is perhaps most notable (in Figure A8a) is the significant fluctuation between age groups. While gradual shifts and trends were present in the self-perception data, the perception of others data lacks a notable trend at the "great deal" and "a lot" levels. There is not a notable pattern between the self-perception and others-perception data.

Comparing the self-perception and others-perception data by educational level finds similarities. The four middle education levels all have a similar level of perception of others' publication date importance to each other. They also are similar to the reported levels of self-importance, both at the "great deal" and "a lot" combined level. Both the self- and others-perception data also show a decline in perceived importance at the master's and doctoral degree levels at the "great deal" and "a lot" combined level. The some high school group is notably different, with no respondents reporting a "great deal" of importance to others, but having more "a lot" of importance responses than the combined "great deal" and "a lot" for the self-perception question.

Finally, the gender data shows more interest in the publication date at the combined "a lot" and "great deal" and combined "a lot", "great deal" and "moderate" levels, despite being similar at the "great deal" alone level. Similar to the self-perception data, it appears that females also perceive the publication date as being more important to others than males do.

In the perceived ideal levels of focus on the publication date of the article (shown in Figure A9), a general decline in importance is seen from the 25–29 age group and older at the combined "great deal" and "a lot" levels. This trend is similar to the decline in importance of the publication date seen in the self-importance and others-importance data presented in Figures A7a and A8a.

Similar trends are also present in the educational level and gender data. A similar level of perceived ideal importance is seen at the middle education levels, with lower

importance being placed on the publication date by the some high school level and masters and doctoral degree holders. Females also place more importance on the publication date, mirroring the self- and others-importance data.

4.4. Article Author

Focus now turns to the perceived importance of the article's author. Data regarding this is presented in Figures A10–A12. The youngest age groups place the highest weight on the author. The 18–24 to 30–34 age groups have the highest levels of "great deal" and "a lot" responses (though the 40–44 age group has more combined "great deal" and "a lot" but not "great deal" responses alone). A related trend exists of giving more weight to authors at higher educational levels. This trend is present throughout all educational levels, with limited fluctuation, for "great deal" responses and up to the master's level for the combined "great deal" and "a lot" levels. No major differences are notable in the gender data.

The data in Figure A11 depicts respondents perception of others' focus on the importance of articles' authors. Few patterns in this data are notable. The age level data shows fluctuation and no clear trends. The education-level data largely mirrors the self-perception data. Interestingly, associate's degree holders reported higher concern for an article's author than those that have completed high school and those with some college completed and bachelor's degrees; however, they reported others having less interest in it. Like the self-perception data, females had less "a lot" responses and more "moderate" responses for others-perception and a slightly higher level of reporting no focus on the article's author.

Figure A12 presents respondents' perception of the ideal level of focus to place on articles' authors in assessing their trustworthiness. The age group data shows a gradual rise in the combined "great deal" and "a lot" responses from the 18–24 to 55–59 age groups. Notably, the inverse of this pattern appears to be present in the "great deal" responses, meaning that the middle age groups have the highest "a lot" levels while the younger and older age groups have the highest "great deal" levels (40–44 is an exception to this).

A similar pattern exists with regards to the educational level data, with a gradual rise and then fall. Notably, the two ends (some high school and doctorate holders) both have no individuals giving no focus to the author and thus have the highest combined "great deal"/"a lot"/"moderate"/"little" combined responses. They both also have the highest "great deal"/"a lot"/"moderate" response levels. No notable differences are present in the gender data.

4.5. Article Sponsors

Next, focus turns to the impact of article sponsors on respondents' perception of article trustworthiness and credibility. Figures A13–A15 present data related to this topic.

In assessing the age range data, no clear pattern or trends are present. In assessing the educational level data, there is a general growing weight given to articles' sponsors with increasing educational level, for the "great deal" and "a lot" levels, starting at the some high school educational level and reaching the master's degree level. This trend is also present with the combined "great deal", "a lot" and "moderate" response levels through all educational levels. The gender data is relatively close to parity.

Figure A14 shows respondents' perception of the weight that others place on the article sponsor. Similar to the self-perception data, the others-perception data shows no clear pattern related to age groups. The pattern of growing interest in article sponsors with advanced education level is apparent at both the combined "great deal" and "a lot" level and the combined "great deal" / "a lot" / "moderate" level. Only slight differences again exist between the male and female respondents, in Figure A14c.

Finally, Figure A15 presents respondents' perception of the ideal level of focus to place on article sponsors. Again, no clear pattern exists in the age group data. The pattern of growing interest with advanced education is again present and most notable at the combined "great deal" and "a lot" level. Once again, the genders are close to parity.

4.6. Author's Political Alignment

Now, focus turns to the impact of the author's political alignment on respondents' perception of article credibility. Data related to this topic is presented in Figures A16–A18.

Figure A16a shows a general trend where the level of weight placed on the author's political alignment increases from the 18–24 age group, peaking at the 40–44 age group, before declining until the 55–59 age group, for the combined "great deal" and "a lot" levels. It climbs again at the 60–64 and 64 and older groups. A trend of growth in focus with higher education level is shown between the some high school and master's degree levels for the combined "great deal" and "lot levels". The doctorate holders have a lower level of focus than the master's degree holders. Males also, notably, give more credence to the author's political alignment than females.

Figure A17 shows respondents' perceptions of others' focus on the author of an article's political alignment. The age series data shows two general upward growth trends in the combined "great deal" and "lot data". The first trend starts in the 18–24 age group and ends at 44. The second starts in the 45–49 age group and continues to the 65 and older group, with a demonstrable drop between the 40–44 and 45–49 age groups. The educational level trend present in the self-perception data is also present in the others-perception data, in the combined "great deal" and "a lot" level data, with growth from the some high school level up through the doctorate holder levels. In the gender data, the greater self-perception of males' focus on authors' political alignment has a corresponding believed greater focus of others, at the "great deal" and "a lot" levels. However, the gender difference is corrected in the "moderate" level and the two genders have similar "little" and "none" response levels.

Figure A18 presents respondents' perspectives of the ideal level of focus to pay to articles' authors' political alignment. Two growth trends, with a decline between them, are present. A less pronounced trend is also present of growing ideal focus on authors' political affiliations with increasing educational level, from the some high school educational level up until the master's degree level. There is marginally more ideal focus on author's political affiliations amongst males at the combined "great deal" and "a lot" level; however, the "moderate" level has slightly less male responses and the "little" and "none" levels are the same for both genders.

4.7. Publisher's Political Alignment

Next, the perception of the publisher's political alignment's impact on article trustworthiness is considered. Figures A19–A21 present data related to this topic.

Figure A19a shows two growth trends, where older age correlates with more focus on publisher's political alignment. A growth trend is also present, associated with increasing educational level. It starts at the some high school level and continues up to the master's degree level for the "great deal" and "a lot" levels. There is also a notably higher level of focus on article publishers' political alignment amongst male respondents at all levels.

Figure A20 presents respondents' beliefs about the level of focus that others place on article publishers' political alignment. Here, only a trend between the 55–59 and 65 and above age groups is notable. A trend of increasing focus is present in the educational level data from the some high school level to master's degree level. Doctoral degree holders have a notably lower level of focus than master's level respondents (and the second lowest overall). Finally, the greater focus amongst males self-perception is also present amongst males perceptions of other's focus on article publishers' political alignment; however, it is not as pronounced of a difference.

Figure A21 presents respondents' perspectives regarding the ideal level of focus to place on the publisher's political alignment. No clear trend is present in the age group data. A less pronounced version of the education level-associated trend is present. It is notable that, across most educational attainment levels for the "great deal" and "a lot" of focus levels, the ideal level of focus is less than the focus reported for self-perception and others-perception, with two exceptions. Notably, more focus is desired by the some high school group and the doctorate holders group has approximately same level of focus as

ideal in both their self- and others-perception responses. Finally, the gender data shows that more males than females see a "great deal" of focus as ideal. However, the difference becomes less notable at lower levels of concern.

4.8. Sponsor's Political Alignment

Focus now turns to the impact of articles' sponsors' political alignment. Data related to this topic is presented in Figures A22–A24.

The age group data presented in Figure A22a shows no clear trends. The educational level data shows a general increase in the level of focus placed on articles' sponsors' political alignment along with education level, from some high school to doctoral degree holders at the combined "great deal" and "a lot" levels. The gender-based data shows a greater focus among male respondents on articles' sponsors' political alignment, as compared to female respondents.

Figure A23 presents the respondents' beliefs regarding others' perspectives as to the importance of articles' sponsors' political alignment in assessing article trustworthiness. Like with the self-perspective data, no clear trends are present in the age group data. There is a positive correlation between higher levels of education and additional focus on articles' sponsors' political alignment. There is, also similarly, a greater level of focus on articles' sponsors' political alignment attributed to others by male respondents.

Figure A24 presents what respondents believe to be the ideal level of impact of articles' sponsors' political alignment on perceptions of article trustworthiness. Like with the self-perception and others-perception data, no clear trends are present in the age group data. There is a similar trend of a positive correlation between higher level of education and higher ideal levels of focus on articles' sponsors' political alignment. The trend of males having more focus on articles' sponsors' political alignment is also present in the ideal data.

5. Analysis of the Impact of Article Characteristics on Perceptions of Content Trustworthiness

This section analyzes the impact of four article characteristics on Americans' perceptions of online article trustworthiness. The impact of the quantity of opinion statements, article virality, article controversy level and article reading level are considered.

5.1. Opinion Statement Quantity

In analyzing the data regarding opinion quantity (in Figure A25a), no clear patterns are visible. Conversely, the education level analysis shows much less variability and a slight positive correlation between additional education and focus on opinion statements when assessing content trustworthiness. Figure A25c shows that there is slightly more interest amongst females, than males, in the quantity of opinion statements when assessing trustworthiness.

Figure A26 presents Americans' perceptions of others' focus on the quantity of opinion statements in an article when assessing its credibility. A small downward trend is visible in the age group data, albeit with fluctuations, where older age groups are less concerned about the quantity of opinion statements than those in younger groups. No significant trends are notable in the education associated data. There is also no pronounced difference in males versus females.

Figure A27 presents data regarding what Americans think the ideal level of focus on the number of opinion statements in an article should be for assessing article credibility. Again, in the age group data, no clear pattern is present. In comparing Figures A25a, A26a and A27a, the age groups have appreciable correlation across the three types of responses. The correlation (being higher or lower, as compared to adjacent groups) is present across most levels for the self-perception and others-perception data. However, it is only prevalent across the higher age groups, when comparing the self- and others-perception data to the ideal-perception data.

There is, again, no notable trend across educational levels for the ideal data. The ideal level of focus on opinion statements, across educational levels, seems to be closer to the self-perception than the others-perception data. Notably, many age groups indicate more others-perception than ideal perception. Finally, the differences between the genders are minimal, with slightly more females using opinion statement quantity when assessing news trustworthiness.

5.2. Virality

Now, focus turns to the impact of article virality. Data related to this topic is presented in Figures A28–A30.

Figure A28 shows the impact of the virality of an article on its perceived trustworthiness. There are no clear correlations between focus on virality in trustworthiness assessment and age. There is a notable negative correlation between focus on this factor and educational attainment, with 50% of some high school respondents indicating a "great deal" or "a lot" of focus on this and under 30% of doctorate holder indicating similar focus. There is also significantly more interest among females in article virality as an assessment criteria.

Figure A29 indicates the level of focus that Americans think others place on article virality in assessing credibility. Two peaks (at 25–29 and 60–64) are visible with a depression between them. The educational attainment data shows a positive correlation between educational attainment and focus on virality on the lower-education end of the spectrum. A second positive correlation is shown in the range between associates, bachelors and master's degree holders, when considering the combined "great deal" and "a lot" data. Females believe others have moderately more interest in article virality than males, with only about two-thirds of the level of "none" responses of male respondents.

Finally, Figure A30 shows the Americans' believed-ideal level of virality impact on article credibility assessment. Like with the self-perception data, the ideal-perception data for age groups has no clear patterns. The educational attainment data shows a negative correlation between higher education level and interest in using article virality for assessment purposes. This mirrors the self-perception data and is significantly different than the others-perception data. Like with the self- and other-perception data, females evidence greater interest in article virality in assessing its credibility. Notably, 30% of males indicate that virality should have no impact on this assessment, which is higher than the self-perception and others-perception data, showing that some males feel that they and others are giving an undesirable level of focus to this criteria.

5.3. Controversy Level

Next, focus turns to the impact of the controversy level of the article on its perceived trustworthiness. Data related to this is presented in Figures A31–A33.

No clear association is visible between the article trustworthiness and age, beyond the 35–39 age group. Between the 18-24 and 35-39 age groups, the level of "great deal" responses consistently declines with age; however, the number of "a lot" responses nearly perfectly compensates for this drop, making the combined "great deal" and "a lot" response levels similar through these age groups. There is minimal variation between the impact of controversy level on article trustworthiness across education levels. Males and females have very close response levels; however, slightly more interest about controversy level in article assessment is shown by females in Figure A31c.

Figure A32 shows the perceptions of Americans about the importance that others place on an article's level of controversy in assessing its trustworthiness. A small decline in controversy level importance is shown, for the "great deal" and "a lot" levels between 24–29 and 55–59 age groups. Notably, the 60–64 and 65 and older groups are both higher than the 55–59 group and the 18–24 group has one of the lowest levels of focus on article controversy level.

Among the lower educational attainment levels there is an association between greater education and greater focus on article controversy level in determining trustworthiness.

Comparing male and female responses, in Figure A32c, no notable gender differences are apparent.

Finally, Figure A33 shows the perceived ideal level of focus on article controversy as part of article trustworthiness assessment. In the age level data, there are (again) minimal patterns. A positive correlation between age and increased ideal focus is shown between the 18–24 and 30–34 age groups and, separately, between the 35–39 and 45–49 age groups. The data related to educational attainment also does not paint a clear picture, with a slight upward trend amongst the some high school and associates degree educational levels, at the "great deal" and combined "great deal" and "a lot" levels. However, this is also a downward trend, at the "moderate" level between these same educational levels. The data also shows more ideal interest in controversy level amongst female respondents.

5.4. Reading Level

Finally, focus turns to the impact of the article's reading level on respondents' perception of article trust. This data is presented in Figures A34–A36.

Figure A34a shows significant variability by age level and no clear trends. Figure A34b shows two positive correlating trends between greater education and greater focus on reading level. No significant difference exists between male and females, with regards to responses to this question, as shown by Figure A34c.

Figure A35 shows Americans' perceptions of others' focus on article reading level in assessing article trustworthiness. Again, with the age group data, significant variation and no clear trends are present. There are also no notable trends in the education level data other than a decline shown in the combined "great deal", "a lot" and "moderate" level between bachelor's, master's and doctoral degree holders. Once again, no notable difference exists between male and female responses for this question.

Finally, Figure A36 shows the perceived ideal levels of focus on article reading level as part of trustworthiness assessment. The age data, again, shows no clear trends. The educational level data shows a positive association between additional education and focus between the some high school and some college levels. This is present at the combined "great deal" and "a lot" as well as the combined "great deal", "a lot" and "moderate" levels. Finally, there is again no notable difference between gender responses for this question, as was the case with Figures A33c and A34c.

6. Implications of Analysis

The data presented in Sections 4 and 5 contains numerous trends that illustrate how individuals from different demographic backgrounds make their news content consumption decisions. These trends may inform the construction of effective labeling mechanisms for news content. All three variables of analysis (age, education and gender) were shown to have multiple correlations with added or reduced emphasis for different article characteristics. For the data presented in Section 4 (and which is summarized in Table 4), twelve characteristics show differences in perceived importance based on respondents' age, twenty-three show differences in based on respondents' education level and fifteen show differences based on respondents' gender.

While the implications of all of these comparisons are potentially important to determining how to best serve their respective demographic groups, a few serve as notable examples. The data showed, as illustrated in Figure 2, that males place more weight on the publisher than do females. Conversely, as shown in Figure 3, females were shown to place more weight on the date of publication than did males. These differences would potentially inform what details would be most relevant to different users (if their own personal preferences were not known) and may inform what information is presented, as well as the order that it is presented in. Similarly, the importance of the publication date was shown (in the data presented in Figure 4) to decline with respondents' age, while the importance of an author's and publisher's political alignment were shown to increase with education level (see Figures 5 and 6). It is also notable that both the self (Figure 6) and

ideal (shown in Figure 7) levels for author's political alignment show the same pattern, indicating that respondents' aspirations and actual actions are aligned. This pattern is present for several article characteristics.

Table 4. Summary of trends and differences by age, education and gender for article title, publication date, publisher, author, sponsor and political alignments.

		Age	Education	Gender
Title	Self	Declines from 18–24 to 35–39; resurgence at 40–44	Negative correlation	Minimal variation
	Others	Negative correlation 18–24 to 40–49	Increasing importance from some high school to some college, declines after this point	Minimal variation
	Ideal	Increased weight from 18–24 to 30–34, decline afterwards	No clear pattern	Minimal difference
Publisher	Self	Declines with age in younger age groups	Increases with education level at lower education levels	Males place more weight on publisher than females
	Others	No obvious trend	Increases with education level at lower education levels	Males indicate that others place more weight on publisher than females
	Ideal	Declines with age in younger age groups	Increases with education level at combined "great deal" and "a lot" levels	Same at "great deal" and "a lot" levels; females place more weight at "moderate" level
Publication Date	Self	Declines with age at younger age groups; increases with age in oldest groups	Increases with education	Females place more weight on publication date
	Others	No clear overall pattern	Increases with education at lower education levels, then decreases at higher ones	Females place more weight on publication date
	Ideal	Declines with age across most age groups	Increases with education at lower education levels, then decreases at higher ones	Females place more weight on publication date
Author	Self	No clear trend	Increased weight with education level	No major difference
	Others	No clear trend	Increased weight with education level	No major difference
	Ideal	Conflicting trends by level	Rises with education level at lower levels and then falls with increased education level at higher levels	No major difference
Article Sponsors	Self	No clear trend	Increased weight with education level	No major difference
	Others	No clear trend	Increased weight with education level	No major difference
	Ideal	No clear trend	Increased weight with education level	No major difference
Author's Political Alignment	Self	Increased weight with age, with decline between 40-44 and 55-59 age groups	Increased weight with education level	Males give more weight to this than females
	Others	Increases with age - two trends with reversal between them	Increased weight with education level	Males give more weight to this than females at "great deal" and "a lot" levels
	Ideal	Increases with age—two trends with reversal between them	Increased weight with education level	Males give more weight to this than females at "great deal" and "a lot" levels
Publisher's Political Alignment	Self	Two growth in focus with increased age trends present	Increased weight with education level	Males give more weight to this than females at "great deal" and "a lot" levels
	Others	Growth with higher age in older respondents only	Increased weight with education level	Males give more weight to this than females at "great deal" and "a lot" levels
	Ideal	No clear trend	Increased weight with education level	Males give more weight to this than females at "great deal" level
Article Sponsors' Political Alignment	Self	No clear trend	Increased weight with education level	Males give more weight to this than females
	Others	No clear trend	Increased weight with education level	Males give more weight to this than females
	Ideal	No clear trend	Increased weight with education level	Males give more weight to this than females at "great deal" and "a lot" levels

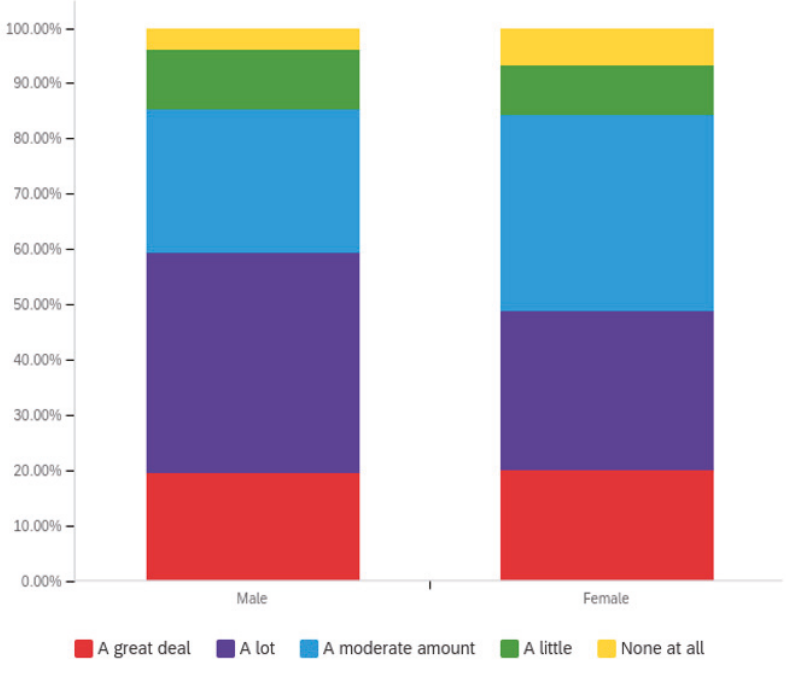

Figure 2. Showing that males place more weight (at combined "great deal" and "a lot" levels) on the publisher than do females.

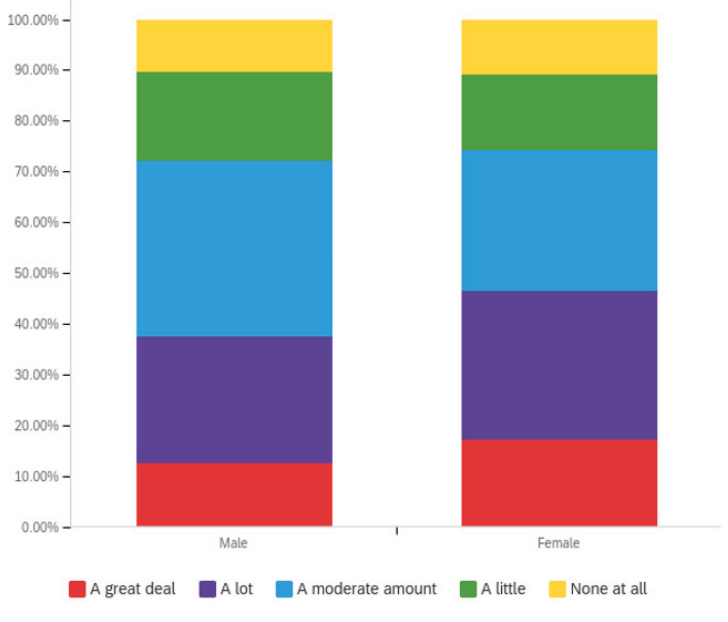

Figure 3. Showing that females place more weight (particularly at the combined "great deal" and "a lot" levels) on publication date than do males.

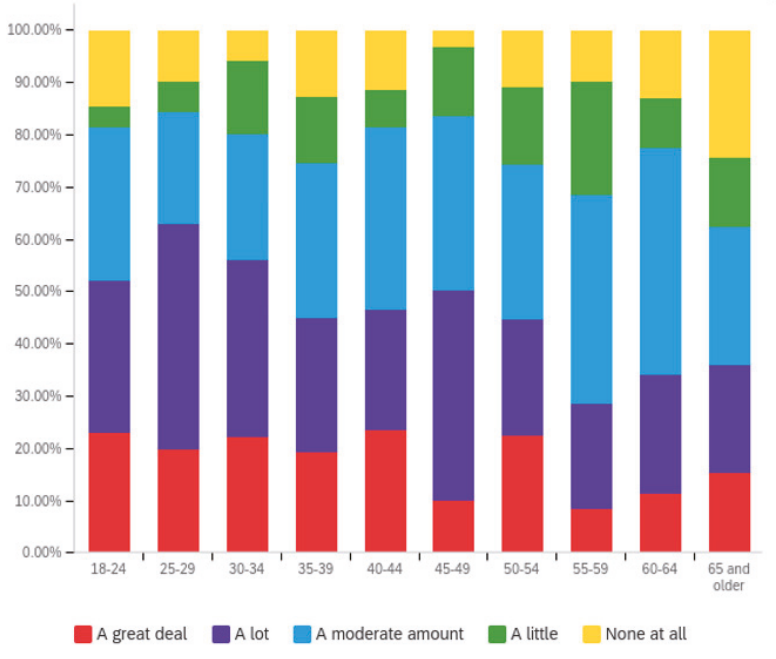

Figure 4. Showing that the ideal level of focus on publication date declines with age.

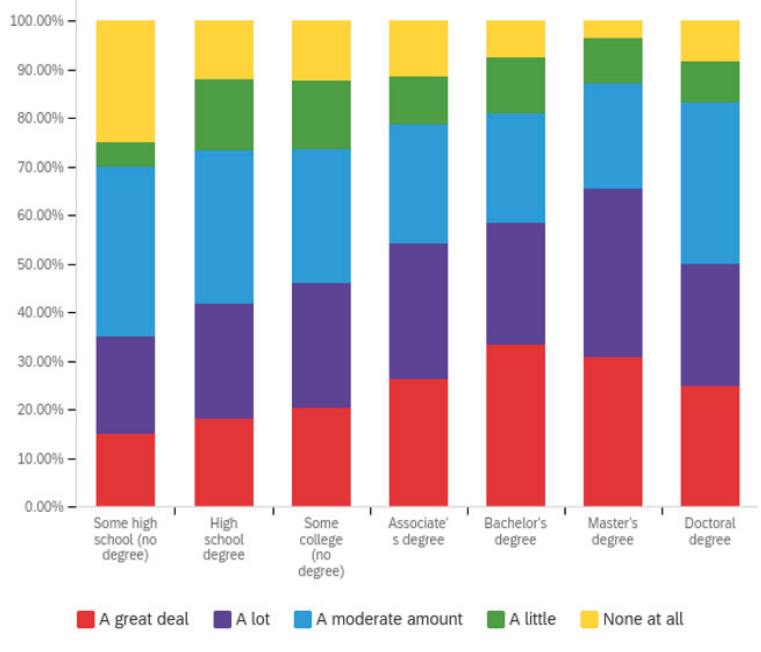

Figure 5. Showing that the weight placed on author's political alignment increases with education level.

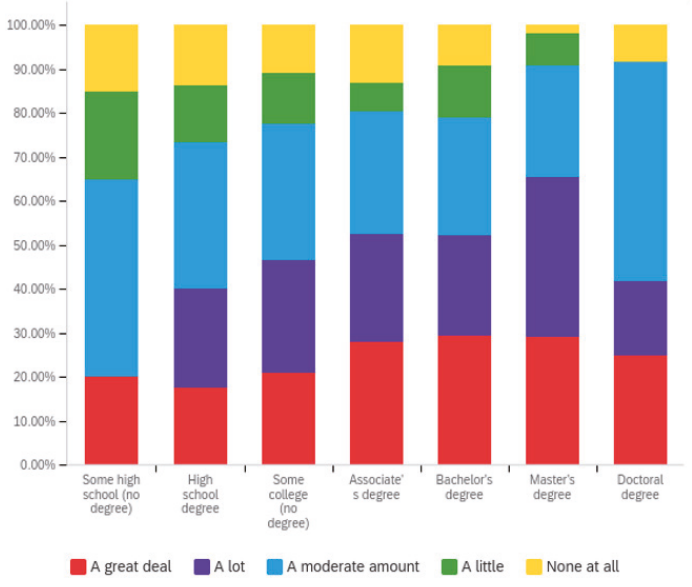

Figure 6. Showing that the weight placed on publisher's political alignment increases with education level.

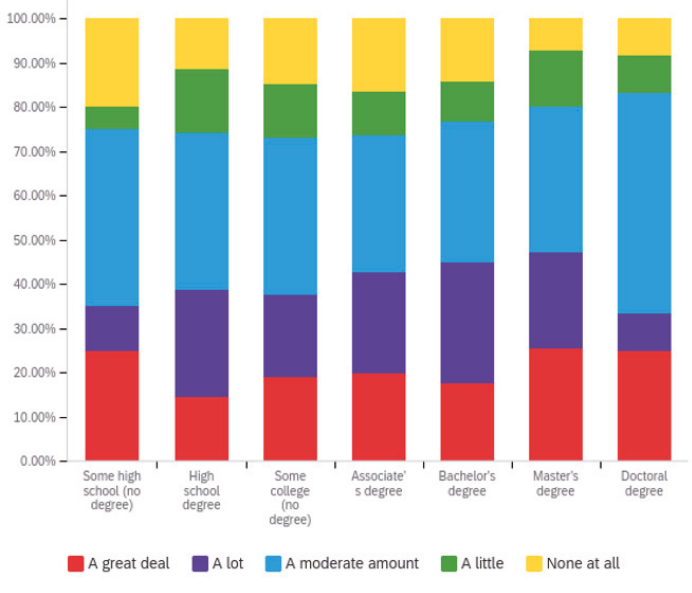

Figure 7. Showing that the ideal weight that is placed on author's political alignment increases with education level.

It is also notable that the trends present are not all the same. For example, factors that increase and decrease with age and education were both identified. Some factors were shown to be similar between males and females, while others were shown to be given additional weight by males or females. Given this, it is critical to incorporate demographic-specific article information when labeling online content for combatting fake

news. Furthermore, it is also key to understand that the information that will be best to present may not be a combination of key information identified for each demographic group considered. Rather, it would be prudent to provide the most relevant subset of information to each individual, which can be partially determined by their demographic group memberships.

Table 5 presents similar data as Table 4 for the four article characteristics (quantity of opinion statements, virality, controversy level and reading level). Again, age, education and gender-correlated levels of focus were present. Four characteristics showed an interest level correlation with age. Eight showed an interest level correlation with education and seven showed an interest level correlation with gender. Even within this smaller number of factors, those with both positive and negative correlations were demonstrated. This further emphasizes the potential benefits of providing demographically-targeted information to combat the spread of fake news. This data also facilitates, the comparison of respondents' perceptions of their and others' actions and their aspirations. Figures 8 and 9 illustrate, for example, how females evidence higher interest in article virality and also consider this metric to be ideally focused on, to a greater extent than males.

Table 5. Summary of trends and differences by age, education and gender for article quantity of opinion statements, virality and controversy and reading levels.

		Age	Education	Gender
Quantity of Opinion Statements	Self	No clear trend	Small correlation between higher education level and weight	Higher female interest
	Others	Slight decrease in interest with increased age	No notable trend	No notable trend
	Ideal	No clear trend	No notable trend	Slightly higher female interest
Virality	Self	No clear trend	Negative correlation between focus and educational level	Notably higher female interest
	Others	Slight decrease in focus with increased age	Two positive correlation trends with gap	Moderately higher female interest
	Ideal	No clear trend	Negative correlation between focus and educational level	Notably higher female interest
Controversy Level	Self	No clear trend	No clear trend	Slightly higher female interest
	Others	Range with negative correlation	Range with positive correlation	No notable difference
	Ideal	Two ranges with positive correlation	No clear trend	Higher female interest
Reading Level	Self	No clear trend	Two ranges with positive correlation	No notable difference
	Others	No clear trend	Range with negative correlation	No notable difference
	Ideal	No clear trend	Range with positive correlation	No notable difference

The differences between individuals' self-perception of focus, perception of others' focus and perception of the ideal level of focus on article characteristics and attributes were also considered and are presented in Tables 6 and 7. Once again, considerable demographic differences were shown. For the article attribute data (summarized in Table 6), twenty-two of the comparisons (between self and others, self and ideal and others and ideal) had an age-correlated trend. Thirteen had an education level correlated difference and twenty-two had a gender-correlated difference. The attribute data, shown in Table 7, had ten age-correlated differences, seven education level correlated ones and 11 gender-correlated differences.

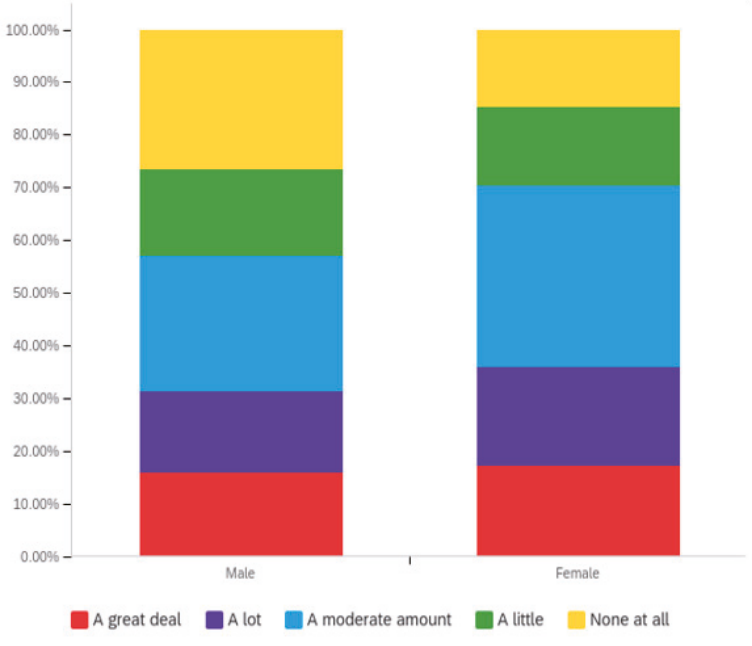

Figure 8. Showing greater interest article virality by females (self-perception).

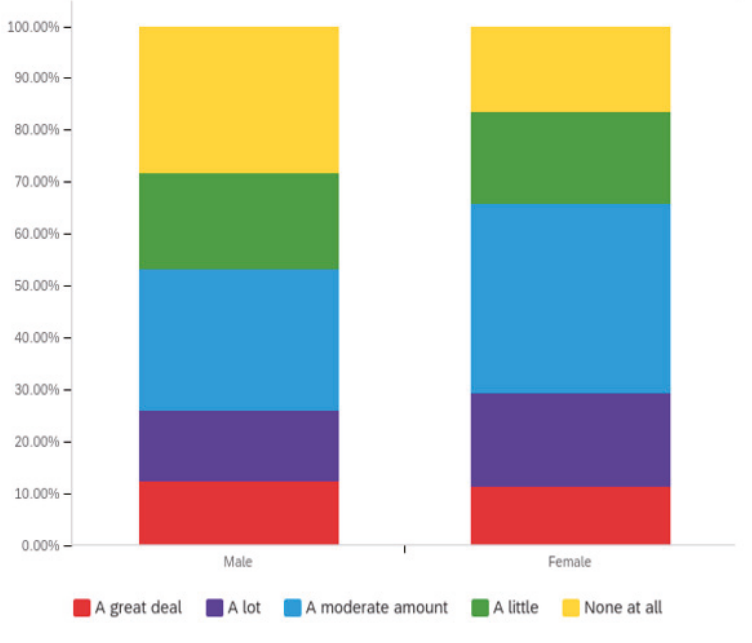

Figure 9. Showing greater ideal interest in article virality by females.

Table 6. Comparison of self-perception to perception of others, self-perception to ideal-perception and perception of others to ideal-perception for the impact of article title, publisher, author, publication date, sponsors and political alignments.

		Age	Education	Gender
Title	Self-Others	Others give more weight to title	Others place more focus than they do, at most levels	25% of both genders say others place more weight on than them
	Self-Ideal	At many levels, more indicated self-belief than importance	No clear pattern	No notable difference
	Others-Ideal	Others less across ages	Others less at all levels except Ph.D. (same)	Others less for both genders, females have slightly higher comparative others importance at "great deal" level
Publisher	Self-Others	Similar	Similar	Similar; less females reporting "great deal"
	Self-Ideal	More focus placed on publisher than ideal in 7 of 10 age groups	No clear trend	Similar; males have greater focus at "a lot" level
	Others-Ideal	Others place more focus on publisher than ideal in 7 of 10 age groups	Others place more focus than ideal in 5 of 7 categories	Males perceive others having more focus than ideal; females perceive others having similar to ideal focus level
Publication Date	Self-Others	No clear pattern	Mostly similar	Greater importance to others reported among both genders; females similarly place greater importance
	Self-Ideal	More ideal focus than reported self-focus at most levels	No clear pattern	More ideal focus than self-focus for both genders at "great deal", "a lot" and "moderate" levels
	Others-Ideal	More ideal focus than reported others focus at all but one level	More ideal focus than reported others focus at all but one level	More ideal focus than reported others focus at "great deal", "a lot" and "moderate" levels
Author	Self-Others	Seven of ten have higher self than others at combined "great deal" and "a lot" levels	All but Ph.D. level report higher for self than others	Similar for males; lower level of females reporting importance for others at combined "great deal" and "a lot" levels
	Self-Ideal	Six of ten report higher self than ideal focus level	No clear trend	Lower ideal than self for both genders
	Others-Ideal	Six of ten report lower others than ideal focus	No clear trend	No clear trend for males; females report others less than ideal at "great deal" and "a lot" levels
Article Sponsors	Self-Others	Younger age groups report less focus than others; older age groups report more	No clear trend	Males have notably more "great deal" respondents for self than others; females have marginally more.
	Self-Ideal	Nine out of 10 report more focus than ideal	No clear trend	Males and females report more focus than ideal at "great deal" and "a lot" levels
	Others-Ideal	Seven of 10 age groups report others have more focus than ideal	All but one education level, respondents report others have more than ideal focus	Both males and females say others have less "great deal" interest than ideal and more "a lot" interest than ideal
Author's Political Alignment	Self-Others	Eight of 10 ages indicate greater others focus than self-focus	Five of 7 education levels report greater others focus than self-focus	Both males and females report greater others' focus than self-focus
	Self-Ideal	Nine of 10 ages report more self-focus than ideal focus.	Six of 7 report more self-focus than ideal focus	Males and females report more self-focus than ideal focus; more significant difference for males
	Others-Ideal	More others' focus than ideal at all age levels	Six of 7 education levels report more others' focus than ideal focus	Males and females report more others' focus than ideal focus; more significant difference for males

Table 6. *Cont.*

		Age	Education	Gender
Publisher's Political Alignment	Self-Others	Six of ten report higher self than others' focus level	No clear trend	No clear trend; females see more focus for others than self-focus
	Self-Ideal	More focus than ideal at all levels	Five of seven education levels have more self-focus than ideal	Both males and females report more self-focus than ideal
	Others-Ideal	More focus by others than ideal at all levels	Five of seven education levels have more others' focus than ideal	Both males and females report more others' focus than ideal
Article Sponsors' Political Alignment	Self-Others	Seven of 10 report more self than others' focus	Similar - no clear trend	Similar - no clear trend
	Self-Ideal	Seven of 10 report more self than ideal focus	All education levels report more self-focus than ideal	Males report more self-focus than ideal; females report close to the same level
	Others-Ideal	Seven of 10 report more others' than ideal focus	All education levels report more others' focus than ideal	Both males and females report more others' focus than ideal; more pronounced difference for males

Table 7. Comparison of self-perception to perception of others, self-perception to ideal-perception and perception of others to ideal-perception for the impact of article quantity of opinion statements, virality and controversy and reading levels.

		Age	Education	Gender
Quantity of Opinion Statements	Self-Others	Six of ten report lower self than others' focus level	No notable trend	No notable trend
	Self-Ideal	Seven of ten report higher self than ideal focus level	Five of seven report higher self than ideal focus level	Both genders have higher self-focus than ideal focus
	Others-Ideal	Eight of ten report higher other's than ideal focus level	Six of seven report higher others' than ideal focus level	Both genders have higher other's focus than ideal; more pronounced difference for males.
Virality	Self-Others	Notably uncorrelated; eight of 10 age groups have lower self-focus than others' focus	Notable difference at some high school level; six of seven have higher others' interest than self-focus	Notably higher others' interest than self-interest for both genders; larger difference for males
	Self-Ideal	Significant variations; Eight of ten groups have greater self-focus than ideal focus	All seven education levels have less ideal focus than self-focus	Both have higher self-interest than ideal interest; similar difference levels
	Others-Ideal	Nine of ten report higher other's than ideal focus level	Six of seven educational levels report higher other's than ideal focus level	Both genders have higher other's focus than ideal focus
Controversy Level	Self-Others	All 10 have higher others' interest than self interest	Six of seven groups have higher others' interest than self interest	Both genders have higher others' interest than self-interest; more pronounced difference for males
	Self-Ideal	No clear trend	No clear trend	Slightly more self-interest than ideal interest
	Others-Ideal	All 10 have higher others' interest than ideal interest	Six of seven groups have higher others' interest than ideal interest	Both genders have higher others' interest than ideal interest; more pronounced difference for males
Reading Level	Self-Others	Seven of ten report higher self than others' focus level	No clear trend	Males similar; females have greater self than others' interest
	Self-Ideal	Nine of ten have more self-interest than ideal interest	No clear trend	Both genders have higher self-interest than ideal interest; larger difference for females
	Others-Ideal	No clear trend	No clear trend	Both genders have higher others' interest than ideal interest

Two examples are illustrative. Figures 10 and 11 show how respondents have a lower aspiration to consider authors than actually do. This indicates that Americans, collectively, believe that they don't give enough weight to article authors. Conversely, more respondents indicated focus (as shown in Figures 12 and 13) to an article's publisher's

political alignment, indicating that Americans believe that they give—collectively—too much focus to this article attribute.

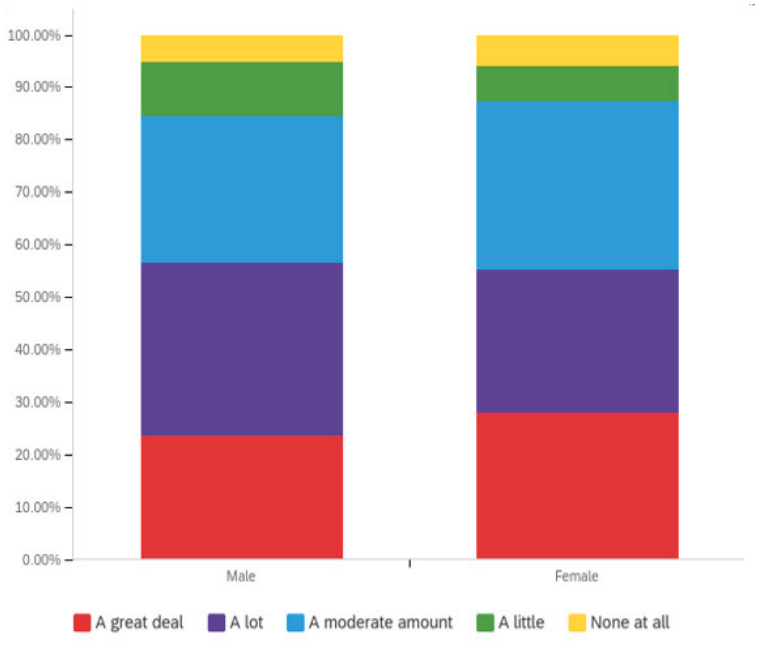

Figure 10. Showing the level of focus given by respondents to articles' authors.

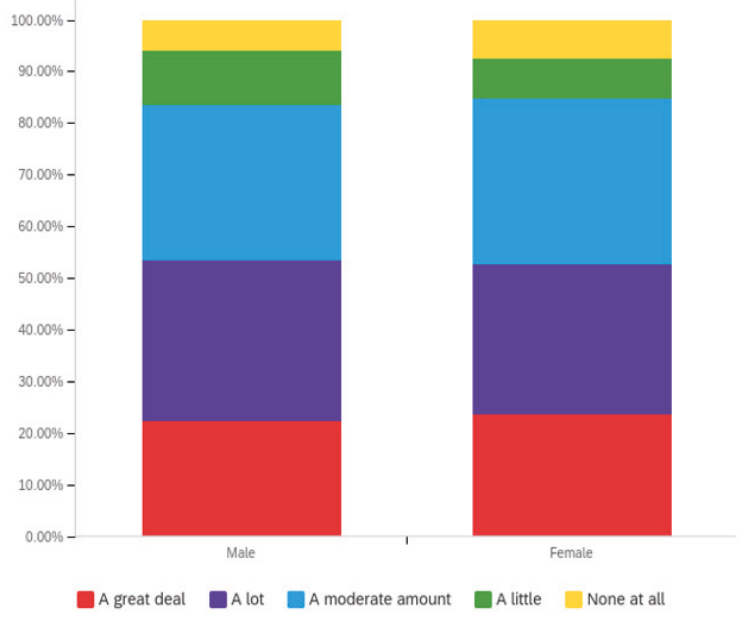

Figure 11. Showing the level of focus that should, ideally, be given to articles' authors.

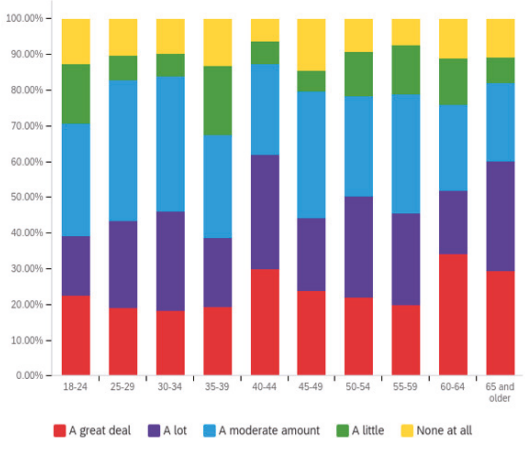

Figure 12. Showing the level of focus given by respondents to articles' publishers' political alignment.

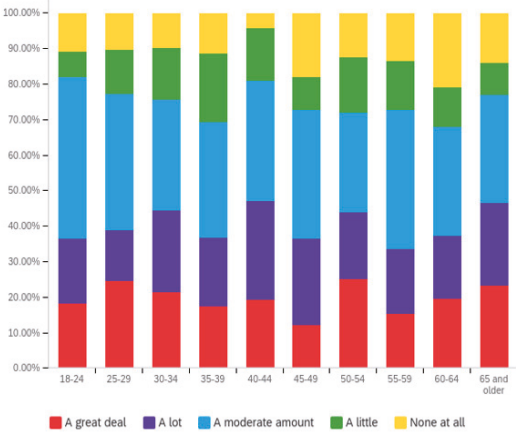

Figure 13. Showing the level of focus that should, ideally, be given to articles' publishers' political alignment.

These comparisons are of particular interest as respondents' perspective regarding what is ideal and their comparative practices may indicate areas where they have motivation to change. Similarly, perceived differences between respondents own perceptions and their perceptions of others' beliefs is informative both as to how others may react to data as well as to understanding where respondents see themselves relative to others in their social circles. Comparing respondents' perceptions of others' focuses on different characteristics and what they perceive as an ideal level of focus can be similarly insightful.

7. Conclusions and Future Work

This paper has discussed the difficulties and dangers presented by deceptive online content which is commonly known as "fake news". To attempt to understand why deceptive content spreads and what can be done to prevent its spread, without requiring a solution such as government censorship of content, it has analyzed the different factors that individuals consider when making news consumption decisions. Specifically, it has considered the impact of different online article characteristics and qualities on trustworthiness perception. Questions have targeted three different perceptual filters: perception

of self, perception of others, and perception of the ideal. This allows for comparison of perceptions of "what is" and "what ought to be."

As different individuals may give different levels of weight to different characteristics and qualities, this paper has evaluated the impact of the different characteristics and qualities in terms of the key demographics of age, education level and gender. In doing so, it has shown that, while some characteristics and qualities do not correlate with one or more of these demographics, this is not typical. For every article trait discussed, at least one demographic correlation was identified with these three demographics.

Understanding what individuals from different backgrounds perceive as important to their news consumption trust decision making is key to ensuring that they are presented with the information that is most relevant to them. This data and analysis, thus, informs efforts to provide online news content consumers, and those that may seek to further share or otherwise use online content, with information that will help them identify deceptive content and take appropriate action, based upon knowledge of what is valued for these purposes by those with similar traits to them.

Identifying the most important information to present to users may be key to developing effective content labeling systems. This knowledge can be used to maximize the use of the available screen space and the potential effectiveness of the label. By developing and evaluating the most effective labels, the efficacy of the labeling paradigm itself can be effectively evaluated to determine if labels in general and specific types of labels are effective at preventing the spread and unintended consumption of fake news content.

Notably, a key limitation of this study is that it is based on respondents predictions of how they would behave in the future, recollections of how they have behaved in the past and perceptions of others' behaviors. Because of this, actual actions that individuals take may differ from these predictions, recollections and perceptions.

Given the foregoing, future work will seek to explore how to best present the demographically-identified relevant information to users. It will also seek to understand if combinations of these and other demographics can be used to better identify what trustworthiness decision information is most valued by users and, thus, provide them with the information that they find most relevant presented in a manner that focuses on the information that the user will find most important. Assessing individuals' actual decisions when making content consumption and label use decisions is also a planned area of future work.

More broadly, this data and analysis also serves to inform a societal conversation regarding preparing individuals to be alert to deceptive content to prevent negative outcomes, such as those discussed in Section 2. Understanding the differences between how individuals of different ages, genders and education levels value different factors in this decision-making helps understand how societal changes over time, education and other socialization factors impact fake news awareness and decision-making. This can be used to drive targeted education initiatives and to define future research efforts.

Author Contributions: Conceptualization, J.S. and M.S.; methodology, J.S. and M.S.; resources, J.S.; writing—original draft preparation, J.S. and M.S.; writing—review and editing, J.S., M.S. and B.F.; project administration, J.S.; funding acquisition, J.S.; visualization, B.F. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Institutional Review Board of North Dakota State University (protocol IRB0003884, approved 23 September 2021).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: A data release, via a data journal publication, is planned once initial analysis of all data is complete.

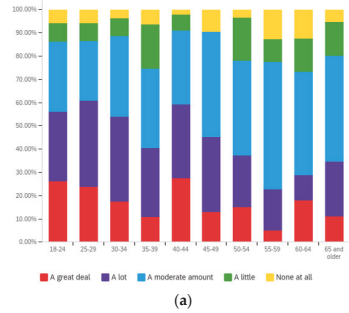
Acknowledgments: Thanks are given to Jade Kanemitsu from Qualtrics International Inc. for the management of the data collection process. Thanks are also given to Ryan Suttle, Scott Hogan and Rachel Aumaugher who developed many of the questions that were used in this study during their earlier work (which was presented in [62]).

Conflicts of Interest: The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

Appendix A

Figures Supporting Sections 4 and 5.

This appendix includes 36 figures (numbered Figures A1–A36) which present data which is discussed in Sections 4 and 5 of this paper. Each figure includes the data presented by age, educational level and gender. Figures for each metric are included that characterize respondents' own actions and beliefs, their perception of others' actions and beliefs and what they consider to be ideal.



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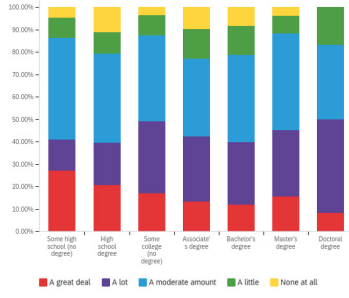

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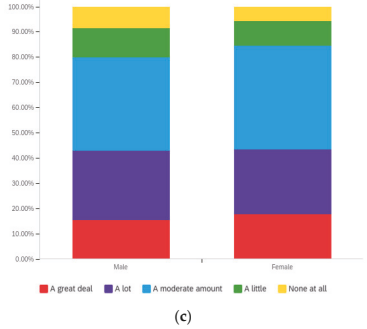
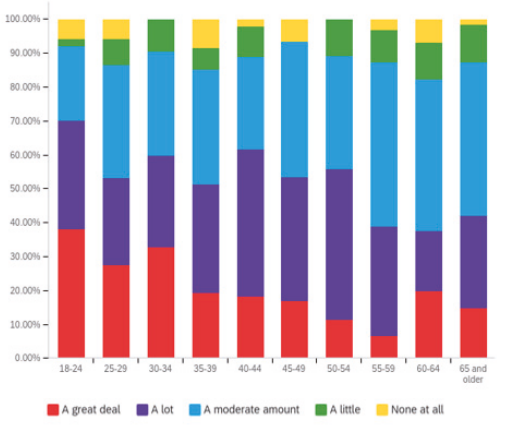


(**c**)

Figure A1. Impact of article title on respondents' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



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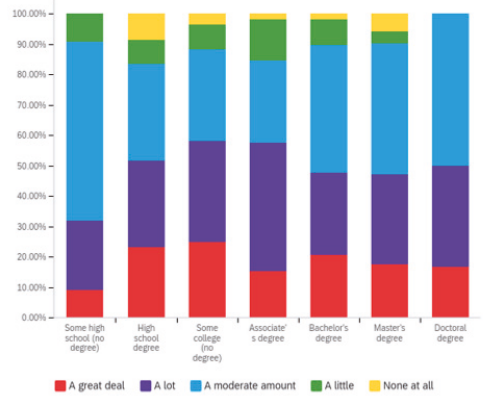

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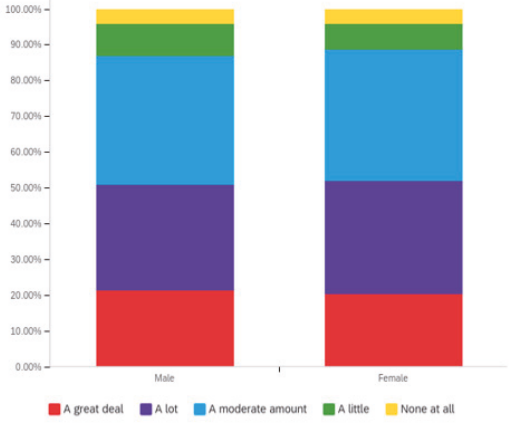
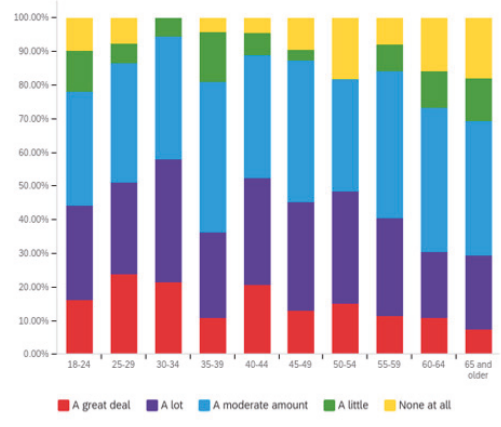


(**c**)

Figure A2. Impact of article title on others' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



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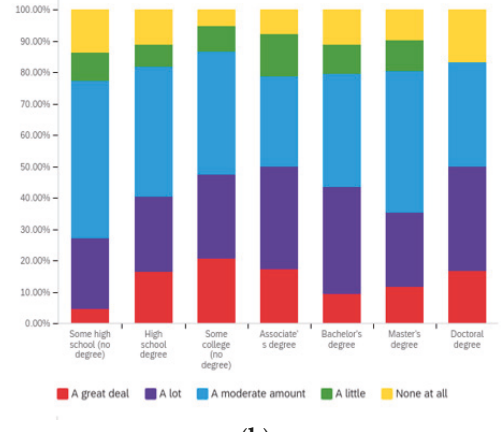

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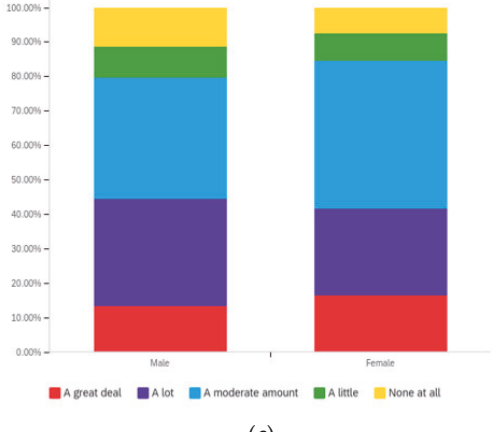
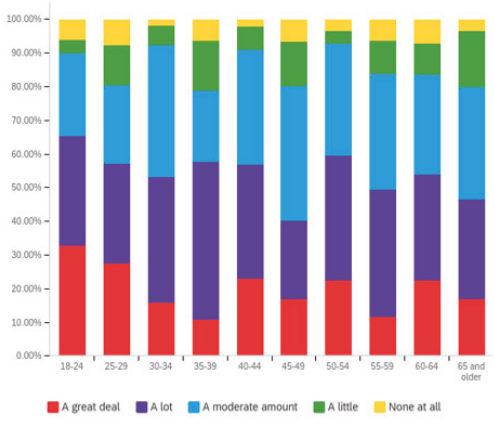


(**c**)

Figure A3. Ideal impact of article title on peoples' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



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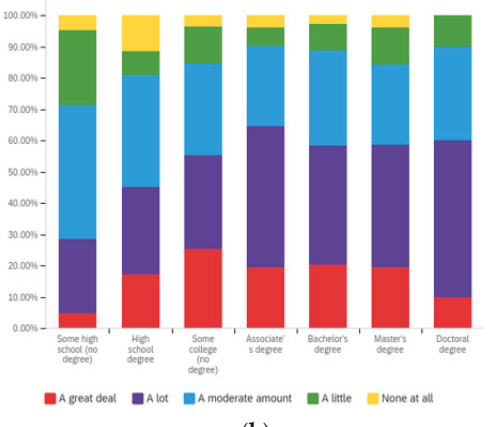

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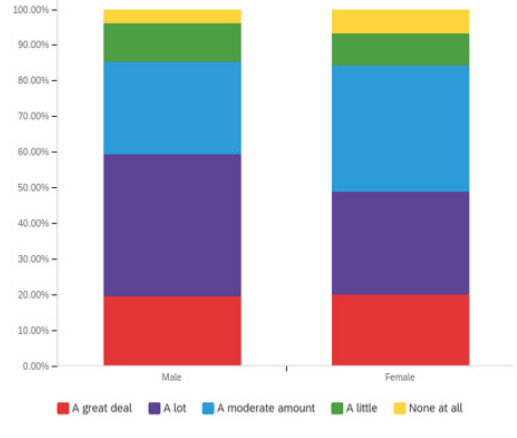
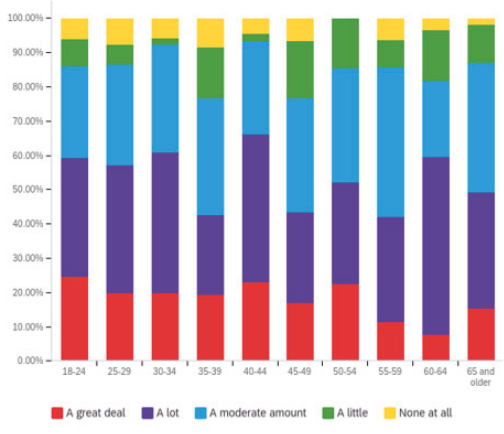


(**c**)

Figure A4. Impact of publisher on respondents' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



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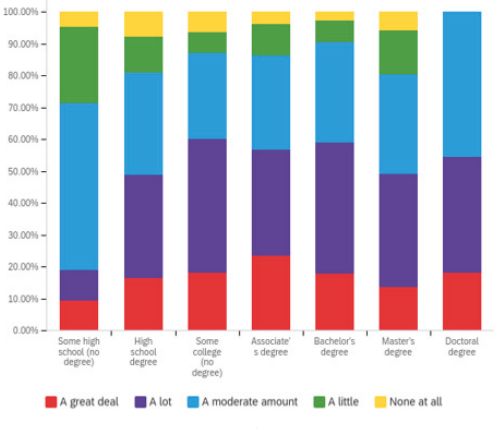

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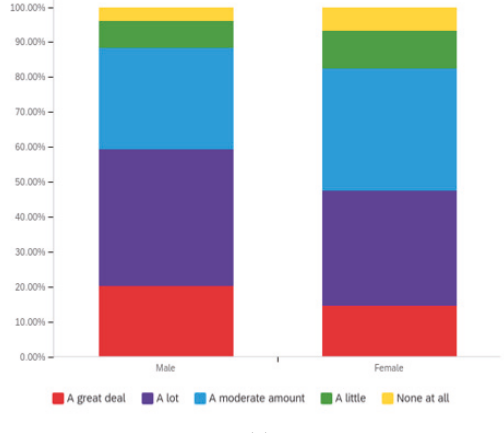
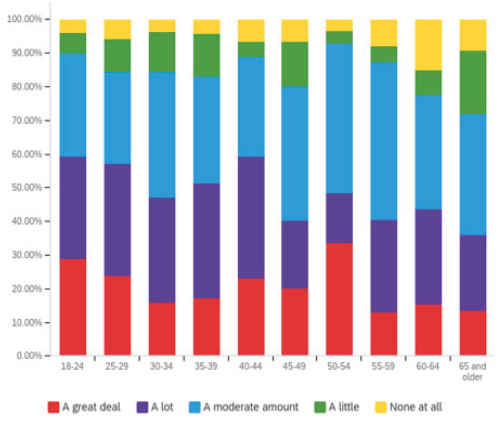


(**c**)

Figure A5. Impact of publisher on others' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



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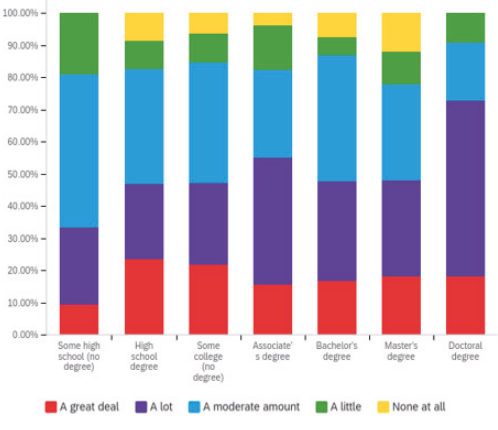

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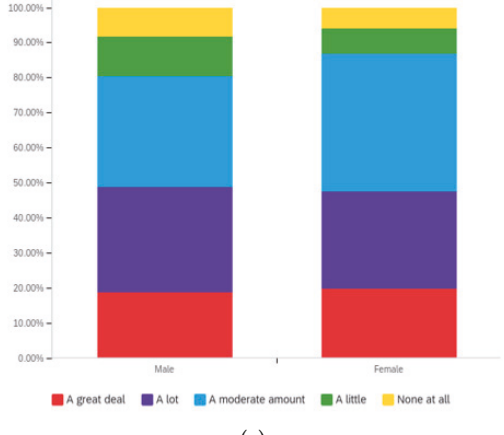
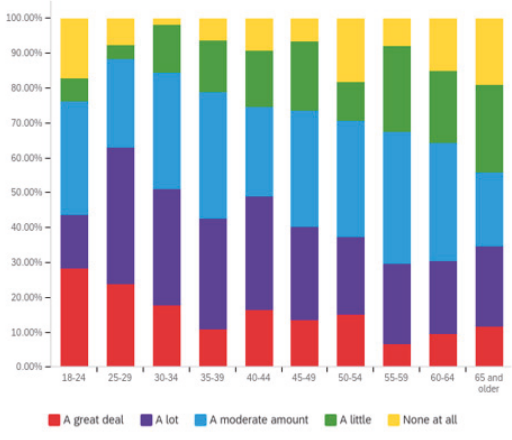


(**c**)

Figure A6. Ideal impact of publisher on peoples' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



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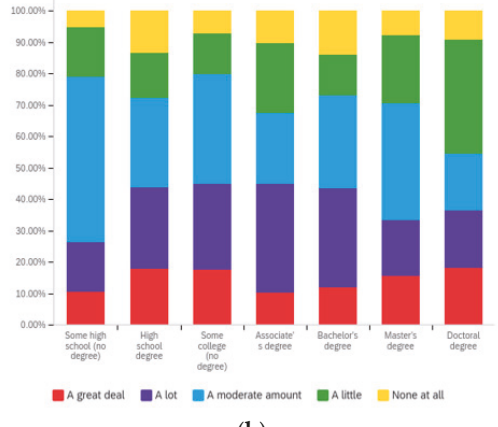

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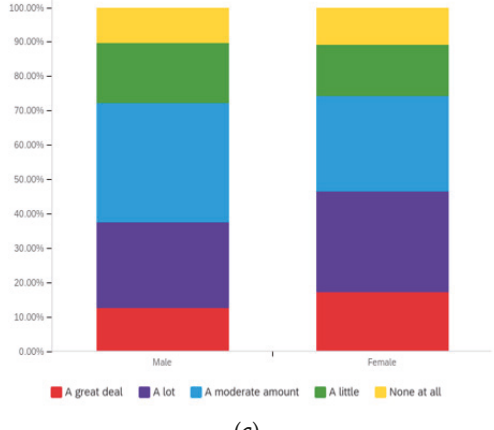
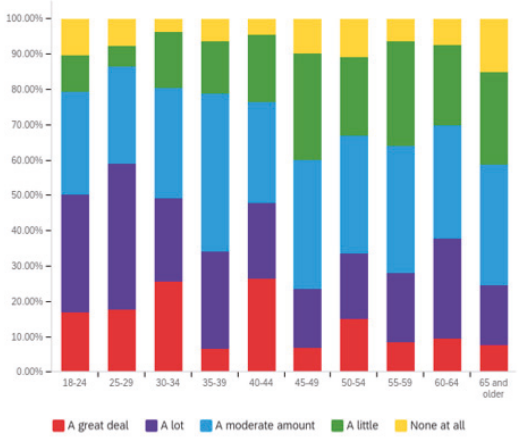


(**c**)

Figure A7. Impact of publication date on respondents' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



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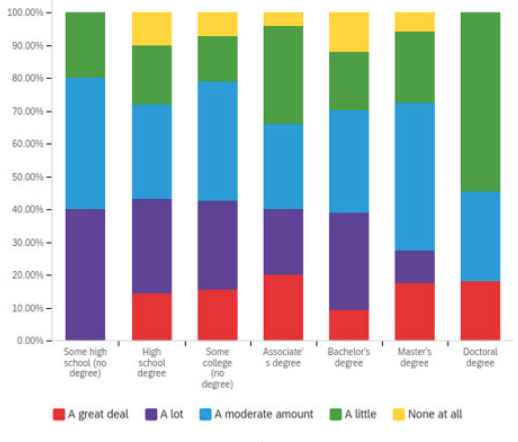

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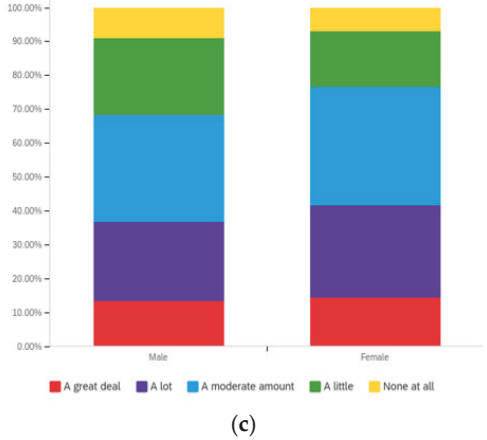
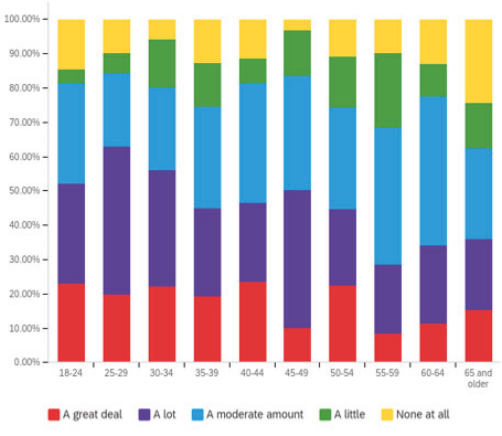


(**c**)

Figure A8. Impact of publication date on others' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



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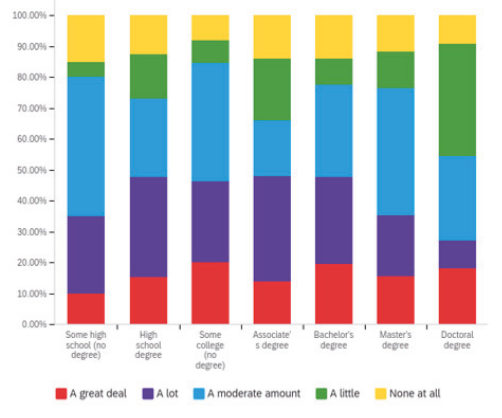

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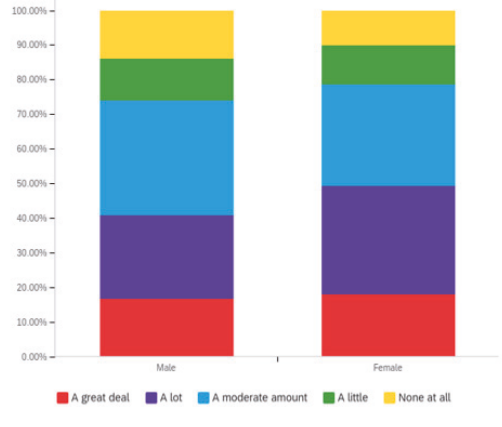
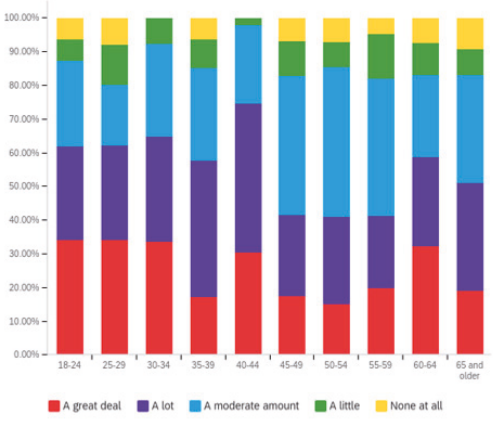


(**c**)

Figure A9. Ideal impact of publication date on peoples' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



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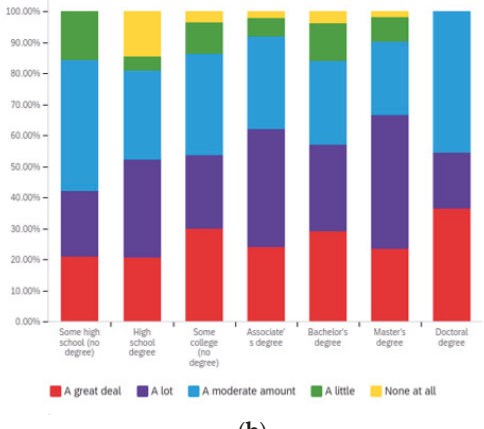

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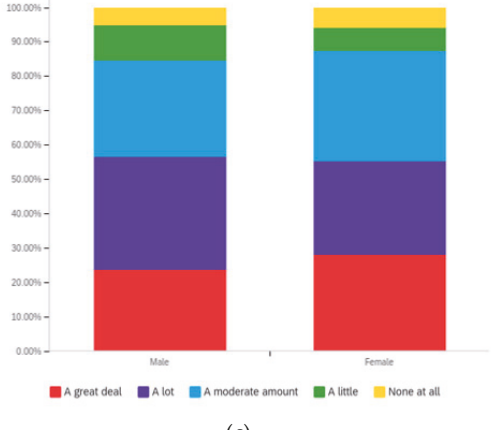
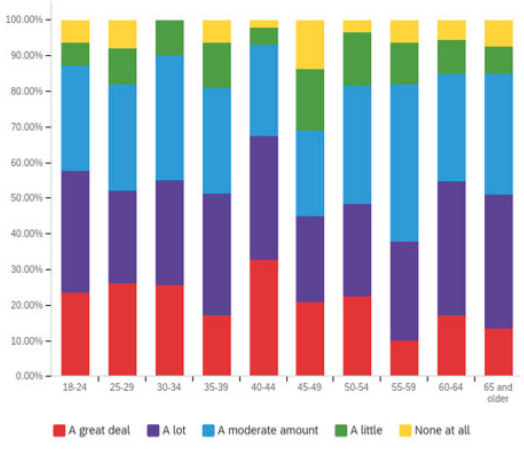
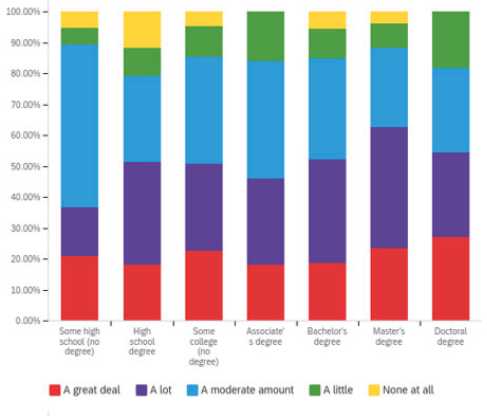


(**c**)

Figure A10. Impact of article author on respondents' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)



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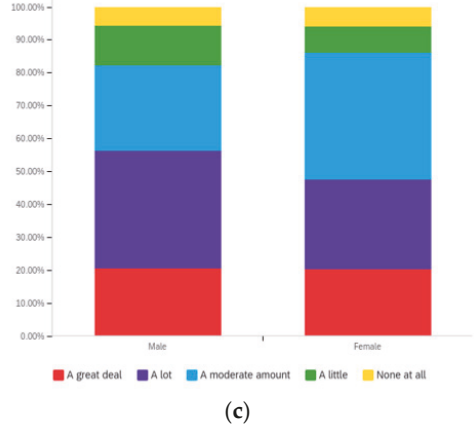
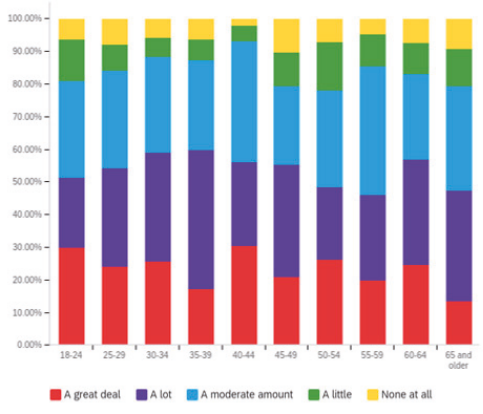


(**c**)

Figure A11. Impact of article author on others' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



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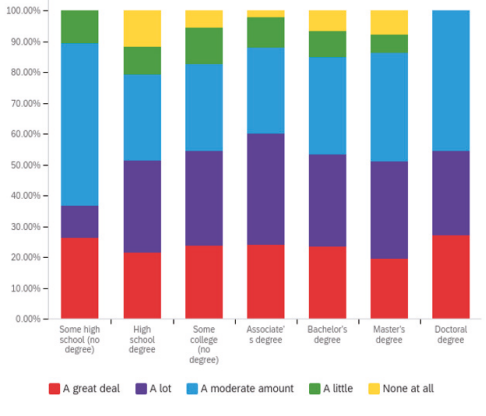

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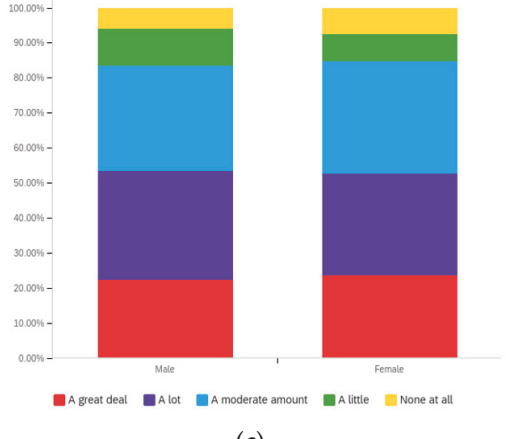
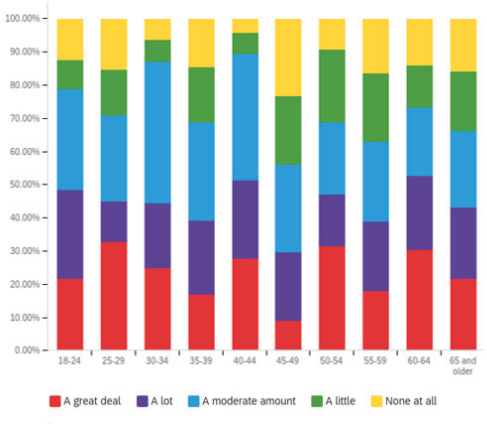
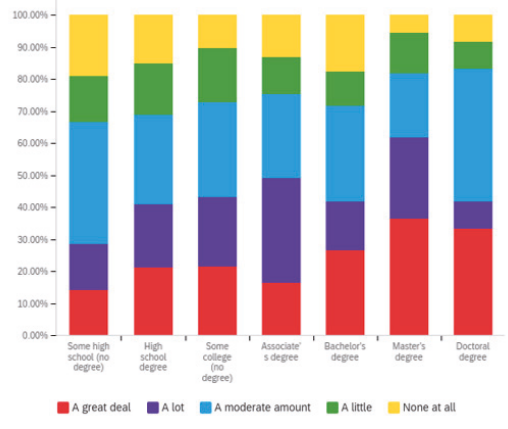


(**c**)

Figure A12. Ideal impact of article author on peoples' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)



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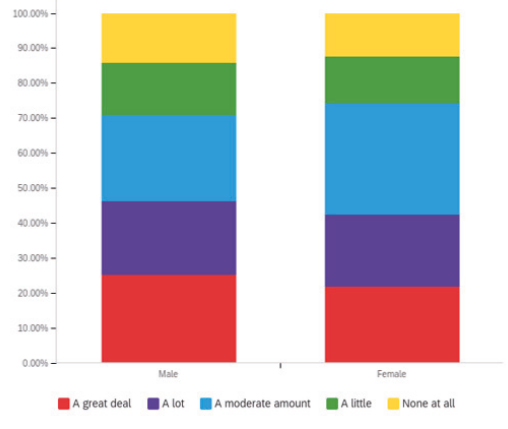
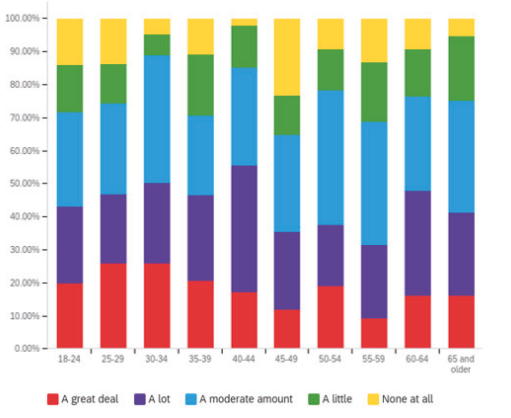
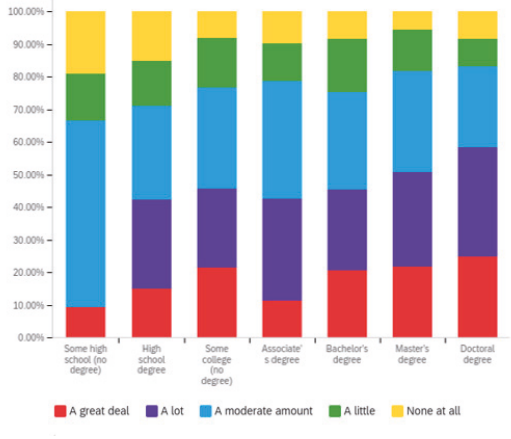


(**c**)

Figure A13. Impact of article sponsors on respondents' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)



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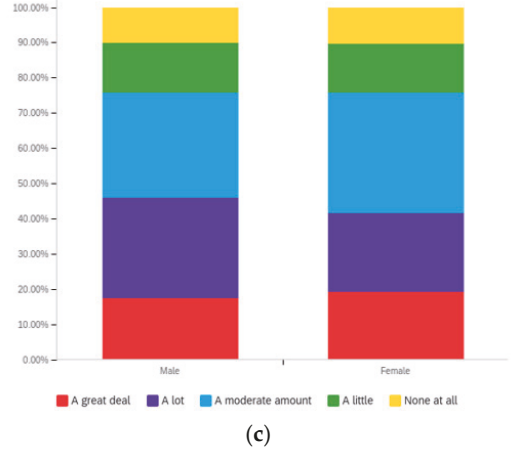
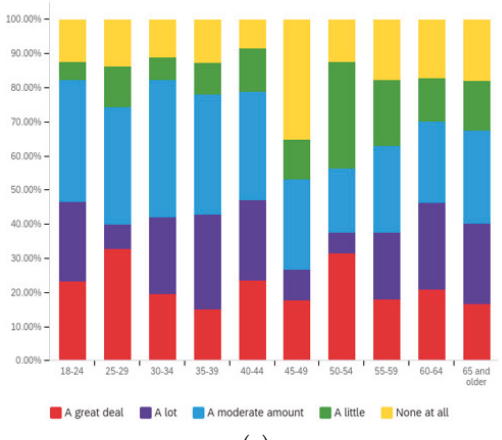
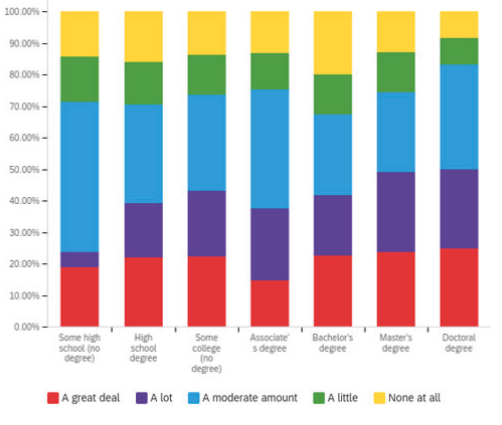


(**c**)

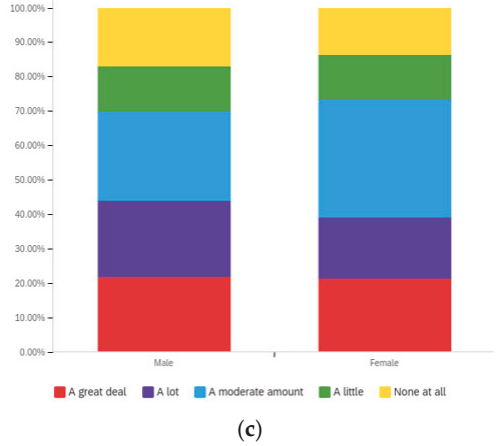
Figure A14. Impact of article sponsors on others' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)

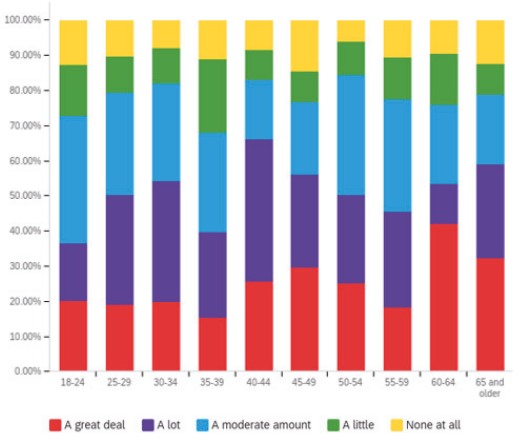


(**b**)

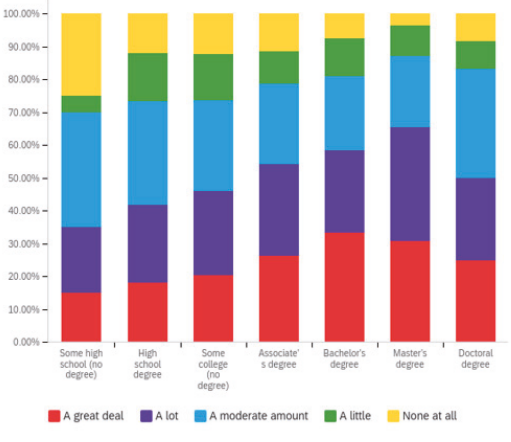


(**c**)

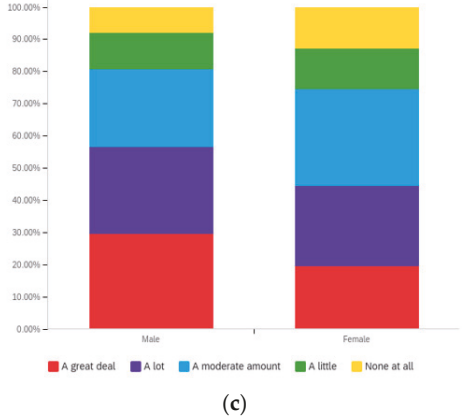
Figure A15. Ideal impact of article sponsors on peoples' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)

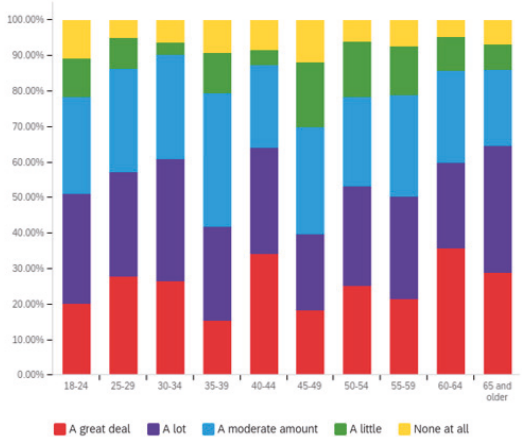


(**b**)

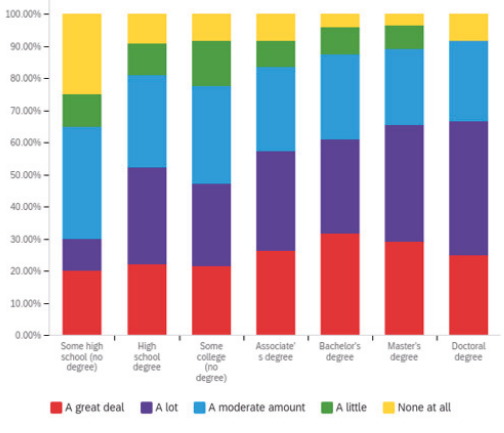


(**c**)

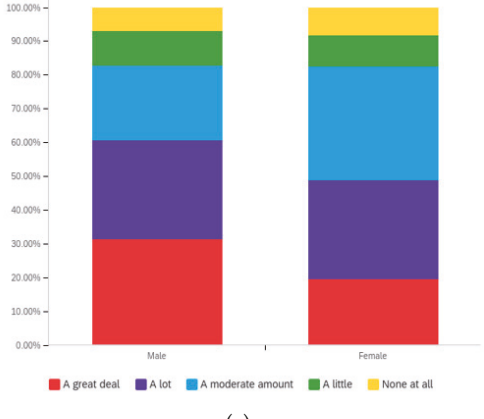
Figure A16. Impact of author's political alignment on respondents' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)

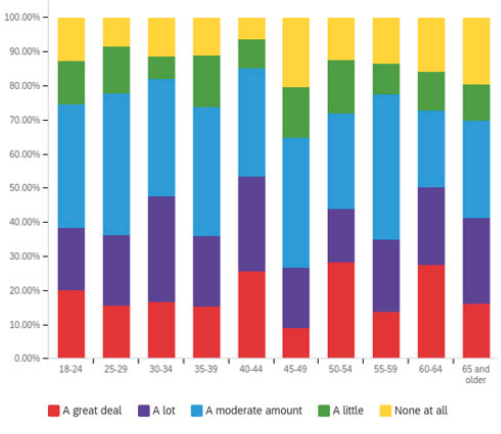


(**b**)

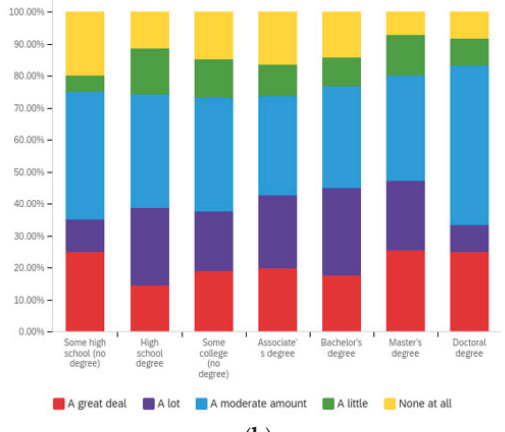


(**c**)

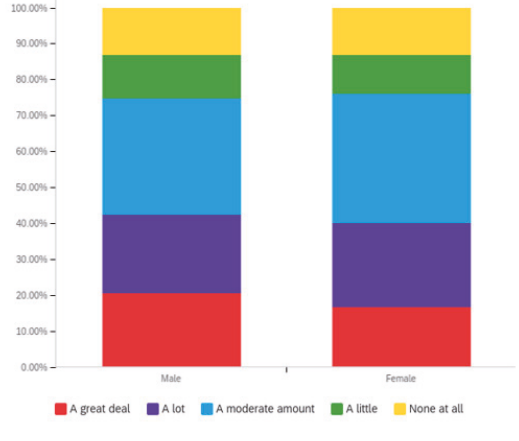
Figure A17. Impact of author's political alignment on others' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)

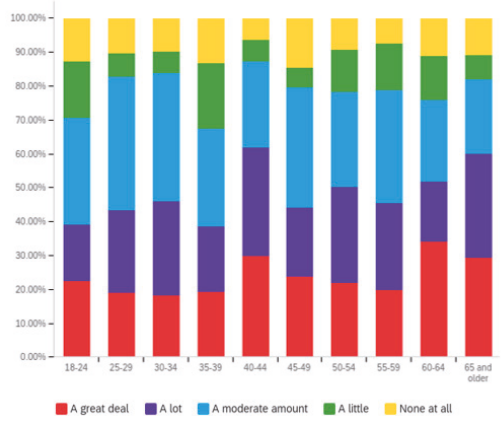


(**b**)

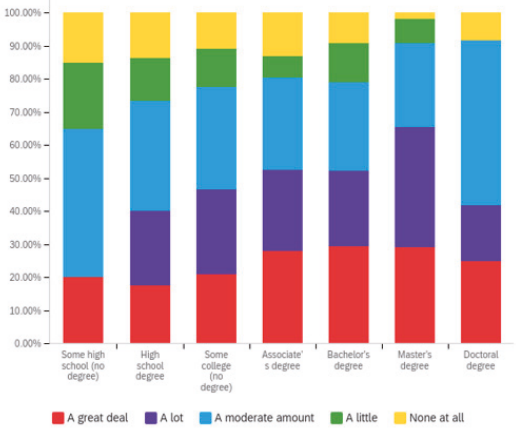


(**c**)

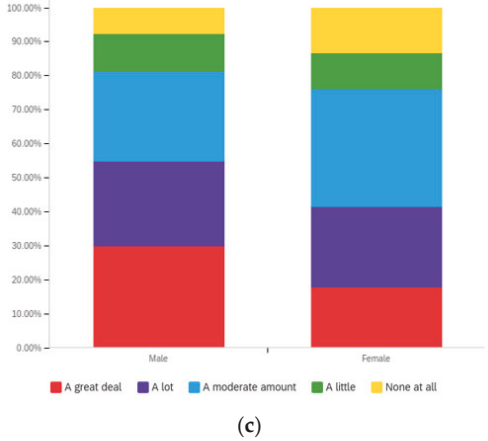
Figure A18. Ideal impact of author's political alignment on peoples' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)

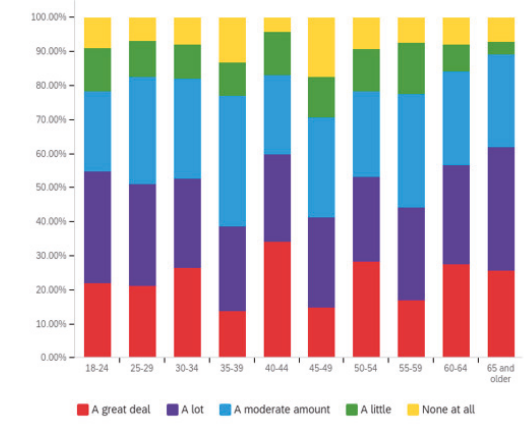


(**b**)

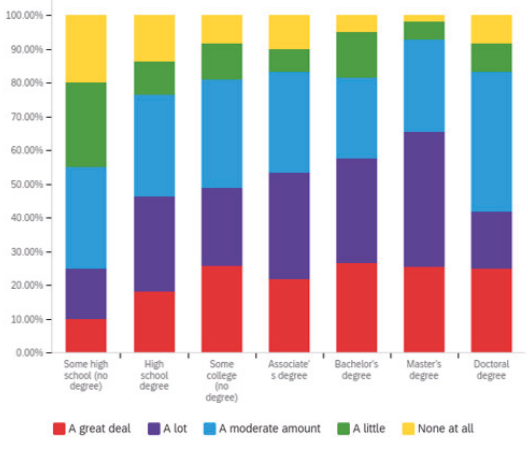


(**c**)

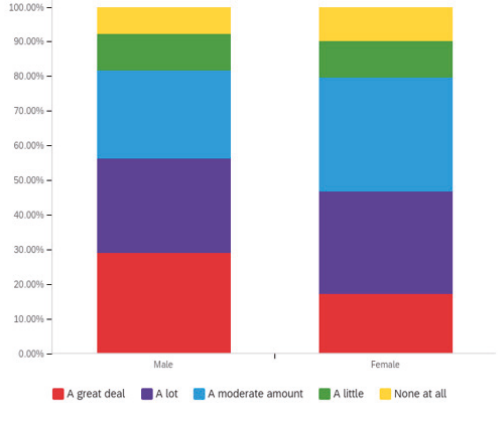
Figure A19. Impact of publisher's political alignment on respondents' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)

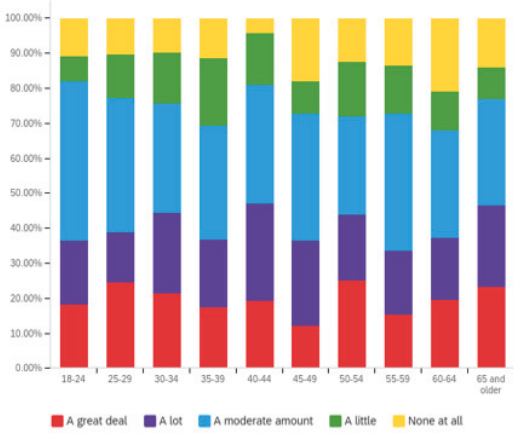


(**b**)

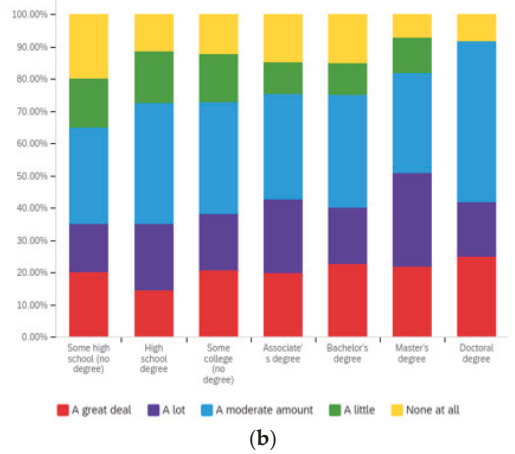


(**c**)

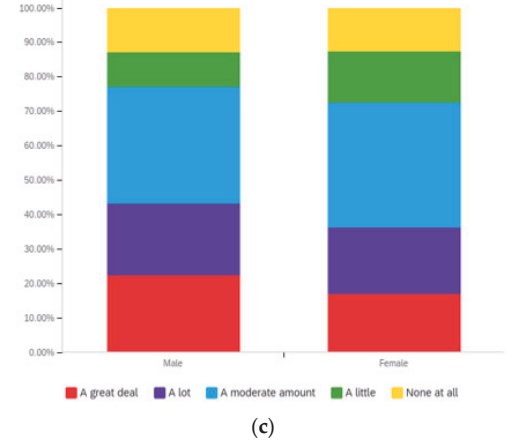
Figure A20. Impact of publisher's political alignment on others' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)

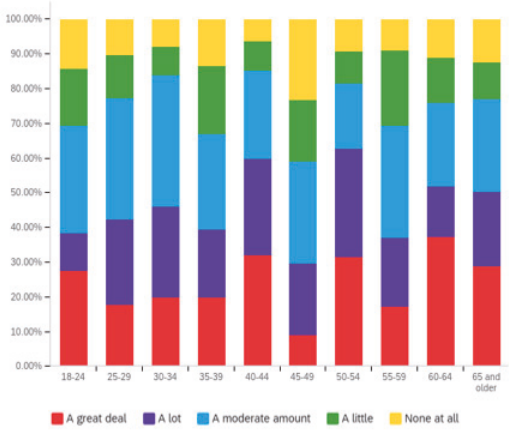


(**b**)

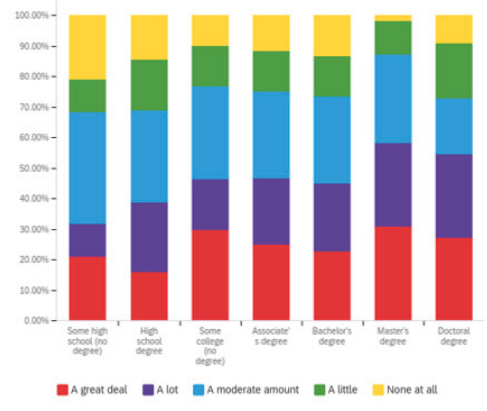


(**c**)

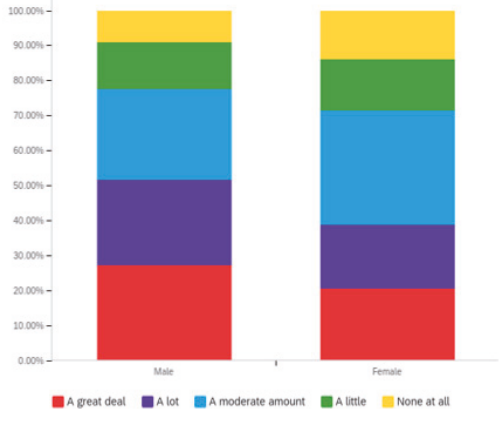
Figure A21. Ideal impact of publisher's political alignment on peoples' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)

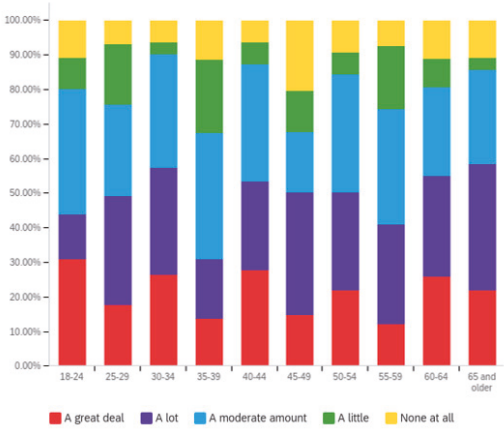


(**b**)

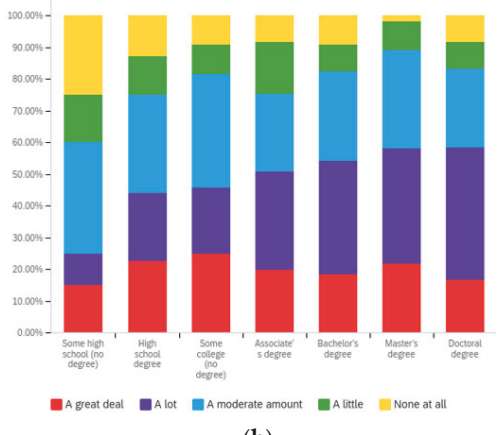


(**c**)

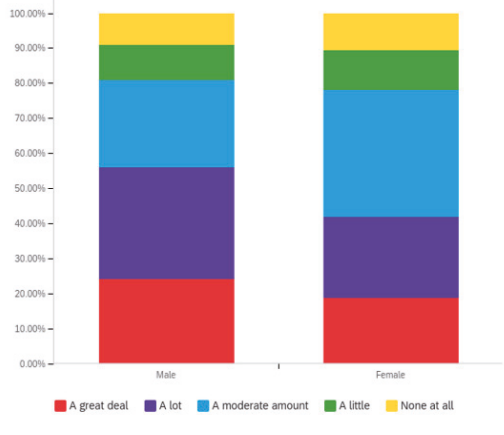
Figure A22. Impact of sponsor's political alignment on respondents' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)

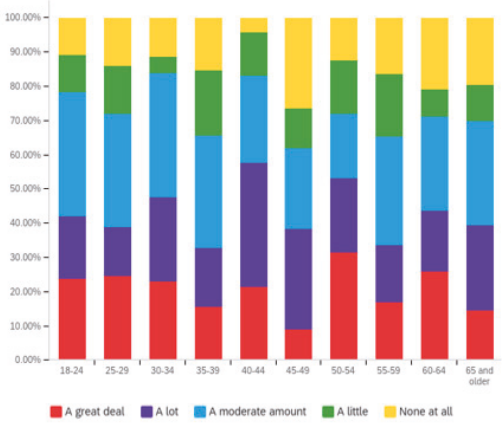


(**b**)

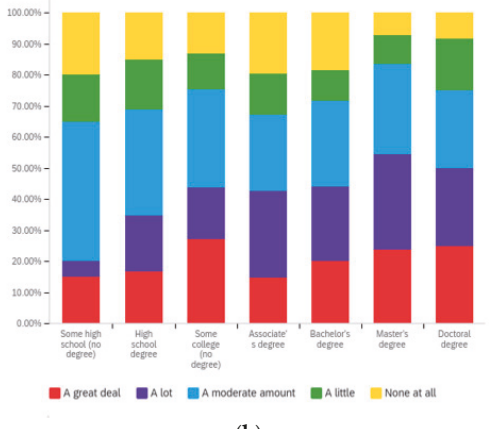


(**c**)

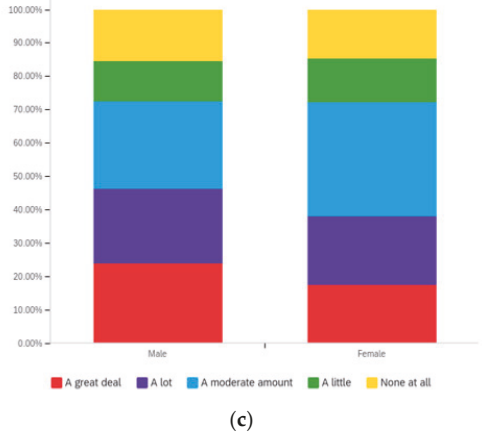
Figure A23. Impact of sponsor's political alignment on others' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)

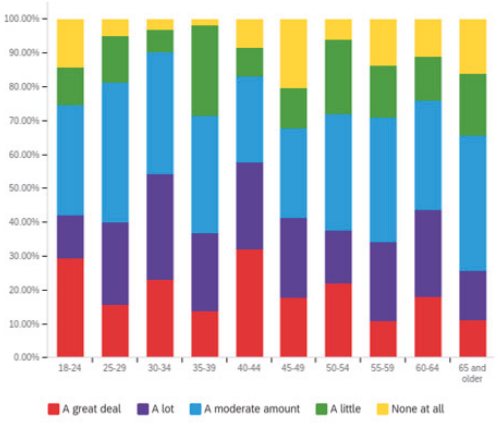


(**b**)

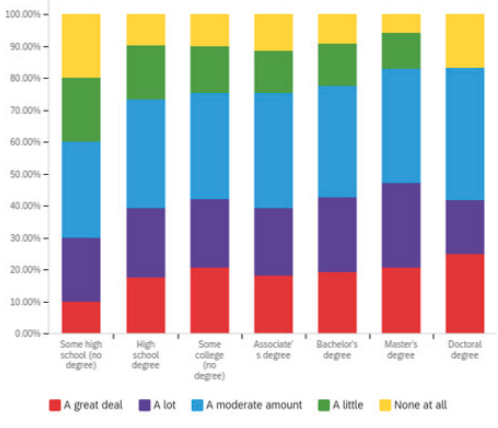


(**c**)

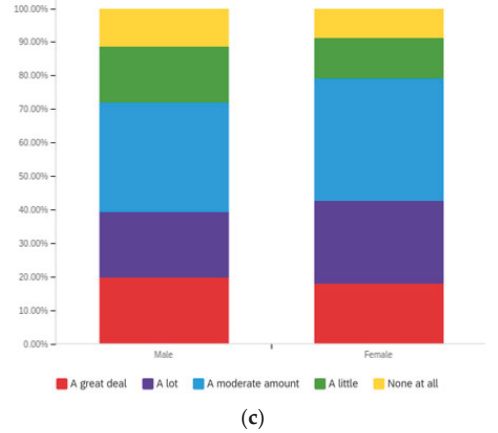
Figure A24. Ideal impact of sponsor's political alignment on peoples' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)

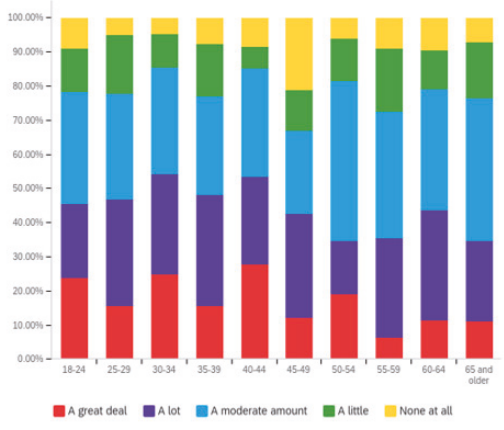


(**b**)

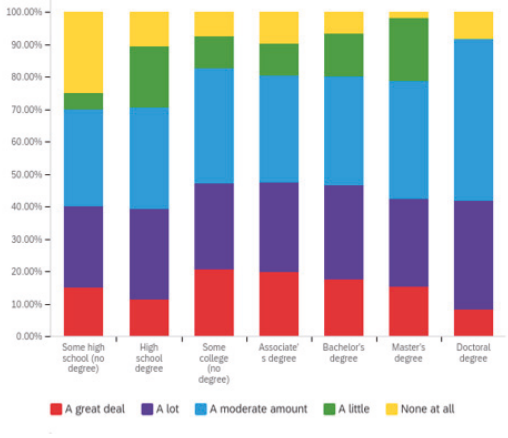


(**c**)

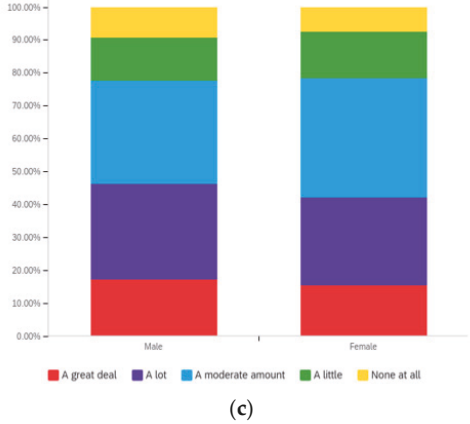
Figure A25. Impact of opinion statement quantity on respondents' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)

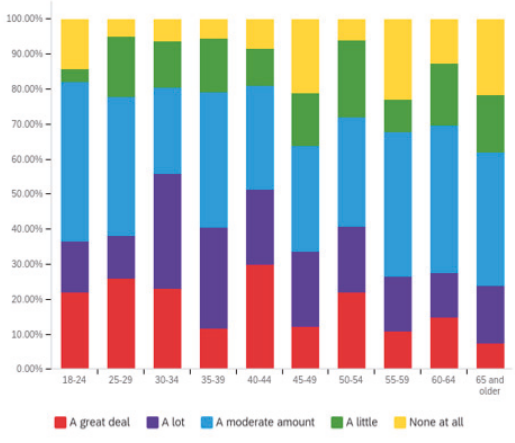


(**b**)

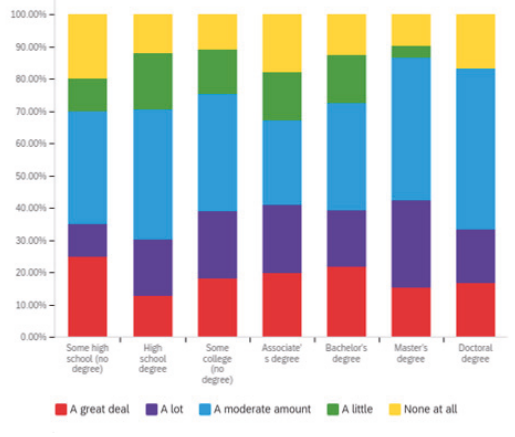


(**c**)

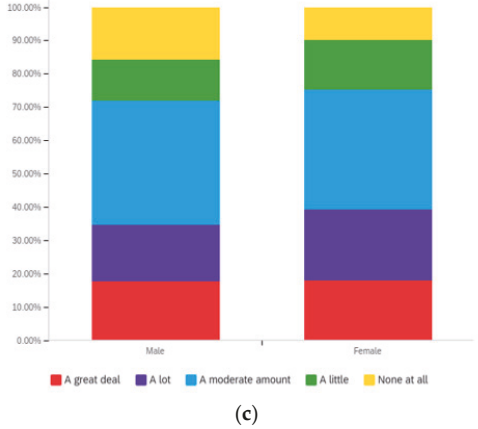
Figure A26. Impact of opinion statement quantity on others' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)

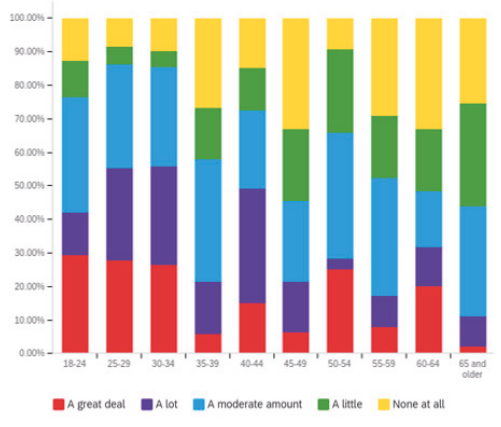


(**b**)

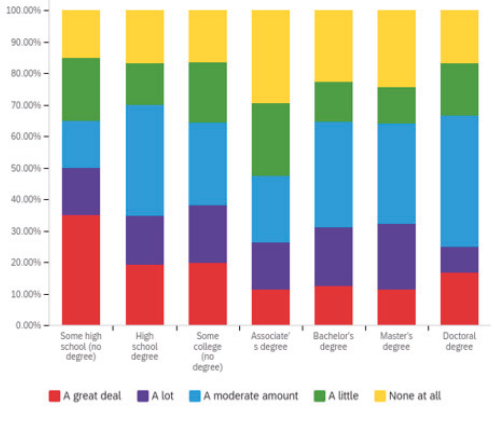


(**c**)

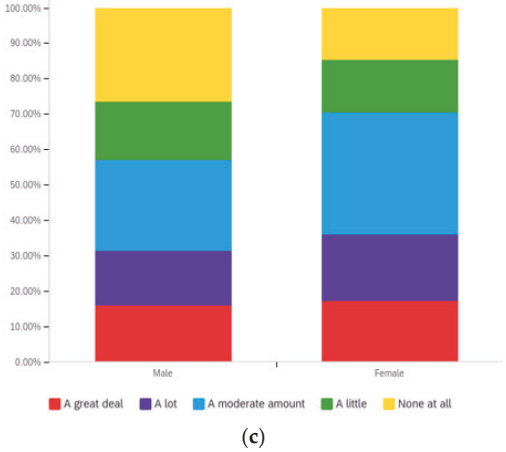
Figure A27. Ideal impact of opinion statement quantity on peoples' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)

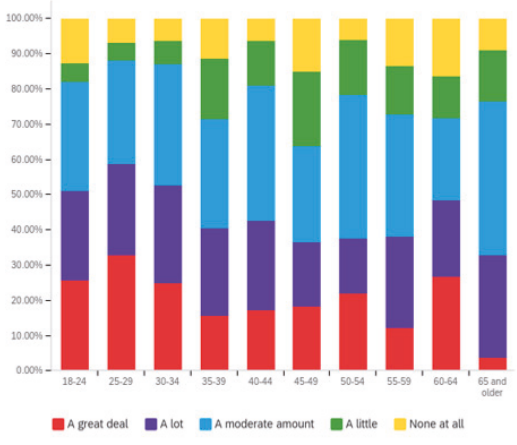


(**b**)

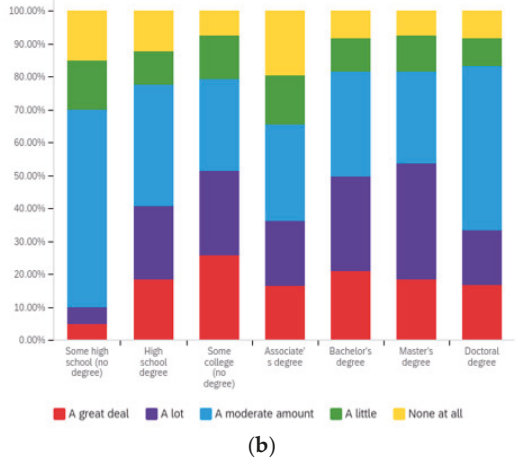


(**c**)

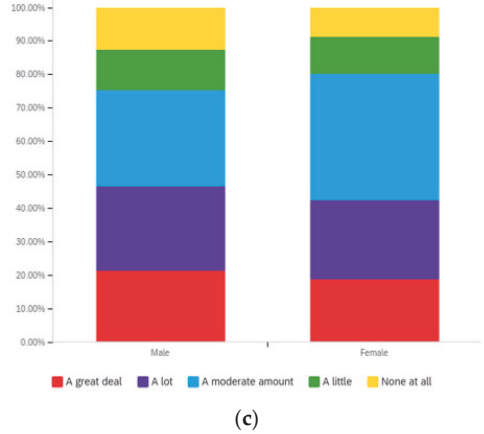
Figure A28. Impact of article virality on respondents' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)

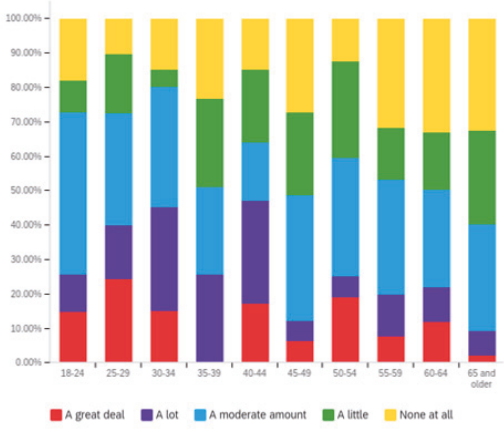


(**b**)

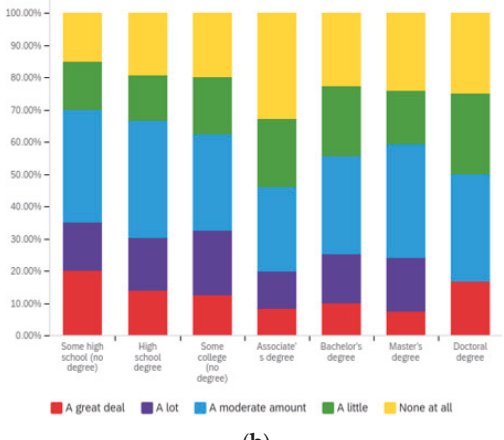


(**c**)

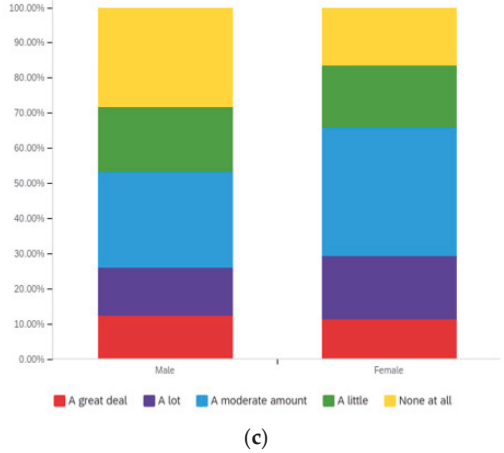
Figure A29. Impact of article virality on others' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)

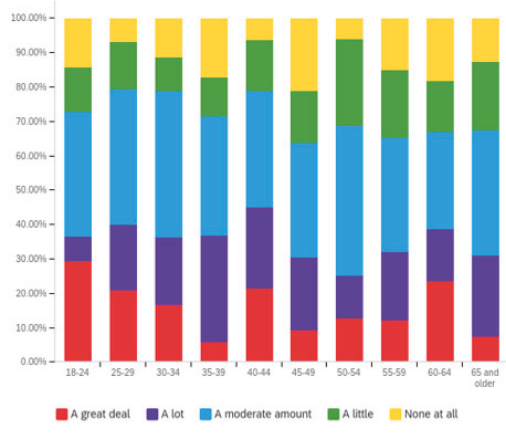


(**b**)

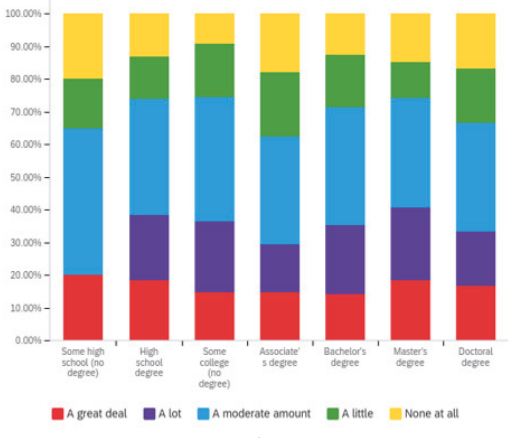


(**c**)

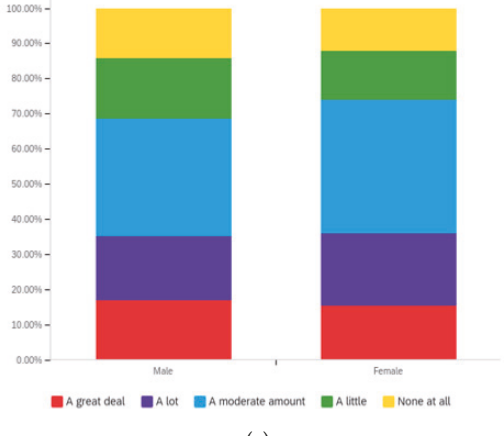
Figure A30. Ideal impact of article virality on peoples' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)

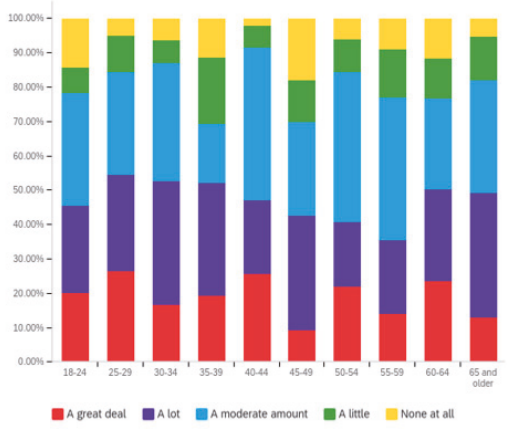


(**b**)

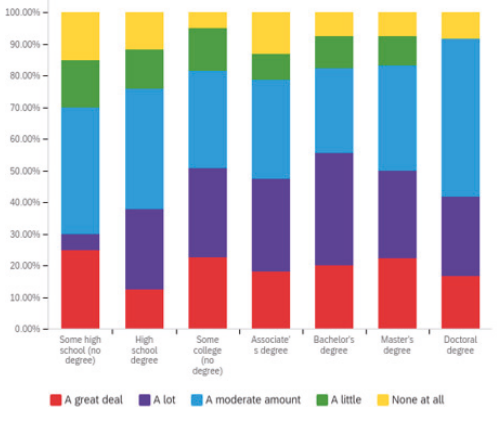


(**c**)

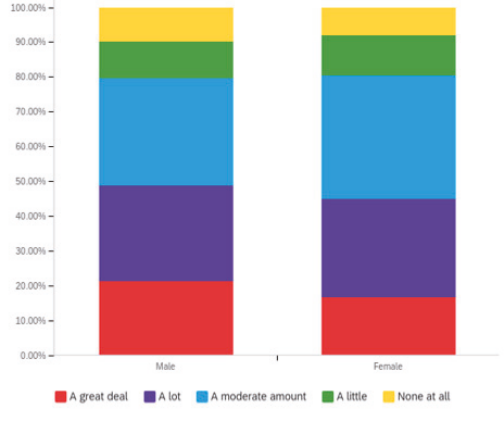
Figure A31. Impact of article controversy level on respondents' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)

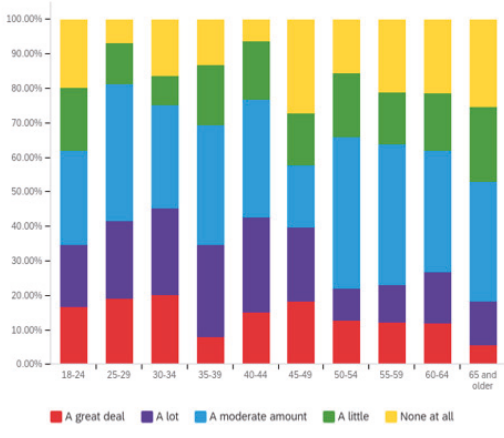


(**b**)

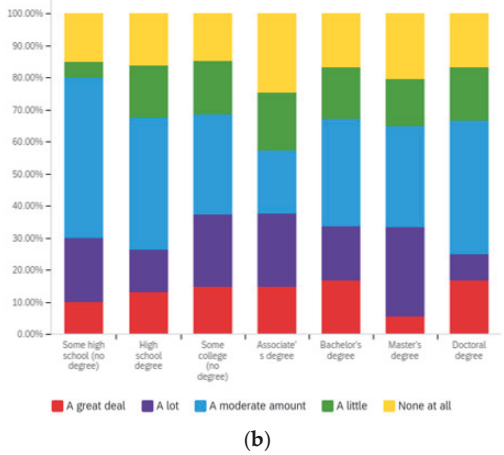


(**c**)

Figure A32. Impact of article controversy level on others' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



(**a**)



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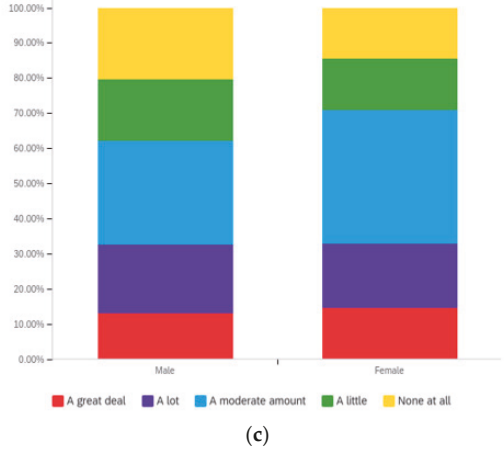
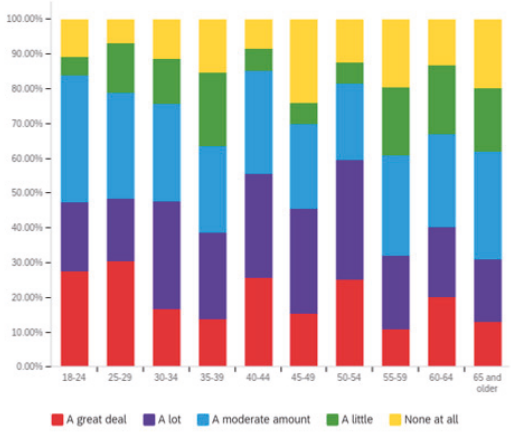


(**c**)

Figure A33. Ideal impact of article controversy level on peoples' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



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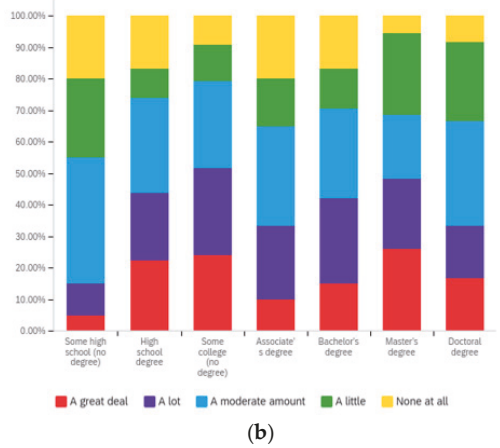

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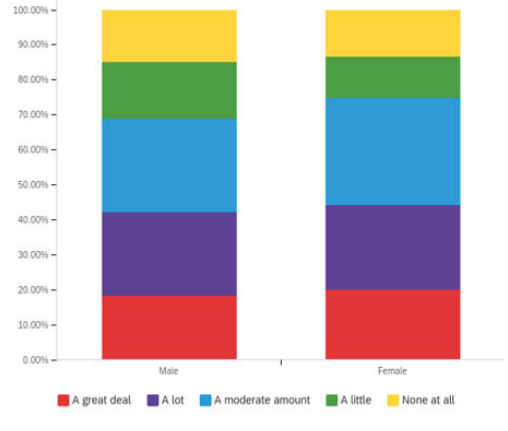

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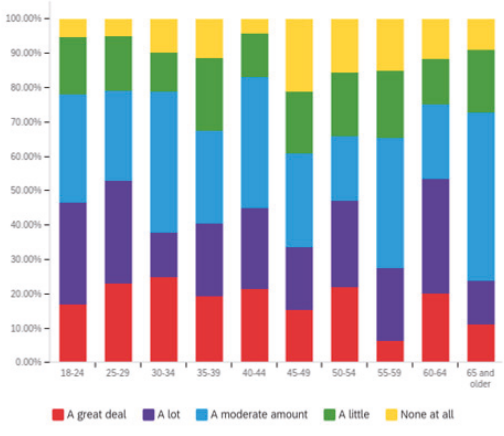
Figure A34. Impact of article reading level on respondents' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



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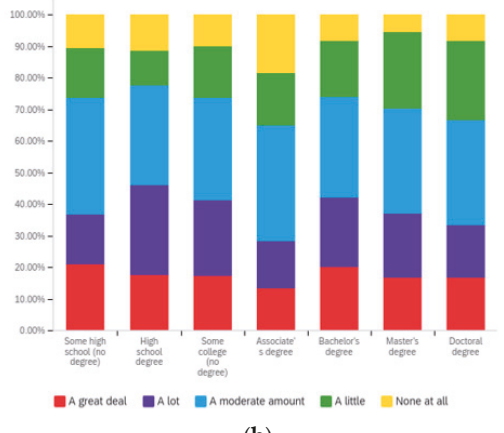

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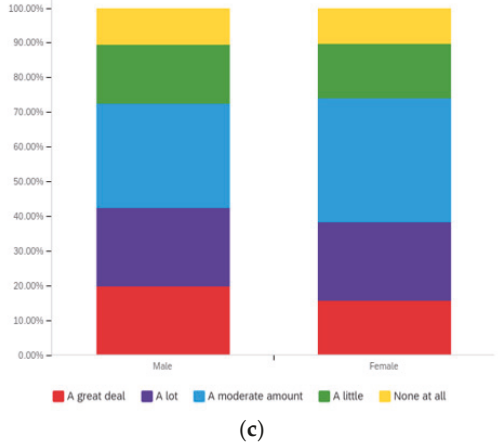
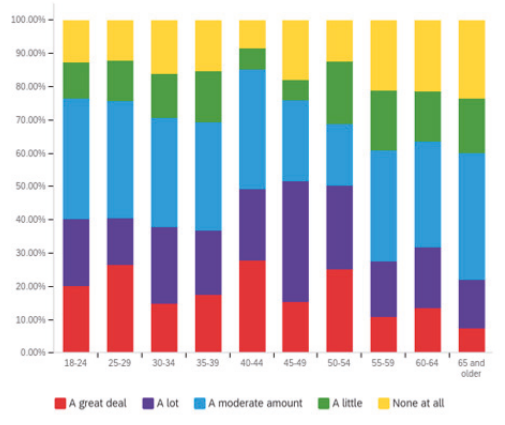


(**c**)

Figure A35. Impact of article reading level on others' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).



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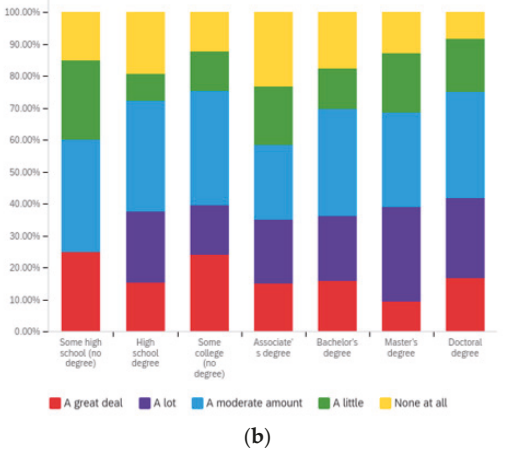

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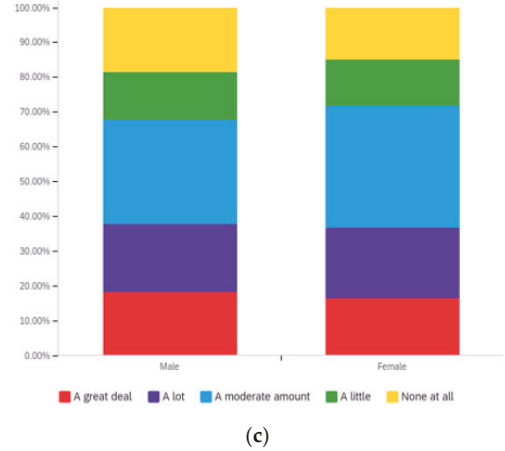

(**c**)

Figure A36. Ideal impact of article reading level on peoples' perspective of article trustworthiness and credibility by: (**a**) age (top), (**b**) educational level (middle) and (**c**) gender (bottom).

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Perception of "Fake News" and Potentially Manipulative Content in Digital Media—A Generational Approach

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Abstract: The presence of "fake news" and potentially manipulative content in the media is nothing new, but this area has largely expanded with the emergence of the Internet and digital media, thus opening itself up to anyone who has online access. As a result, there is an increasing amount of such content in the media, especially in digital media. This paper deals with the perception of fake news and potentially manipulative content by various generations—in particular, the perceptions of the young and the middle-aged generations, with the focus being on their ability to recognise, verify, and relate to such content. The results of this study were gained by means of a qualitative methodology applied to focus groups in Bosnia and Herzegovina. The results are presented through a thematic analysis of the differences in perception of "fake news" between these generations, firstly in terms of their apprehension and interpretation of it, and secondly in terms of their relation to it. The authors conclude that both generations lack competence concerning media literacy, and that providing education in the field of digital media might offer a long-term solution for building resistance to "fake news" for future generations.

Keywords: "fake news" and potentially manipulative content; digital media; generational approach; media literacy

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1. Introduction

Taking the social significance of digital media[1] [1] and the opportunities it offers in disseminating various content as a starting point, it is necessary to emphasise its role in spreading fake news and disinformation alike. This type of content is not a new phenomenon and not solely a product of digital media either: "The problem of information credibility is nothing new" [2] (p. 70). As Obadă [3] (p. 148) states: "Fake news is not a new phenomenon [4,5] because the partisan press has always peddled biased opinions and stories lacking factual basis" [2,5] (p. 70); "New technologies, from the telegraph in the 19th century to contemporary social media algorithms, have led to the proliferation of fake news" [2,4] (p. 70). However, it is evident that various forms of digital media, in a technical sense, have great potential to spread and multiply information, although they are not the sole carrier.The exponential growth of content that has a primary intention of deception or manipulation represents one of the threatening features of the contemporary digital environment[2]. To what extent this content is widespread is obvious from the reference to the past decade as being "fake news" [6] (p. 977). Having recognised disinformation as a serious threat to democratic processes, security, and the welfare of citizens, the European Union adopted an Action Plan Against Disinformation in December 2018, with the aim of increasing awareness, social resistance, private sector mobilisation, and the ability of EU institutions to find, analyse, and discover disinformation [7,8] (p. 7).

The production and distribution of fake news, disinformation, and content with a solely commercial function significantly endangers the approach to credible information, which further problematises both the inability to recognise and deconstruct such contents from the perspective of digital media users. With regard to the latter, in relation to fake news

and potentially manipulative content, it is necessary to examine the level of competence in the domain of information and digital literacy, especially the skills that imply a critical approach and an ability to deconstruct media content. Namely, this research considers members of the young and the middle-aged generations in order to compare their respective competences at recognising fake news, photographs and video footage, disinformation, and potentially manipulative content. Furthermore, their respective competences at verifying these contents and the levels of their responsibility in relation to the listed contents in the digital sphere. In this paper, a distinction is made between media literacy and other factors that constitute the concept of literacy in the 21st century. In this respect, this is different from IT literacy, information literacy, and digital literacy in that it is a complex notion with numerous definitions, but the authors opt for the definition describing it as an ability to access, analyse, evaluate, and create a message in various communication forms [9]. The idea of access to media content refers to technical competences—those denoting analysis and evaluation to critical thinking competences—whereas the idea of creating media content implies practical competences [10]. The notion of information literacy is observed as the effective usage of information within the context given [11], while IT literacy could be seen as "an ability to use and understand new information technologies and a wide range of their possible applications" [12]. In this regard, digital literacy refers to the application of information literacy in a digital form [11].

The significance of this research is reflected in a generational approach to ubiquitous and increasingly viral ethically problematic content and in comparing and qualitatively analysing the differences in competences between a generation that was raised using digital technologies, on the one hand, and a generation that has come into contact, both professionally and privately, with digital technologies subsequently and in a gradual manner on the other. The leading assumption of the paper is that growing up in a digital environment and intense use of digital media do not necessarily imply that one possesses the competences to recognise and verify fake news and potentially manipulative content. We ask the following research questions: in what way do members of different generations (young and middle-aged generations) perceive the phenomenon of "fake news" and similar content in digital media? Can they recognise them, and what do they do to verify them? What relation do they establish towards them? What are their proposals for building resistance to them? The answers to these questions will imply the achievement of our research goals.

In addition, it is assumed that those who have not experienced living in a digital environment could have developed digital and media competences, given that they belong to the middle-aged generation and that they possess lifelong experience concerning the use of various other media. The auxiliary hypotheses that the paper is based upon are as follows: (1) both young and middle-aged generation members in Bosnia and Herzegovina do not possess adequately developed media and digital literacy competences to recognise and verify "fake news" and potentially manipulative content in digital media, and (2) neither of the aforementioned generations have fully established a resistance mechanism to "fake news" and potentially manipulative content in digital media. The principal goal of the research is to examine how members of different generations (young and middle-aged generations) perceive the phenomenon of "fake news" and potentially manipulative content in digital media. In this respect, the additional goals of the research are to examine whether members of the aforementioned generations are able to recognise "fake news" and potentially manipulative content, how they verify them, what kind of relationship they have developed towards them, and what their proposals are for building resistance to such content.

According to our findings, no research was conducted in Bosnia and Herzegovina in regard to a generational approach to fake news, but as a result of the current interest in this issue, there has been other research related to its various aspects. Consequently, some of the comprehensive research in the field, encompassing 450 digital media entities, offers an insight into the patterns of creation and dissemination of disinformation and

points to the level of their presence in the aforementioned media. Namely, the results of the research show that "media reports featuring incorrect or deceptive contents are widely released in Bosnia and Herzegovina and the region of former Yugoslavia, most often in the form of 'fake news'—inaccurate pieces of information released on purpose—that makes up almost one third of all disinformation analysed in this research" [8] (p. 7), with anonymous portals being identified as main sources and carriers of disinformation in the online area [13]. Based on the results of the conducted research, authors Lejla Turčilo and Belma Buljubašić highlight the issue of "fake news" in Bosnia and Herzegovina, pointing out that hyper-production of "fake news" in Bosnia and Herzegovnia is the result of "media enslaving, whose employees have agreed to or have been forced to serve political and economic tycoons and their particular interests" [14] (p. 49).

The extreme presence and exposure of citizens of Bosnia and Herzegovina to "fake news", disinformation, and potentially manipulative content, whose hyper-production has been determined not only by technical but also social—that is, political and economic factors—in the first place contributes to the justification of this research. Within the context of a generation approach, the research encompasses age groups that exclusively and primarily use digital media for gaining information, along with traditional information channels. In the end, the research makes a contribution to the field in terms of the lack of empirical studies concerning the manner in which different generations perceive fake news and potentially manipulative content.

2. Fake News and Potentially Manipulative Content

There is a lack of research into the role of age regarding the consumption of 'fake news' on social media [2], but we know that the hyper-production of fake news and potentially manipulative content is followed by a multitude of definitions and classifications that attempt at clearly dividing fake news from content that is similar in its nature but different in terms of their function, intention, format, and structure. In that sense, one of the important features is either the presence or the lack of an intention to deceive audiences. It is possible to observe fake news and potentially manipulative content as various forms of media manipulation, and this particular research is interested, apart from fake news, in the following phenomena: disinformation, satire, clickbait, conspiracy theory, and photo-manipulation. With regard to the latter list, the idea of manipulation is best reflected in the phenomena of "fake news", clickbait, and photomanipulation. The rest of the aforementioned contents are potentially manipulative, which depends on the context and perception of the user of such content, but these phenomena cannot be generally considered as featuring any intention of manipulation.

At the core of numerous definitions of fake news lies a statement that it contains information that does not correlate with facts and that it is directed towards disinforming the public in a conscious manner [15] (p. 48), which implies that the major features of fake news are untruthfulness/incorrectness and intended deception. For this reason, Jaster and Lanuis attribute the lack of truth and lack of truthfulness to the notion of fake news and, using this as a starting point, they claim that fake news is "wrong or deceptive (lack of truth) and that it is released with the intention of deceiving or, eventually, discrediting or neglecting the truth (lack of truthfulness)" [16] (p. 208). In her efforts to draw a line between fake news and the contents similar to it, Milica Kuljić defines the former as "incorrect information containing unprovable, mostly completely fabricated data or claims, as well as quotations, released with a view to deceiving audiences" [17] (p. 13).

As a prevalent form of media manipulation, and one quite similar to fake news, there is the notion of disinformation, "which is based on facts, but which misrepresents them—that is, which contains a 'mixture' of facts and false information or semi-truths" [15] (p. 52). In relation to fake news, disinformation is a wider notion, with the key difference being reflected in the fact that the latter is not necessarily intentional, meaning that there is no intention of deceiving audiences. Matthew R. X. Dentith claims that in the case of disinformation, "one does not necessarily deal with completely fabricated information, but

that it may contain some elements of truthfulness, yet not the entire context, that it may be completely false, or that it may lack one piece of information so that the picture would be complete, and the media release truthful in its entirety" [18] (p. 66).

Unlike fake news and disinformation, satire does not represent a form of media manipulation. Yet, if there is no reference to the fact that it is a case of satirical contents based on fabricated news, it is possible to perceive such contents as true to reality. This sort of danger is exactly what Bhawna Narwal points to, stating the following: "This type of news is intended for entertainment and parody—the purpose is not to harm anybody but it can be misinterpreted as facts. Lots of websites and social media offer critical commentary on society, celebrities and politicians to amuse readers, but these stories have the potential to fool" [6] (p. 977). In relation to fake news, which is based on incorrect information whose purpose is to deceive the public, satirical news is "based on information that is exaggerated, overturned, and accentuated in order to point to deceptions", implying elements of humour at all times [17] (p. 13).

Clickbait represents one of the most widespread forms of manipulation in digital media, but it is not its exclusive feature. According to the results of a research work entitled Dezinformacije u onlajn sferi: slučaj BiH (Disinformation in the online sphere: the case of Bosnia and Herzegovina), clickbait appears as the second most common type of media manipulation [8] (p. 21). In reality, it appeared as a technique for drawing attention much earlier in the form of sensationalist and intriguing titles in tabloids. With regard to digital media, it does not relate solely to titles construed in a sensationalist manner, but, in general terms, to contents whose primary function is drawing attention and generating "clickability" on a massive scale. "The review of the literature on the subject allows us to point out two main notions or definitions: a restrictive one that reduces clickbait to the strategies used in the formulation of news headlines, and a more general and inclusive one that encompasses different formulas to attract readers' attention and increase traffic to a webpage" [19] (p. 97).

Next is the conspiracy theory notion, which refers to "a media release that makes claims concerning some organised and harmful actions of an entity, but that offers no proof for such claims (...) conspiracy theories emerge at the moment when the very assumption of possible harmful action is presented as a fact, without any actual investigation into the subject matter and presentation of any piece of evidence to support the claim" [15] (p. 52).

Multimedia, as one of the features of digital media that makes it superior to traditional mass media, implies a possibility of the visualisation of media contents as well, which is largely realised, apart from various illustrations and video footage, by means of photography. The latter, as a valuable asset within the context of gaining information, represents, at the same time, a means of manipulation that can significantly contribute to the credibility of fake news and potentially manipulative content, without verifying their authenticity[3] [20,21]. "The manipulation of images has become an increasingly common occurrence with the advent of digital photos, powerful image manipulation software, and knowledge of techniques" [18] (p. 144). Where the subject matter of our research is concerned, the most significant definition of "fake news" is the one that features it as information that is not consistent with facts and that is intended for the conscious and deliberate manipulation of the public [16] (p. 48), since it successfully divides "fake news" from other potentially manipulative content.

2.1. Recognition and Verification of "Fake News" and Potentially Manipulative Content

The recognition and verification of "fake news" and potentially manipulative content represent significant competences in the contemporary digital environment. In this sense, digital media users have at their disposal tools whose usage, in addition to possessing certain knowledge and skills, makes an important contribution to identifying contents primarily intended for deception and manipulation.

The hyper-production of "fake news" and potentially manipulative content is mostly evident on Facebook, but the activity has been lately gaining strength on Twitter [22] as

well—the social media company that provides the most popular service for mainstream media reporting. Tools such as Bot Sentinel, Botcheck.me, Botometer, and Hoaxy are intended to detect and monitor trollbots and false accounts, and they have been developed for Twitter exclusively [23]. The Objective Analysis Effective Solutions—Fighting Disinformation network database features the tools of "Dirt Protocol" and "Emergent.Info", which offer a high level of interactivity to users[4] [24].

In addition, the same database offers tools for verifying the credibility of photographs as well, along with metadata on photographs, video contents, and texts[5] [24]. With regard to the aforementioned, the tools for verifying newspaper contents and for differentiating between the notions of "fake news", satire, conspiracy theories, and the like are the following: Disinformation Index, Factcheck.org, Factchecking, FakerFact, Fakey, Lead Stories FactChecker, KnowNews, and Polygraph (BBG).

Although the existing technical tools are indisputably useful, it is necessary, within the context of responsible and adequate media usage and the recognition and verification of "fake news" and potentially manipulative content, that users should continually develop their media literacy competences[6] [25,26], the complexity of which implies special training courses for media users—in other words, media literacy. For that reason, the key factor is education in the field of media, which implies "gaining knowledge about every single form of media, whether printed, electronic, or digital. Under no circumstances is this type of education to be confused with media-assisted learning, which is within the domain of media didactics" [27,28] (p. 25).

2.2. Influence of "Fake News" on Media Users' Emotions

The key to the success of fake news is that it relies, for the most part, on media users' emotions, along with other elements of cognitive partiality, in opposition to critical thinking. One of the disturbing features with regard to fake news consumption is the fact that users are actually under the impression that other people are more influenced by fake news than they are [29,30]. "Given that fake news is seen as potentially harmful [29,31], a small but growing number of studies have documented the effect of fake news on TPP, generally indicating that TPP persists in the context of fake news" [29,30,32] (p. 6).

Sivrić [33] points out that social media, so far, has been observed as mere places to have fun, but it has lately gained much more impact. By using social media, people, often unconsciously, become a part of social spheres circulating fake news and disinformation "for various reasons, such as satire, humour, and fun" [33] (p. 10). In their paper, Martel, Gertler Rand, and Pennycook [34] refer to the claims of scholars who advocate the thesis that a negative, anxious, and sad state of mind increases the overall quality of searching for information, skepticism towards fake news, and doubt and the amount of critical thinking about opposed standpoints, whereas positive moods increase users' level of gullibility and decrease their ability to detect deception [35–38]. The factor that makes a difference between fake and credible news is that articles featuring the former show "higher levels of anger and disgust and substantially lower levels of 'joy' in their article body than real news stories" [39] (p. 18).

As for the contents of fake news, it could be filled with images and narratives of violence which, according to Katarina Kacer [40], can urge us to develop emotions, such as compassion, pity, and empathy for victims and fascination for such scenes, but contents like these often open an opportunity for the radicalisation of viewers, for developing some mental unease by disturbing one's mental balance, as well as for becoming numb and indifferent to suffering. Kacer [40] says that this depends, in the first place, on the level of cognitive involvement, where the intensity of the latter is disproportionate to the influence of the message.

3. Methodology

The qualitative research method of focus groups provides the ability to collect empirical material necessary for the subject of the research and requires a review of various

opinions and attitudes towards the perception, recognition, verification, and relation to users as regards "fake news" and potentially manipulative content. In addition, the discussion always concerns one or more topics approached from different angles and provides important insights into the meanings upon which group marks are based, as well as into the norms upon which a group relies on when assessing something [41]. Therefore, this research technique was also chosen because of the approach to the subject of research, which is a generational approach [42,43] (p. 5), Focus groups, usually encompassing "6 to 12 participants" [41] (p. 585), are carefully selected following some precisely determined criteria, with the main criterion with regards to this paper being the instance of belonging to a certain generation. The authors contacted participants for panels (focus groups) through a public call, which was previously approved by the Ethical Committee of the Faculty of Political Sciences. The call contained the details necessary for understanding the concept and goals of the research, as well as the prerequisites for the selection of potential candidates. With regard to this, the call demanded that participants be aged between 18 and 34 (young generation) and 35–65 (middle-aged generation) and that they be Internet and digital media users for the purpose of gaining information.

Given the fact that the paper deals with a generational approach to "fake news" and potentially manipulative content—both the young (18–35 years of age) and the middle-aged (36–65 years of age)—it was necessary that group sessions were organised with members of respective generations. For the purpose of this particular research, there were four focus organised groups—two for each generation. Every focus group featured six members, all living in the city of Banja Luka (Bosnia and Herzegovina), taking into consideration the fact that results might differ in terms of geographic areas. Some earlier research into the matter of the media literacy of citizens of Bosnia and Herzegovina [43,44] and the way that they use and value information has shown no difference in this respect.

All sessions were organised in the period of 21–26 May 2021, with the first three sessions organised on the first day of the period. The first group encompassed young people born between 1992 and 2001. The session lasted for an hour and a half, and it was balanced in terms of gender, with an equal number of male and female participants. Although the issue of gender is of no importance for the research, the authors insisted on this for the purpose of objectivity and representation. The second group assembled young participants as well (1990–2000), lasting for 72 min and gathering two men and four women. With regard to the third group, it featured members (four women and two men) of the middle-aged generation born between the years of 1965 and 1983 and lasted for 95 min. Finally, the session with the fourth group was conducted on 26 May, and it encompassed members of the middle-aged generation born between 1960 and 1981 and lasted for two hours. Like the first group, it was balanced in terms of gender. Overall, there were 24 participants (10 men and 14 women)[7]. Concerning the subject matter and the goal of the research, the authors opted for four homogeneous groups, two of which comprised members of the young generation and two of which featured members of the middle-aged generation. The participants were selected by means of intentional sampling, given their respective eligibility for the research (that they belong to one of the said groups and that they use digital media for gaining information). With regard to the number of participants in each group, the authors decided upon a figure of 6, thinking it to be an optimal solution given the type of research and equal involvement in discussions.

The primary research goal is to examine in what way members of different generations (young and middle-aged) perceive the phenomenon of "fake news" and similar contents in digital media, whether they can recognise them, what they do to verify them, what relation they establish towards them, and what their proposals for building resistance to them are. The research excluded members of the elderly generation (over 65 years of age), since studies have shown that senior citizens of Bosnia and Herzegovina almost never use digital media for the purpose of gaining information given their low level of digital literacy [43]. In line with the goal of the research, there was a guide[8] designed as the basic instrument for focus group research, with a form similar to a semi-structured interview.

The guide consisted of information provided to the participants at the beginning of a session (basic goals of the research, purpose of the results gained, guaranteed anonymity of participants, as well as clarifications concerning the process of a focus group interview) and a set of questions divided into five sections: the notion of "fake news" and potentially manipulative content; recognition of "fake news" and potentially manipulative content; verification of "fake news" and potentially manipulative content; relation towards "fake news" and potentially manipulative content; and recommendations for building resistance to "fake news" and potentially manipulative content in digital media All focus groups were recorded using a Dictaphone, based upon which the sessions were transcribed so that the data could be entered into the MaxQDA qualitative data software.

An analysis of the results gained during focus group sessions was based on studying the transcribed material. In this paper, the authors use a qualitative thematic analysis method, which represents "a method for identifying, analysing, and writing a report on patterns (themes) from the data collected" [41,45] (p. 79). This method makes it possible for the transcribed data to be analysed and interpreted through the process of encoding and identifying certain themes, patterns, and concepts. A thematic analysis provides a qualitative, detailed, and gradual overview of data [45] and is convenient for analysing data collected through focus groups. The inductive approach is applied over the course of this analysis, which means that codes and categories are not predefined but formed during the process of encoding and data analysis, thus yielding concepts and conclusions.

In order to ensure the reliability of the coding process, all three authors became acquainted in detail with the data by reading the transcripts, and then individually generated the initial codes; i.e., they compressed and summarised a huge amount of information from the transcripts. During the process of coding, the authors individually assigned codes to texts and sentences that represented the basic idea of a separate part of the conversation. After comparing the codes of the authors (intercoders) and the extent to which they coincided, the codes obtained by this process were separated and regrouped into larger groups or topics at a higher level of abstraction. Based on the degree of matching of the intercoder codes, a code list with 25 codes was obtained, distributed in 5 groups[9], which was preceded by a revision of the topics. This stage implied and included thinking about identifying more general and specific topics, but also ignoring those that are not of particular importance, while the codes were regrouped in a meaningful and coherent way within the topics; at the same time, there was a significant difference between topics [41]. We list the topics obtained by grouping the codes as follows: the notion and types of "fake news"; the capability of recognising "fake news" and potentially manipulative content in digital media; the knowledge of tools for identifying, verifying, and deconstructing "fake news" and potentially manipulative content in digital media; the relation towards "fake news" and potentially manipulative content in digital media; and recommendations for building resistance to "fake news" and potentially manipulative content in digital media. After we regrouped the codes into thematic units, we analysed the data within the topics and interpreted them in accordance with the research questions on which we based our research.

4. Results of the Research

4.1. Notion of "Fake News" and Potentially Manipulative Content

The results of the research show that the majority of the young population gain information through Internet portals of traditional mass media from the country, from the region of former Yugoslavia, or from abroad. Half of young respondents think that social media is not a credible source of information and that it is the main channel for spreading fake news. They seem not to fully understand the difference between fake news and disinformation.

> *Fake news is a piece of news that does not contain convincing facts. It is written with a hidden agenda behind it and it is a longer piece of text, whereas disinformation is a shorter one, like some sort of a statement* (Participant 6).

> *I would say that fake news is based upon something imaginary, in order for the portal in question to get more clicks and views, while disinformation can be released not solely out of bad intention but because they have received it in that form and merely forwarded it. For that reason, I am of the opinion that disinformation is not necessarily a negative phenomenon, it simply means that the person who has released it was not knowledgeable about it at that point of time* (Participant 4).

In addition, they think that fake news is distributed with a view to discrediting a certain person or harming the image of an institution, while they deem disinformation a less damaging phenomenon—one that could be labelled as a wrongly interpreted piece of news without malice. None of the participants could provide the definition of disinformation. However, half of them were aware of the notion of clickbait, they could provide an instance of it, and they often encountered such contents. All of the respondents were of the opinion that YouTube is becoming a domain that does the most to promote clickbait contents and that it is a trend imposed by global YouTube stars, with only a few of them openly stating that they resort to such a practice. With regard to the phenomenon of clickbait, they refer to Facebook and Twitter, as well as the main platforms for its promotion. Furthermore, they are familiar with the notion of satire, and they have already encountered such contents. In this respect, one of the female participants said that satire is "a lie, in its essence", while one male participant regarded satire as "a socially engaged lie". For another female participant, satire is intended for people "who understand the context and who are the only ones to laugh at it". Clickbait, out of all forms of potentially manipulative content in digital media, was the form that they were most introduced to, which is, according to their opinion, used for gaining profit in most cases. As soon as a user clicks to open certain contents, it is recorded as a view and used to attract advertisers. As a result, they think that spreading fake news and disinformation is merely a consequence of clickbait.

With regard to members of the middle-aged generation, they gained information through Internet portals as well (they mostly accessed webpages of printed and electronic media, both public and commercial, along with portals that do not have printed or electronic counterparts), and, to a lesser degree, from social media. Out of those, four participants claimed they did not have an account registered on any instance of social media, with two of them claiming they never had one and two of them saying they did but that they eventually shut it down. They defined fake news as incorrect information and they encountered it quite often, almost on a daily basis. With reference to this, one of the female participants mentioned a situation from her own life, when she was a victim of "fake news". In addition, she pointed out that she actually could see for herself, based on the comments following the release (around 300), how gullible people are and how easy it is to manipulate them.

> *I have found myself the subject matter of an incorrect piece of information that referred to my workplace, and it feels normal to me to analyse all that and ask myself if it is true* (Participant 15).

Within the context of differences between disinformation and "fake news", respondents provided different opinions.

> *Disinformation has a goal of its own, it is directed towards someone, and it has a background story to it, while "fake news" is merely a type of disinformation* (Participant 16).

> *Fake news is not a novelty, it has been around since the Neolithic Revolution, when first recorded states released such contents in order to manipulate and control the business of trade. A more technologically developed age multiplies fake news—there is a greater volume of it and it circulates much faster but, at the same time, the volume of credible information is equally greater. It is necessary to develop selection skills in this respect, and this is where media literacy as a form of education proves indispensable in order for people to recognise fake news easily, given that our world is flooded with it. At the time when the media was not interactive, it was more difficult to respond to it. I would say that the media in Bosnia and Herzegovina used to be more notorious in terms of releasing fake news, it was completely under the control of the authorities. What I find interesting is*

> *that people were restricted to one media company as a source of information so they relied on social interaction to learn about the truth, and today the situation is reversed, where people receive 200 different pieces of information on a certain event by means of their smartphone and still struggle to reach the proper one. Therefore, the teaching subjects of political and media literacy are inseparable from each other and would be a valuable asset to the high school curriculum. Even that of the primary school as well* (Participant 23).

When one considers everything that is said about the differences between "fake news" and disinformation on the part of the participants, it is evident that they are not quite knowledgeable about the two, but that they are aware of the fact that there are differences between these categories. Half of the participants of the middle-aged generation had no idea what clickbait was. Upon the clarification of the notion, they all confirmed that it was a phenomenon they encountered on a daily basis.

> *Those are sensationalist titles. One title reads there was a death in a family, so when I checked it out I learned that it was a family cat that died* (Participant 14).

> *Clickbait is an item of information that aims at capturing the attention of a viewer, it is well-placed for marketing purposes, and it is, for the most part, dramatically consistent with some of the overwhelming social trends that are interesting and attractive. It is all about the quantity of clicks or views, depending on the context. There are numerous examples of clickbaits, such as the relation of the title of an article and the subsequent text, with the latter not corresponding to the former at all. Often, the photograph is more effective than the text itself, since we are more attuned to visual stimuli today, so the textual section of the title and the body of the text are of less importance. That this is so is proven by Instagram, which is a very popular social media company, but which is basically nothing else but a (children's) picture book, a social media intended for people with less developed cognitive abilities, given that it only features images. Furthermore, it is also a common case that there is no logical relationship established between the photograph and the title and, if it happens that there is one, then the two have nothing to do with the body of the text* (Participant 24).

Respondents had encountered cases of satire as well, especially on social media. They were able to recognise it, and they often logged on to such pages for fun.

> *I think that using satire to release some piece of news is an excellent idea. Satiric cartoons are a great tool for representing the social reality, and I like to gain information by watching shows featuring such contents. What is essential in this matter is who these contents are meant for, since not everybody possesses the intellectual capacity to understand it* (Participant 21).

Based on the interpretation of research results on the understanding of fake news and potentially manipulative content, it is evident that there are significant differences in the perception of research participants.

"Fake news" and potentially manipulative content are mostly encountered on social media (by those who are registered users) and software applications intended for correspondence. They come in the form of clickbait and satire in most cases, but these are present on Internet portals as well.

4.2. Recognition of "Fake News" and Potentially Manipulative Content

The young claim that they can recognise "fake news" by the "lack of internal logic", by the omission of the source, by the fact that the source is referred to as anonymous, or by the fact that the source seems incompetent for the topic discussed (this is especially so, in the words of Participant 5, when there is a discussion on social media on topics such as living, diet, health, and the like, with incompetent persons passing on advice on those topics). They claim it is difficult to recognise a fake photograph, except for those that are photoshopped.

> *There are some features that are self-evident and I need no tool to notice that the photograph is not genuine* (Participant 7).

In terms of other forms of fake media contents, they have encountered fake video footage, in particular on YouTube and TikTok.

> *There are a lot of instances of video footage featuring people engaged in activities that are impossible to perform* (Participant 10).

Respondents were not familiar with any concrete tools for verifying photographs and video footage. Half of the young participants could recognise automated profiles on social media.

> *I can recognise them by their not featuring any profile photo, by nobody following them and, at the same time, them following around 2,000 people, and by direct and vulgar comments, with them frequently responding (the reason they have been created in the first place) to topics dealing with sensitive issues of ethnic designation, political relations, intolerance etc* (Participant 8).

Furthermore, half of them knew what an Internet domain is and what differences there are between them, but they did not know how to verify it. In addition, they were aware of the advanced Google search, but they rarely used it. What raises suspicion in members of the middle-aged generation as regards to the truthfulness of a piece of news is a situation when there is no source stated or when the source is unknown. In that case, they resort to verifying the source.

> *I verify the speaker, not the contents* (Participant 18).

> *I verify both the media company (authenticity) that has released the information and the collocutor, their expertise and competence* (Participant 14).

> *I do my best to 'skip' the clickbait type of news, not to verify it. What sets off my alarm is when the title seems exaggerated and when the topic is discussed without support of any arguments and in a superficial manner* (Participant 17).

> *There are indicators that can help you easily recognise fake contents, for instance, source, authorship, style, or font size, since it is an uncommon practice for the media companies with a solid reputation to feature an all-capital-letters text* (Participant 21).

> *It is possible to identify it at first sight, but there are several components that should be taken into account: source of information—who releases the piece of information (what media company), since the media company of significant reputation verifies each piece of information it releases—that is the first level of filtration. As for the rest, there is the semantic level (the way the information is structured in linguistic terms, the visual level (what the photograph refers to), and there is something that could be labelled as the level of literacy (a way to judge whether a person possesses the knowledge necessary to write such a text)* (Participant 24).

When disinformation is concerned, they do not make a clear difference between this notion and that of "fake news", but they understand the similarities and the context.

> *I compare various sources, I analyse the background of an event and potential impacts depending on the media that has released the contents, I make connections between various elements of the contents, that is, how mutually related they are or whether there is some sort of deviation as regards to other facts* (Participant 23).

Based on the factors above, respondents expressed their doubts as to the credibility of information in the following situations: when the title is sensationalist in its nature, when the release is approached in a superficial fashion, and when the collocutor lacks expertise on the topic discussed. None of the middle-aged participants knew how to recognise a fake photograph, while half of them claimed they were able to tell fake video footage from a genuine video. In all probability, they had already encountered such contents without realising it.

> *It is a difficult task, one has to take into account the competences of the author of the photograph and their intentions. In my opinion, an average consumer faces an almost impossible task of detecting a fake photograph, given the fact that such a process is very demanding in technological terms and that the possibilities of forging such contents are virtually unlimited* (Participant 24).

In addition, they were not familiar with any of the tools for recognising and verifying such contents. Out of those participants that had registered accounts on social media, two thirds claimed that they could recognise automated profiles.

> *I can recognise fake profiles by the way they express their opinions in comments, and I know that some individuals "hide" behind fake profiles when they use insulting language, when they swear, and when they resort to the speech of hatred* (Participant 17).

It appears that members of the middle-aged generation do not know how to verify the domain of an Internet portal or the authenticity of a webpage on social media (except for the methods they have stated). Furthermore, they do not know how to browse a removed page or removed contents. Two thirds of respondents pointed out the fact that they used an advanced Google search by putting, in most cases, certain words in quotation marks when they wanted to find some information quickly.

4.3. Verification of "Fake News" and Potentially Manipulative Content

Most of the young participants verified the authenticity of information based on the source (whether it exists, whether it has been stated, whether some other media company has released the same contents, or if they have asked someone else who is more familiar with the topic), while the other half said they were neither familiar with the method of verification nor knew which factors should be verified in order to determine whether the piece of information in question is true or false.

> *If the issue is a political one, I verify the information in various media companies based on their respective political beliefs so I can get a balanced approach to it* (Participant 9).

They did not verify whether the source is a primary or secondary one, as they did not find it an important feature.

> *On rare occasions do I search for the primary source, when some information is really important to me, but I do not recall the last time I did that* (Participant 3).

None of the young participants knew what the imprint is. When they were introduced to the notion, they were unanimous in their claim that they did not verify the imprint of the media nor the transparency of the page, and that they had never heard about it.

> *I think that elder generations find it important, whereas the young merely search for information. Although we resort to critical thinking, I do not see us ever verifying the fact who the editor of a certain portal is* (Participant 5).

> *I like to read comments, and by the number and type of them I assess the quality of the page as well. The more comments, especially in terms of some quarrel or argument, the more likely that the media company is sensationalist* (Participant 6).

None of the young participants signed their comments in public—they were not convinced that they could make any change by that, and they would not like to hurt anyone or start an argument by doing so. They were unanimous in their claim that, if they share some contents, they read the whole text first. Only one female participant pointed out the fact that she shared any contents concerning humanitarian campaigns without previously verifying them, since she was interested in passing the information around as soon as possible and to as many addresses as possible. What is more, they said that they circulate entertaining, satiric contents that they know are not true and that they do it for the purpose of having fun.

The middle-aged participants, when they doubt the truthfulness of a piece of news, mostly verify "the parties", they verify who the parties involved in the story are, who

the story refers to, and everything related to them (Participant 17), they verify what other media companies have released on the topic, the source of information and, ultimately, according to Participant 6, they verify the information right at the source it comes from.

> *I verify whether the information has been released by multiple sources and what these sources are, I observe the comments on the information, and then I form my opinion. This concerns low- and medium-level information, with the high-profile information not being released in this manner. For such information I turn to experts—expert sources* (Participant 19).

Unless they deem the information to be important, not even middle-aged participants verify whether the source of information is a primary or secondary source and whether the piece of information has been provided by another media company as part of a news exchange or it has been generated by the media company in question.

> *I verify from time to time, but it so happened on several occasions that I did not recognise that the source was not authentic. Collocutors, as well as various media analysts, are asked to comment on a certain topic as part of an arranged deal. If necessary, I verify if the information has been released by other media and then make comparison, or I search for the information by means of key words, to see whether it has appeared somewhere else and in what manner* (Participant 24).

They verify the competence of the collocutor, but also their partiality. They refer to examples of different interpretations of the same piece of news by a public broadcasting service and by a commercial media company. They think that the truth lies "somewhere in the middle", and that one needs to verify information using multiple sources. Given the fact that they find the imprint and the transparency of the portal/webpage important (who the owner of the media company is, who the members of the editorial board are, who the journalists are, and all other information available), they resort to verifying the information by means of key words when they encounter an unknown/new page.

With regard to the contents of news, they do not analyse them often, unless there is something they find important. Similarly, they do not share contents either, but Participant 3 said that she sometimes did. In that case, she only shares them with persons that might find interest in them and she warns them to verify them. Six participants claimed that they did not share any contents through social media, and five of them that they sometimes share the contents they consider credible.

4.4. Relation towards "Fake News" and Potentially Manipulative Content

With regards to their relation towards "fake news", the young usually ignore and avoid it and do not comment on it in public.

> *Do I object to the presence of fake news? Unfortunately, it seems that we have agreed to that fact as it is all around us. It does bother most people, but given that little can be done to rectify the situation, we have accepted it as normal* (Participant 1).

Such phenomena do not disturb them and, after they have read such contents, they try to forget them over a short period of time.

> *I think that the media is slowly starting to lose its significance, since it all too often serves as a leverage for authorities. It is no longer a matter of convincing us to accept a lie but we have to ask ourselves whether there is truth at all, and we, as a society, can do a lot in terms of not accepting a lie for truth by making an adequate selection of information and by engaging in critical thinking* (Participant 4).

All young participants have a negative attitude towards "fake news" and potentially manipulative content, and they think it degrades the quality of journalism. At the same time, they think that they, as individuals, have no influence, so they mostly ignore it. Although they have a negative attitude towards "fake news" and potentially manipulative content, four of the participants claimed they did not mind its presence in media space,

one of them claimed that she was a "bit" bothered by it, and another one claimed that he did not care about them at all and that he could not understand why we are asking these questions. When they are faced with a piece of news with troublesome contents, four of the participants stated that they read the whole contents since they find it amusing. They approve of the contents they are not convinced are true because they are attracted by some detail or because they think they are funny, except for two participants who claimed they seldom approve of any contents, even when they really like them, since they find them irrelevant. All respondents were unanimous in their claim that they retell conspiracy theories in conversations, but that they do not post them and share them—at least those they are aware of. They think of them as funny, but they do not pay too much attention to them. All the young participants were familiar with the notion of a conspiracy theory and they can easily recognise it and provide examples.

> *Those are thoughts that have not been proven, but that have been well supported by words. They spread fast, such as the story that Bill Gates is going to put a chip inside each and every one of us* (Participant 10).

Conspiracy theories, in their opinion, are mostly spread on Facebook accounts, followed by the YouTube and Instagram profiles of certain celebrities.

> *There is a conspiracy theory that Sponge Bob is a drug addict. There is nothing to it, it is merely a cartoon, but I still like to read about it. I find it interesting, but I do not consider it serious* (Participant 3).

In general, they do not believe in such contents.

> *Only if I find such contents consistent with some of my earlier findings on the topic do I conduct a thorough research and make comparison, but in most cases it proves to be exaggerated* (Participant 1).

They say they reflect readers' emotions; that is, the impact of disinformation on them, both those who are subject matters of such stories and those who are going to read it.

> *When I read a fake piece of news about the death of a celebrity, I always think how it must feel to them, what they feel when they wake up in the morning and read it* (Participant 3).

They never share contents that are disturbing or that they consider damaging to someone. In this respect, they think that unverified and incorrect contents in the media may cause harm both to the public and individuals, especially in case of exerting influence on attitudes of members of certain groups (LGBTQ, for instance), in case of invading their privacy or endangering their security, or in case of discrimination against them on the grounds of sex, race, etc.

All the middle-aged participants stated that they were bothered by the presence of "fake news" in the media, that such contents disturbed them, and made them feel uncomfortable, even putting them in a bad mood. They try to avoid such contents, with most of them not sharing them consciously and with intention, except for instances of satire, when they want to make someone laugh. Those who are registered on social media say they may have approved such contents without verifying first. They are keen on conspiracy theories content and they readily share it since they find it amusing. More to the point, two of them even created and share contents on social media that could be labelled as conspiracy theories since they found it interesting. While doing so, they felt no responsibility at all, believing that by sharing such contents they might be helping others to better understand, in terms of providing information that differs from what they have encountered earlier. They do not bother thinking about the emotions of those who are going to consume such information, given that they are convinced of doing the right thing.

> *True, I have shared such contents and I always do, and I approve of them. If the public discourse is considered to be truth, and if what deviates from it is considered conspiracy theories, I am the one to support the latter* (Participant 24).

> *I myself design the contents that might be interpreted as conspiracy theory. I compare certain historical figures and reflect on the truthfulness of historical facts. I share respective video footage on my YouTube channel* (Participant 18).

What is more, other middle-aged participants also view conspiracy theories as a source of additional information that can be true and that they consider useful for public.

> *At first, I resisted conspiracy theories. Yet, I am no longer convinced whether they should be called that at all or that we are being inadequately informed. It could be that we are merely a convenient material for manipulation since we have little knowledge on certain topics and thus refer to them as conspiracy theories in an uncritical manner* (Participant 20).

> *Conspiracy theory is an utterly legitimate construction, but it has a negative connotation because official science does not want to support it as a serious theory. For that reason, it is often the case that the content released by various channels gets characterised as scientifically unfounded due to the lack of methodology, although they provide solid evidence to the matter in hand. Conspiracy theory should be assigned a scientific dimension and thus verified as one of the most serious theories. Given the fact that conspiracy theories are taking up more and more media space now, there is a fear generated of their power, and I am fully convinced that, for the most part, the contents we consume are, to a certain degree, associated with some conspiracy theories and that they are true* (Participant 22).

Most of them reflect on the emotions of other people and they never share any contents that might disturb or cause harm to the public or individuals.

> *Every piece of information has an emotional and aesthetic effect, it lacks an intellectual potential, and it aims at offering excitement at an emotional and aesthetic level. It does that in various ways, it provokes emotionally irrational behaviour. Given all that, the best approach is not to respond to it emotionally.* (Participant 24).

4.5. Recommendations for Building Resistance to "Fake New"' and Potentially Manipulative Content

The young think that education in the field of media and information literacy might be in everybody's interest in terms of a critical approach to information—in particular, in the interest of the elderly—but they are doubtful if the elderly would embrace the idea. In any case, the process should be adjusted to their needs in a subtle way. They think that this type of education is necessary for their generation as well, along with the middle-aged generation.

> *Yes, I agree that education in the field of media is necessary, especially in terms of fake news. For instance, my grandmother often leaves unethical comments and I have trouble explaining to her why that is wrong* (Participant 3).

The middle-aged participants agree with the young ones regarding the necessity of education in the field of media across the population, emphasizing the elderly generation as well.

> *I think that it would be necessary to introduce education in the field of media in all curricula, from kindergarten to university, with offering assistance to the elderly in the same respect* (Participant 14).

Furthermore, we point out the significance of such an education as regards to professional communicators, and especially journalists. There was only one participant that expressed their doubts concerning this.

> *If media literacy were designed to move people away from media reality, it would be useful. Does it encompass passing on advice to the elderly to not watch the news because it is very harmful? Passing on advice to people not to trust medical doctors and politicians, explaining to people what the function of media is? I consider myself moderately media literate. The role of the media is nothing to do with the truth but rather the manipulation*

and swaying of public beliefs with a view to establishing political control over citizens, and that is my starting point. Again, the media has nothing to do with the truth (Participant 24).

5. Discussion

A thematic analysis of a generational approach to "fake news" and potentially manipulative content shows the justification of the application of this approach to the research, since differences in the perception and experience of and relation to this content are evident between members of the young and middle-aged generations.

In the first place, the difference between the two regarding this issue can be noticed in the way they perceive the notions of "fake news", disinformation, and potentially manipulative content. As for the young, they approach the aforementioned phenomena in a superficial and uncritical manner, without analysing the contents, thus resulting in equally superficial answers, offering no wider context and detailed analysis. They are aware of the presence of such contents in the media, but they do not put too much effort into searching for proper information since they think they are able to recognise and avoid the contents that lack credibility. One finds it difficult to accept their claims, given they have neither heard about notions such as imprints nor are familiar with the idea of the ownership structure of the media and editorial policy, which points to an uncritical approach to information sources. Unlike the young, the middle-aged participants reveal a much more serious attitude towards these issues, featuring an analytic and complex approach to negative media contents. Although they are also not able, like the young, to clearly define potentially manipulative content concerning incorrect and unauthentic information, they possess a more profound knowledge about the media itself and the way it functions, so they find the imprint an important issue, along with the ownership and history of the media company and the editorial policy. They pay a great deal of attention to the context of the information itself, and they relate the contents to their previous findings on the topic; they compare and analyse and create a wider image within the frame of the current socio-economic situation, which is an indicator of maturity in their approach to media contents.

It is interesting that neither group are familiar with the tools for verification and advanced searching for digital media contents, as well as for the verification of Internet portals and transparency of social media pages. In this respect, it is the middle-aged participants who show a higher level of knowledge and usage of an advanced Google search than the young respondents, which is contrary to a common belief that the young are "digital natives" [46] and that this is what makes them digitally literate. This research shows that this is not necessarily so, and it confirms the hypothesis of the paper that the young, despite their many hours on the Internet, are not familiar with all its capacities and that they have inadequately developed digital competences, whereas members of the middle-aged generation, probably due to their experience and an established critical approach to the media, reveal a higher level of critical media literacy and information literacy. They rely more on their previous experience and knowledge of media functioning, so they do not access the portals of the media they are not familiar with but only those they trust.

Another obvious difference between the two groups is their respective relation towards conspiracy theories. Namely, the young do not deem such contents as serious, they do not either produce or share the information, they merely read it for fun, whereas the middle-aged experience the material in question in a much more earnest manner; that is, they think of it as an alternative source of information that can help them to better understand certain situations or phenomena. Two participants even considered themselves conspiracy theorists (in a positive connotation), designing and sharing such contents and thus contributing to the general population in terms of informing them on various topics.

So, the middle-aged are, due to a greater level of distrust they show concerning media contents and a critical approach to information, more likely to believe in "alternative

facts", as they call them, or to leave the possibility for such contents to be credible and reliable. That shows that even these respondents, despite their years of personal and professional experience, are not media literate to a satisfying degree, and that they do not sufficiently appreciate the importance of personal responsibility regarding the designing and sharing of media contents in a virtual environment. Responsibility in the usage of media content (creating and sharing) is the foundation of media literacy, along with consciousness as regards the media company (its role and significance) and honesty (during usage and interpretation of media messages). The responsibility is developed within the personal context of media literacy, where individuals further their already existing skills and knowledge of media literacy. A low level of responsibility in this respect may point to an undeveloped personal context of media literacy [28,43].

The key factor for the approval of conspiracy theories is the necessity for the introduction of order, purpose, and control into one's own life, since, otherwise, people feel anxious due to the seriousness of the situations they find themselves in and the sense of impotence against them, and they wish for them to be resolved immediately [47]. Thus, conspiracy theories help the disempowered to "understand their disadvantaged social reality" [47,48] (p. 208). Individuals resort to the so-called confirmation bias, which is defined as a mechanism by means of which "we recall data and events in such a manner that confirms our beliefs or standpoints" [49] (p. 4) to reduce fear and anxiety, and it is a kind of cognitive bias and a fault of inductive reasoning; it is in human nature to believe that they must only choose what to believe in, and it is usually something that is consistent with their previous standpoints [49].

If we ask ourselves what emotion it is that makes people share "fake news" and potentially manipulative content, some scientists claim [50] that they have an answer to that, pointing out that one of the most dominant emotions is the fear of missing out, which is "related to the use of social media and can be a factor that contributes to the user's need to share information" [50–52] (pp. 6–7). In that context, our research shows that the middle-aged participants who design and share contents they are not convinced are authentic on social media neither take into account the emotions of consumers of such contents nor are aware of the fact that the same contents can have a different effect on different users. They do not think too much about the emotions of others and the consequences that "fake news" may cause in them, but the majority of them still do not share such material without verifying it first. The young sometimes think of the emotions of consumers of various types of incorrect information in digital media (mostly about those who are the subject matter of such material), but they do not share it or try not to be a part of the circles that do. In essence, none of them are aware of the importance and responsibility of personal actions in the public sphere of digital media, but they perceive that space in more personal terms, not thinking about others that are present there as well, only in a virtual fashion. This is an important piece of evidence for the overall study, given the fact that it points to the lack of concern for other media content users in the young, which implies a lack of critical thinking as regards creating and sharing media content. Moreover, this also provides a ground for further research into the matter and searching for the ways to change it. Although one might expect young users of social media to be more anxious, considering the fact that they are more associated with media addiction and an enormous amount of time spent on social media, recently, other authors [53,54] (p. 10) have stipulated the contrary, since their study found that middle-aged adults (between 35 and 44 years) had higher rates of addiction to social networks compared to young adults. Therefore, the amount of time spent on social media is in correlation with anxiety, but this sense of anxiety can be contributed by the very media release that causes more or less uncomfortable feelings, which, as our research shows, can depend on the treatment of this release itself.

The results reveal that the young do not bother to a great extent about "fake news" and potentially manipulative content in the media, and they think that, as individuals, they cannot do anything to change that situation. On the other hand, the middle-aged oppose such contents, they mind them, and they find them burdening at times, but they think they

can influence their presence in the media by ignoring them and by creating contents on their own that they consider valuable. These differences in approach are in favour of a thesis that the middle-aged have a more mature attitude to "fake news" and potentially manipulative content, putting the content into a wider social context and by making efforts to provide a personal contribution in order to reduce the presence of such contents in the media. The research published in the Proceedings of the National Academy of Sciences Journal [55] shows that those who hold stronger beliefs are more susceptible to "fake news", which corresponds with the results of our research, which is an additional argument for education in the field of media for all media consumers.

To our knowledge, there is no similar research that relates to the perception of "fake news" as regards a generational approach in Bosnia and Herzegovina, but all the previous research directed towards the level of media literacy of citizens of Bosnia and Herzegovina and the presence of fake news and disinformation in digital media indicate, on the one hand, a low level of media literacy and a lack of education in the field and, on the other hand, an increasing amount of "fake news" and potentially manipulative content in digital media [14,43,44,56–59]. Further research might aim at revealing the relation towards unverified and incorrect contents in the media with regard to the level of education, since this research recognised the latter as an important indicator for building resistance to "fake news", and that relation should be additionally investigated.

6. Conclusions

Considering the fact that, for an interpretation of media contents, which implies both the recognition and verification of so-called potentially manipulative content, the knowledge of media literacy elements is highly important, especially those elements that relate to the assessment and analysis of various media contents with a view to evaluating their authenticity, reliability, and truthfulness in order to make responsible decisions, education in the field of media literacy for all generations, as a solution for building resistance to "fake news" and potentially manipulative content, appears to be the proper tool.

With the analysis of media contents and the verification of the authenticity and truthfulness of information, media consumers should take care of several issues that could be distributed under the following labels: audience and authorship (who designed the message, who is it intended for and for what purpose, who paid for the message, who is it important for, and who might be harmed and in what way); messages and meaning (what values and attitudes are represented in the message and what is left out, what techniques for drawing attention were used, how different people are going to react to and interpret the message); and representation in the media and reality (when was the message generated, in what capacity was it released to audience, whether it is a fact, opinion, interpretation, or something else, how reliable the message is and who the sources of the idea, claim, and information are) [60] (p. 39). As Scheibe and Rogow state (2012, p. 268), "we think of literacy as the broad set of skills and habits that enable one to engage thoughtfully with the community and the world" [60,61] (p. 268; p. 49).

To conclude, the research shows that both groups of participants have a developed conscience as regards the role and significance of media literacy within the context of building resistance to "fake news" and potentially manipulative content. The research participants see in the field of media education solutions for overcoming the phenomena in the digital sphere that confuse consumers, who have trouble deciding which piece of information is true and which is not.

Based on the experiences of the countries that have broadened their curricula with the aforementioned topics and that provide constant education for all generations concerning the media industry [44], a conclusion is imposed that media literacy, along with frequent updates to the curricula given the changes in the media sphere, is the best long-term solution for the proper use of media contents—in particular, digital ones. In addition, the research shows that both groups lack media competences, though not in the same segments and at the same levels, but there are visible voids that should be compensated

for by organising training courses in the field of media so that they can critically interpret media contents, recognise or avoid unreliable information, and be responsible for their own behaviour in a virtual environment. None of the participants referred to themselves as lacking such competences, with all of them featuring a high level of confidence in terms of their resistance to so-called fake news, but their answers reveal a lack of certain media competences.

7. Limitations of the Study

The limitations of the study are reflected in our inability to encompass members of elderly generation (over 65 years of age) in our research as well. Given that the research focuses on the perception of "fake news" and potentially manipulative content in digital media, this section of the general population is left out due to the fact that findings of previous research into the subject matter (there is an overview provided in the Introduction) show that this segment of society in Bosnia and Herzegovina almost never uses digital media for the purpose of gaining information. For that reason, the authors concluded that it would be pointless to involve them in the research, although that would contribute to the completeness of our generational approach, thus resulting in a clearer image of the way that different generations view "fake news" and potentially manipulative content in digital media.

Taking into consideration the current COVID-19 pandemic, our capacities and resources as regards participants and establishing focus groups were significantly limited by the then highly restrictive counter-pandemic measures. There was no access to schools granted, so there were no minors involved in our research. Despite that, the research was successfully conducted, though in quite unfavourable circumstances.

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Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Institutional Review Board of Faculty of Political Sciences University of Banja Luka (protocol code 08/1.145/21, approved 15 February 2021).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. List of participants in focus groups.

Ordinal Number	Code	Year of Birth	Sex	Uses Digital Media for the Purpose of Gaining Information
1	Participant 1	2001	Male	Yes
2	Participant 2	1998	Male	Yes
3	Participant 3	1999	Female	Yes
4	Participant 4	1998	Female	Yes
5	Participant 5	2001	Female	Yes
6	Participant 6	1992	Male	Yes
7	Participant 7	1990	Male	Yes
8	Participant 8	1995	Male	Yes
9	Participant 9	1997	Female	Yes
10	Participant 10	1998	Female	Yes
11	Participant 11	1998	Female	Yes
12	Participant 12	2000	Female	Yes
13	Participant 13	1974	Female	Yes
14	Participant 14	1970	Female	Yes
15	Participant 15	1965	Female	Yes
16	Participant 16	1966	Female	Yes
17	Participant 17	1983.	Male	Yes
18	Participant 18	1970	Male	Yes
19	Participant 19	1970	Female	Yes
20	Participant 20	1960	Female	Yes
21	Participant 21	1981	Female	Yes
22	Participant 22	1975	Male	Yes
23	Participant 23	1981	Male	Yes
24	Participant 24	1981	Male	Yes

Appendix B

Guide for the "fake news and potentially manipulative content in digital media—generation approach" focus group.

Place: _____

Date: _____

Participant number and year of birth

(M/F): _____

Moderator: _____

A qualitative research work into the attitudes of members of the young and middle-aged generations on the perception of "fake news" and potentially manipulative content is conducted by Ms Dragana Trninic, PhD, Ms Andjela Kupresanin Vukelic, PhD, and Ms Jovana Bokan, MA, for the purpose of writing a scholarly paper. With regard to this research, no personal data of the participants shall be required, so their anonymity is guaranteed. The interview is designed as a panel discussion, with all the participants responding to the moderator's questions individually, without any previous suggestion or soliciting on the part of the moderator. The participants are entitled not to answer the question if they choose to.

1. THE NOTION OF "FAKE NEWS" AND POTENTIALLY MANIPULATIVE CONTENT IN DIGITAL MEDIA

How do you usually gain information and from what source (by means of digital media, social media, or some other way)? Do you know what "fake news" is? Do you know what disinformation is? Are you familiar with the notions of clickbait and satire? Have you ever encountered such phenomena? If yes, where (on portals, social media, messaging applications)? How often do you encounter such content?

2. RECOGNITION OF "FAKE NEWS" AND POTENTIALLY MANIPULATIVE CONTENT IN DIGITAL MEDIA

How do you recognise "fake news"? How do you recognise disinformation? Would you be able to recognise a fake photograph or fake video footage? Are you familiar with some tools for the recognition and verification of fake photographs and instances of fake video footage? Can you recognize an automated profile on social media? Can you verify the domain of an Internet portal or the authenticity of a Facebook or some other page on social media? Do you know how to browse removed pages and content? Are you familiar with the advanced Google search?

3. VERIFICATION OF "FAKE NEWS" AND POTENTIALLY MANIPULATIVE CONTENT IN DIGITAL MEDIA

How do you verify a piece of news if you doubt its authenticity? Do you check on the source of information (whether it is primary or secondary one or whether it has been stated at all), do you verify the credibility, competence, and biasness of the collocutor, or do you search for the same piece of news in other media companies? do you search on the Internet using key words? Do you verify the transparency of the portal/page and the imprint? Do you analyse the contents of a piece of news and compare them with similar previous releases? Do you read the whole text or just the title?

4. RELATIONSHIP TOWARDS "FAKE NEWS" AND POTENTIALLY MANIPULATIVE CONTENT IN DIGITAL MEDIA

What is your relationship towards "fake news" and potentially manipulative content? Does their presence in the media bother you? How do you react upon coming across a piece of news whose content is questionable? Do you share or approve of the content that you cannot verify? Have you ever thought of the impact of disinformation on the public? Do you think that unverified content may do harm to the public or certain individuals? Do you find yourself responsible when you create and share some content in the virtual space? Have you ever shared or approved of the content that you could not verify?

5. RECOMMENDATIONS FOR BUILDING RESISTANCE TO "FAKE NEWS" AND POTENTIALLY MANIPULATIVE CONTENT IN DIGITAL MEDIA

According to your opinion, what is the best method for building resistance to "fake news" and potentially manipulative content in digital media? How can each individual protect themselves from such content and still gain necessary information? What would you recommend?

Appendix C

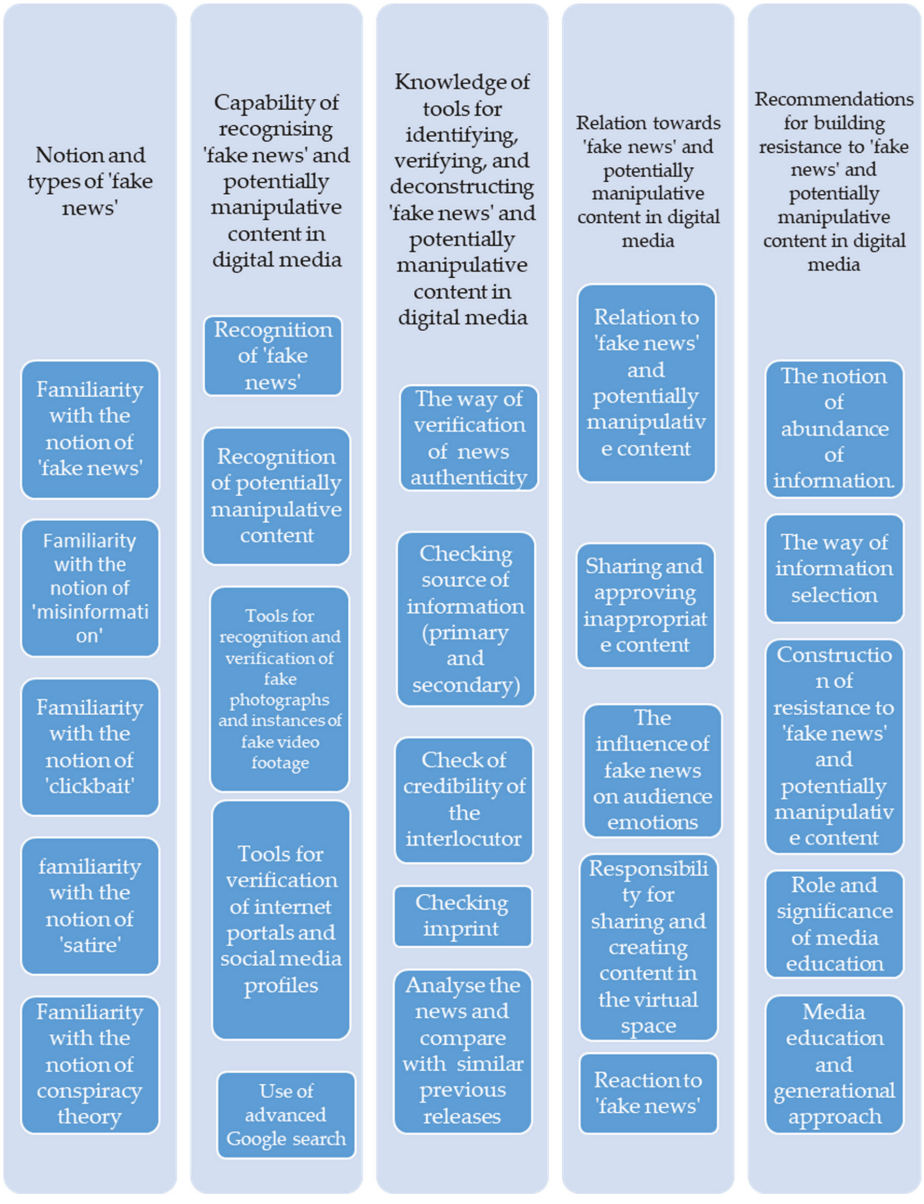

Figure A1. Pictorial representation of grouping codes into topics.

Notes

1 In this paper, the mass media is observed within the context of traditional media (newspapers and magazines, film, radio, and television) and new, digital, and social media (the Internet, web pages, computer multimedia, virtual reality, and video footage exchange platforms) [1], but it is the latter that is in the primary focus.

2 "Fake news can affect public perceptions, distort election campaigns and shape human emotions. Through designated keywords and comments people's minds can be influenced" [6] (p. 977).

[3] Zubiaga and Ji (2014) used this operationalization of fake news in their study of manipulated photos that were circulated on Twitter during Hurricane Sandy in 2012. They examined many examples of photomanipulation, one of which was a photo that showed the Statue of Liberty in New York City being battered by waves, with a superimposed logo that made it appear to originate from a live broadcast by channel NY1. However, the photo was actually a composite of a fictitious disaster movie and an actual image from Hurricane Sandy [20,21] (p. 144).

[4] The aforementioned tools, along with their respective descriptions, are available on the Objective Analysis Effective Solutions, Fighting Disinformation page, where users are provided with an opportunity to conduct an online search; almost every tool there is intended to counter fake news and potentially manipulative content.

[5] "Fotoforensics", "Forensically Image Verification Tool", "Get-Metadata Viewer", "Youtube data Viewer", "Verification Tool", "Reveal Image Verification Assistant", "HackerFactor".

[6] In order for us to demistify "fake news" and similar phenomena, the user can ask themselves some of the whole set of questions suggested by Lana Ciboci, Igor Kanižaj, and Danijel Labaš. Some of the questions can raise an issue regarding whether a certain release provides all the answers to a journalist's questions, who the author of the release is, whether they can identify the source of information, whether the title block has a link to the content of the text, whether product promotion is represented in a particular text, whether the information can be verified, and whether there is a photo to accompany the release [25]. Some of the tacticts which Ms Tatjana Krpan Mofardin [26] suggests to users include that users should verify the imprint, date, and time of the release, that they verify the very same piece of news in other media as well, and that they subject it to the process of critical thinking before sharing it.

[7] The participants were assigned code numbers (ciphers) from 1 to 24, and that is how they are referred to in the paper. The data on sex and age of participants are available in the table at the end of the paper.

[8] Guide for the "fake news and potentially manipulative content in digital me-dia—generation approach" focus group is available at the end of the paper (Appendix A).

[9] A diagram showing the codes is attached in the appendix to the paper.

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Who Believes in Conspiracy Theories about the COVID-19 Pandemic in Romania? An Analysis of Conspiracy Theories Believers' Profiles

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Abstract: The current COVID-19 pandemic has been accompanied by the circulation of an unprecedented amount of "polluted" information, especially in the social media environment, among which are false narratives and conspiracy theories about both the pandemic and vaccination against COVID-19. The effects of such questionable information primarily concern the lack of compliance with restrictive measures and a negative attitude towards vaccination campaigns, as well as more complex social effects, such as street protests or distrust in governments and authorities in general. Even though there is a lot of scholarly attention given to these narratives in many countries, research about the profile of people who are more prone to believe or spread them is rather scarce. In this context, we investigate the role of age, compared with other socio-demographic factors (such as education and religiosity), as well as the role of the media (the frequency of news consumption, the perceived usefulness of social media, and the perceived incidence of fake information about the virus in the media) and the critical thinking disposition of people who tend to believe such misleading narratives. To address these issues, we conducted a national survey (N = 945) in April 2021 in Romania. Using a hierarchical OLS regression model, we found that people who perceive higher incidence of fake news (ß = 0.33, $p < 0.001$), find social media platforms more useful (ß = 0.13, $p < 0.001$), have lower education (ß = −0.17, $p < 0.001$), and have higher levels of religiosity (ß = 0.08, $p < 0.05$) are more prone to believe COVID-19-related misleading narratives. At the same time, the frequency of news consumption (regardless of the type of media), critical thinking disposition, and age do not play a significant role in the profile of the believer in conspiracy theories about the COVID-19 pandemic. Somewhat surprisingly, age does not play a role in predicting belief in conspiracy theories, even though there are studies that suggest that older people are more prone to believe conspiracy narratives. As far as media is concerned, the frequency of news media consumption does not significantly differ for believers and non-believers. We discuss these results within the context of the COVID-19 pandemic.

Keywords: conspiracy theories; COVID-19 pandemic; digital disinformation; religiosity; fake news incidence

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1. Introduction

The worldwide pandemic that started two years ago has led, among other things, to a surge in news consumption and an increased demand for up-to-date, accurate (online) content about coronavirus and the social, economic, political, even psychological implications it has triggered globally. However, while COVID-19-related information is relatively easy to spot in both mainstream media and on various social platforms, an impressive amount of that information is, in fact, misleading, conspiracy-driven, or outright false [1,2]. In earlier studies, the parallel "infodemic" accompanying the original epidemic has been compared to the SARS-CoV-2 virus's intra-community transmission [3], giving rise to numberless rumors, misleading facts, and fake news regarding the coronavirus situation

that have constantly circulated online and that show no sign of halting soon. Among them, conspiracy theories regarding the pandemic in general and vaccination campaigns aimed at containing the virus have become particularly commonplace in the digital ecosystem [4]. Ranging from stories denying the very existence of the virus to narratives claiming that its transmission is associated with the roll-out of 5G or that facemasks can cause hypoxia or hypercapnia [5], toxic narratives have proliferated and continue to be widely shared among internet users around the world and fuel confusion, uncertainty, and concern.

The effects of spreading and/ or believing in such questionable, conspiracy-based information are complex and yet to be established in the long run at both the individual and the societal level. Still, given the current context and building on previous research, we argue that these effects primarily concern an individuals' resistance to accepting protective measures [6] and a rather negative attitude towards vaccination and immunization campaigns [7,8], as well as other far-reaching effects, such as generalized panic, high levels of societal anxiety [9], street protests, or distrust in governments, mainstream politics, and official institutions [10].

In this study, we seek to examine the factors that shape the profile of the believer in conspiracy plots and narratives. As previously shown, in previous studies, the latter have been linked directly to the undermining of public health efforts [1], and, more specifically, to people's reluctance in adopting rules that could successfully contribute to herd immunity [11,12]. Here, we intend to contribute to a growing body of works documenting the factors that may lead people to believe in conspiracy theories and to act based on these beliefs. This is, to our knowledge, one of the first studies of its kind in Romania, investigating the main predictors of Romanian people's tendency to believe in conspiracy narratives related to vaccines and vaccination. One of the premises at the center of this paper is that media play a key role in the way people perceive the COVID-19 crisis and its various implications. Therefore, we developed a survey-based research design in order to assess media consumption (i.e., the frequency of news consumption from websites, SNS platforms and IM apps, the perceived usefulness of social media, and the perceived incidence of fake information about the virus in the media) and their contribution in building the profile of the believer in conspiracy theories about the COVID-19 pandemic. Furthermore, we investigated the role of age, as compared to other socio-demographic factors such as education and religiosity, and the critical thinking disposition of people who tend to embrace and ultimately disseminate such deceitful content.

It is essential to understand which types of people are more likely to believe and further proliferate misleading narratives or conspiracy theories. This helps to provide evidence-based recommendations for stakeholders such as health experts, journalists, and policy makers to raise awareness and take actions to address the dangers associated with potentially harmful information circulating as misleading narratives about COVID-19-related topics, which discourage people from complying with restrictive and protective measures.

2. Conspiracy Theories and Predictors of Conspiracy Beliefs

Given their nature of precariousness and unpredictability, crises are a fertile ground for conspiracy theories. Such narratives offer a "proposed explanation of events" [13] (p. 2) that is typically based on the categorization of the Other—a secret, all-powerful group, or groups of people, pursuing some malevolent purpose against the common good [14]. Their origins are to be found in people's need to build a narrative that gives them the possibility to cope with the unknown [15]. Conspiracy theories are closely connected with psychological factors, such as powerlessness [16] or anxiety and uncertainty [17]. They might also stem from people's need to restore a threatened sense of security and control [18]. They may have significant consequences at both the individual and the social level, causing real harm—see, for example, the correlation between anti-vaccine conspiracy beliefs and vaccination intentions [19]. Different factors, such as (lower) socioeconomic status [20,21], partisanship and news media exposure (often closely connected [22–24]),

conspiracy thinking and denialism [25], or personal traits [26] might explain people's tendencies to embrace conspiracy beliefs.

During the current COVID-19 health crisis, conspiracy theories are running rampant as part of a larger disinformation process channeled mainly via social media [25,27]. For example, some people believe that the COVID-19 virus is being purposefully manufactured and spread as a bioweapon; others have been persuaded that the virus is targeted against Islamic nations, that the COVID-19 vaccine is designed to implant people with microchips in order to gain control over them, or that the vaccine could cause infertility, restricting the growth of the human population [28–30]. These conspiracy beliefs can pose serious threats to public health, as they are positively correlated with people's reluctance to comply with protective measures taken by authorities [7,31].

One of the most common conspiracy theories, both in the COVID-19-related context and in other health-related crises, concerns vaccines and vaccination. Although vaccination is one of the most effective public health measures [32], vaccine criticism [33] or even an anti-vaccination movement [34] represent an issue that many countries across the globe face well into the 21st century. As emphasized by Jolley and Douglas [19], the anti-vaccine conspiracy movement is built around the argument that big pharmaceutical companies and governments conceal information about vaccine efficacy in order to pursue their own dishonest goals. Additionally, given the emergence of a postmodern paradigm of healthcare, where the power tends to be transferred from doctors to patients, and the unprecedented development of the online environment, the very legitimacy of science and the concept of expertise are being called into question, opening a discursive space in which anti-vaccine activists can exert their influence [34].

As previously mentioned, different factors might provide explanations for people's tendencies to believe in conspiracy theories and to act based on these beliefs. One of these predictors is individuals' thinking dispositions [35–37]. For example, it has been empirically demonstrated that conspiracy beliefs negatively correlate with analytic thinking, with open-mindedness, with the need for cognition [37] (p. 574), or with critical thinking. In fact, critical thinking, understood as the "reasonable reflective thinking that is focused on deciding what to believe or do" [38] (p. 46), is paramount in the case of conspiracy theories. These usually rely on ambiguity [39] and on "a series of fallacious arguments" [40] (p. 7); therefore, it is essential to discern truth from falsehood and exaggeration from mere, plausible facts. As Blair (2012) [41] or Lantian et al. (2020) [40] demonstrated, individuals who score highly in their critical thinking abilities are less inclined to believe conspiracy theories. They are more capable of critically examining information they come across and of accurately assessing the reliability and the credibility of sources. In the COVID-19 context, critical thinking is advanced by Grimes (2020) [42] as a possible solution for countering the flood of health disinformation—among which are vaccine and vaccination-related conspiracy theories—that has polluted the media ecosystem. In line with this reasoning, we posit that:

Hypothesis 1 (H1). *People with a lower disposition towards critical thinking are more prone to believe in conspiracy theories about vaccines and vaccination.*

Nowadays, digital media platforms have outpaced print and broadcast as sources of news [43]. This dramatic change in people's media diet raises mixed reactions. While some scholars praise the equality in information access, production, and dissemination [44] made possible by the advent of these platforms, others point out that the lack of gatekeepers, of objectivity and balance or the insufficient use of fact-checkers [45] transform them into a fertile ground for the uncontrolled spread of false content [46,47]. Additionally, within their social media networks, individuals tend to consume and disseminate ideas and information with which they already agree, without or barely taking into consideration alternative opinions [48,49]. As many scholars have already pointed out, social media plays an essential role in the dissemination of conspiracy theories [50,51]. This phenomenon is also replicated in case of the current COVID-19 pandemic, where most

of the conspiracy theories were first generated and disseminated on social media [52,53]. There is also strong evidence that supports a correlation between social media use and beliefs in conspiracy theories [23,51,54], and more specifically, between social media use and beliefs in vaccine and vaccination-related conspiracy theories [34]. A large amount of research [27,30,55] has already demonstrated that shows people who use social media as news or information sources are more prone to believe in COVID-19-related conspiracy theories, including vaccine and vaccination-related conspiracy theories. Against this backdrop, we suggest that:

Hypothesis 2 (H2). *People who believe that SNS are more useful for keeping them updated with any type of information are more prone to believe in conspiracy theories about vaccines and vaccination.*

As previously mentioned, the outbreak of the current pandemic was associated with a flood of disinformation, mainly spread online. Mitchell and Oliphant (2020) [56] showed that almost half of Americans declared they have been exposed to coronavirus-related misleading information (often referred to as "fake news"); nearly two-thirds reported encountering it on a daily basis, which might be problematic, given that repeated exposure can lead to an increased belief in fake news [57]. Similarly, a survey by Ofcom in the UK found that almost half of the population reported exposure to coronavirus-related fake news [58]. Previous studies have already linked fake news and conspiracy theories [59–61]. As suggested by Faragó et al. (2019) [62], conspiracy mentality, or "a political worldview consisting of general feelings of distrust or paranoia toward government services and institutions, feelings of political powerlessness and cynicism, and a general defiance of authority" [63] (p. 194) predicts the higher acceptance of political fake news. Halpern et al. (2020) [61] also showed that a conspiracy mentality, including vaccine-related conspiracy beliefs, is positively correlated with exposure to fake news, while Landrum and Olshansky (2019) [63] empirically demonstrated that conspiracy mentality predicts the rejection of science (thus opening room to beliefs such as the idea that vaccines are unsafe and can cause different health disorders). In line with this reasoning, here, we state that:

Hypothesis 3 (H3). *People who perceive a higher incidence of fake news related to COVID-19 vaccination are more prone to believe in conspiracy theories about vaccines and vaccination.*

In times of health crisis, people tend to consume an increasing amount of news and more frequently [64], in order to find out about possible assessments of risks and solutions to the situation. In what specifically concerns the COVID-19 crisis, different studies [30,65,66] provide empirical support for an increased popularity of mainstream media, including television and newspapers, as sources of information. Additionally, these researchers have found a strong correlation between the use of different information sources and COVID-19 beliefs. For example, the accurate perception about the gravity of the virus was higher among individuals that used and trusted official government websites; those who relied more on other sources, among which is online media, tended to downplay the importance of the outbreak or to believe false claims about the virus and its treatment [65,67,68]. Furthermore, as different authors have already demonstrated, the online environment was a major source of disinformation in general and of conspiracy theories in particular during the current pandemic [69–71]. Many of these conspiracy narratives have been built around the COVID-19 vaccine and vaccination [7,23]. This is not surprising, since the internet is a major source of vaccine and vaccination-related conspiracy theories [34,72–74] that can flourish during outbreaks and normal periods as well. Associated "with mistaken fears about the nature or effects of vaccination" [7] (p. 2), COVID-19-vaccine-related conspiracy beliefs tend to minimize the threat posed by the virus or to advance alternative ways of facing it. What is more important is that they can cause real harm, since they are positively associated with vaccine hesitancy. Against this backdrop, here, we posit that:

Hypothesis 4 (H4). *People who consume more COVID-19 related news from online sources (websites, SNS, and IM platforms) are more prone to believe in conspiracy theories about vaccines and vaccination.*

A relatively large body of studies has investigated the relevance of age as a possible predictor for conspiracy beliefs, and particularly for vaccine and vaccination-related conspiracy beliefs, with mixed results. For example, Thornburn and Bogart (2005) [75] or Ross, Essien, and Torres (2006) [76] did not find a significant correlation between age, conspiracy beliefs, and subsequent behavior. Nonetheless, other studies emphasized that age does predict conspiracy beliefs; more precisely, young people are more inclined to embrace such beliefs [77,78]. Recent studies investigating COVID-19-related conspiracy beliefs [7,27] provide empirical support for this finding. In fact, younger individuals, who tend to feel politically powerless (Romer and Jamieson, 2020) [7] and tend to develop less resilience to misinformation than older generations (De Coninck et al., 2021) [68], were more prone to believe COVID-19-related conspiracy theories, including vaccine-related conspiracy theories. Additionally, when compared with older generations, young people tend to consume slightly more social media [79] which, as previously shown, is more prone to disseminate conspiracy theories, including vaccine and vaccination-related conspiracy theories. This hypothesis is supported by Allington et al.'s study (2020) [27]. They showed that, among demographic variables, age was most strongly associated with vaccine hesitancy. In line with this reasoning, here, we state that:

Hypothesis 5 (H5). *Younger people are more prone to believe in conspiracy theories about vaccines and vaccination.*

Education is consistently reported as an important socio-demographic predictor in the case of conspiracy beliefs [80,81] and of vaccine and vaccination-related conspiracy beliefs in particular [82,83]. In general, the more educated individuals are, the less they tend to embrace conspiracy theories. As van Prooijen (2017) [81] accurately explains, high education leads to cognitive sophistication, to the feeling of control over a (distressing) situation, and to a privileged socio-economic status, which in turn decreases the probability to embrace conspiracy beliefs. Education is also strongly associated with critical thinking, already discussed here, and with skepticism [40,84], which negatively correlate with conspiracy beliefs. Nevertheless, it is worth mentioning that, given the complexity of the current media landscape, and particularly of health topics, educational background might not be able to protect individuals against conspiracy messages [82]. In what specifically concerns the current pandemic, different studies [7,27] have found a negative correlation between education and COVID-19-conspiracy beliefs, including vaccine and vaccination-related conspiracy beliefs. Furthermore, Arshad et al. (2021) [85] also demonstrated that education is negatively associated with conspiracy theories regarding the COVID-19 vaccine and vaccination. Following this line of reasoning, here, we advance hypothesize that:

Hypothesis 6 (H6). *More educated people are less prone to believe in conspiracy theories about vaccines and vaccination.*

Religion type and religiosity are other factors that might be associated with conspiracy beliefs in general [86–88] and with vaccine-related conspiracy beliefs in particular [71,88]. As shown by Robertson and Dyrendal (2018) [89], higher religiosity can positively correlate with greater conspiracy beliefs, given that religion and conspiracy theories have aspects in common such as esotericism, millennialism, and prophecy. Hart and Graether (2018) [90] also demonstrated that individuals who believe in conspiracy theories have the tendency to be more religious. The association between religiosity, understood as "the depth of faith in religion" [86] (p. 6), and conspiracy beliefs is partly mediated by anti-intellectualism [87]. In fact, individuals who embrace a religious worldview tend to consider that "faith is superior to reason and that scientific inquiry will lead to the invalidation of religious

beliefs" [87] (p. 1050). In the case of vaccines and vaccination, this perspective might have serious consequences, invalidating epidemiologists' and authorities' efforts to eradicate severe diseases. In what specifically concerns the current pandemic, different studies have shown that religiosity correlates with COVID-19 conspiracy beliefs [86] or with vaccination hesitancy [91,92]. Based on this, we suggest that:

Hypothesis 7 (H7). *People who exhibit higher levels of religiosity are more prone to believe in conspiracy theories about vaccines and vaccination.*

3. Materials and Methods

In order to analyze the variables predicting belief in conspiracy theories about COVID-19 vaccines, we conducted a national survey using an online panel (N = 945), representative of the population of Romania that has access to the internet and is aged 18 or higher, using quotas for gender, age, and geographical region. The main characteristics of the sample were the following: the mean age was 43.11 years (SD = 13.08); the sample consisted of 50.6% women and 49.4% men; the sample consisted of 47.3% people with low education (people who completed any of the ISCED 0 to ISCED 3 education levels), 13% people with medium education (people who completed the ISCED 4 education level), and 39.7% people with high education (people who completed any of the ISCED 5 to ISCED 8 education levels); people living in urban areas accounted for 81.9% of the sample. The national survey was conducted by Daedalus New Media Research (part of Kantar Romania) and the data were collected during 1–9 April 2021.

4. Measures

To measure *belief in conspiracy theories about vaccines/vaccination*, we used a 7-point Likert scale with seven items, ranging from 1 (believe to be completely false) to 7 (believe to be completely true). Given the high proliferation of conspiracy theories about vaccines and vaccination within the current media environment [93], we asked respondents to judge seven statements related to prominent narratives that were spread in the media during the COVID-19 pandemic claiming that the vaccination of children is dangerous and is kept secret, that the link between vaccines and autism is kept secret, that people are being fooled about the effectiveness and the safety of vaccines, that data on vaccine safety and effectiveness are often fabricated, and that pharmaceutical companies hide the dangers of vaccines. The items were loaded on one factor, with loadings ranging from 0.818 to 0.892 (α = 0.939, M = 3.68, SD = 1.76).

Age was measured in years old (M = 43.11, SD = 13.08).

To measure *education*, we used an 8-point ordinal scale from 1 (*no education at all*) to 8 (*graduate studies*) (M = 5.92, SD = 1.28).

To measure *religiosity* (the frequency of going to church component), we asked participants about the frequency of going to church on a 7-point Likert scale ranging from 1 (*daily*) to 7 (*never or almost never*) (M = 4.91, SD = 1.30). We used this particular type of measurement in order to better cover the behavioral component of religiosity rather than self-perceived religiosity because the frequency of going to the church might, in some cases, show a stronger commitment to religious beliefs.

To measure *critical thinking disposition* (the reflective skepticism component), we used a 7-point Likert scale with four items, ranging from 1 (*very unlikely*) to 7 (*very likely*). The scale was adapted from Sosu (2013) [94]; we asked respondents to assess whether the following statements were applicable to them: "I often re-evaluate my experiences so that I can learn from them", "I usually check the credibility of the source of information before making judgements", "I usually think about the wider implications of a decision before taking action", and "I often think about my actions to see whether I could improve them". The items were loaded on one factor, with loadings ranging from 0.830 to 0.892 (α = 0.882, M = 5.61, SD = 1.22).

To measure *perceived usefulness of SNS* (mainly for information-related purposes), we used a 7-point Likert scale with three items, ranging from 1 (*to a very little extent*) to 7 (*to a very great extent*). The scale was adapted from Lee and Choi (2018) [95]; we asked respondents to judge the extent to which the following statements they considered correct for them: "I usually take information through SNS", "I utilize information gained from SNS", "I immediately update information received from SNS". The items were loaded on one factor, with loadings ranging from 0.903 to 0.922 (α = 0.895, M = 3.83, SD = 1.71).

To measure *perceived incidence of fake news about COVID-19 vaccines/vaccination*, we asked respondents to estimate the percentage of COVID-19-vaccine-related news (out of the total percent of news) they believe to be counterfeit or even false (M = 50.21, SD = 26.01).

To measure *frequency of COVID-19 news consumption from websites, SNS, and IM apps*, we used three items, rated on a scale ranging from 0 (*no consumption at all*) to 7 (*every day consumption*); the scale was used in other studies [96] and it approximated the number of days in the previous week that people consumed COVID-19-related news from websites (other than official websites and social networking sites), SNS (such as Facebook, Instagram, Twitter, etc.), and IM apps (such as WhatsApp, Facebook messenger, etc.). The items were loaded on one factor, with loadings ranging from 0.835 to 0.880 (α = 0.819, M = 2.49, SD = 2.21).

5. Results

In order to construct a profile of the believer in conspiracy theories about vaccines/vaccination, we ran a hierarchical OLS regression model (see Table 1).

Table 1. OLS regression model predicting belief in conspiracy theories about COVID-19 vaccines.

	B	SE	B
Block 1			
(Constant)	3.344	0.507	
Age [a]	0.005	0.004	**0.034**
Education [b]	−0.230	0.045	**−0.167** ***
Frequency of going to the church (religiosity) [c]	−0.109	0.042	**0.081** **
Adj R^2	**0.036**		
Block 2			
Critical thinking disposition [d]	0.077	0.045	**0.053**
Perceived usefulness of SNS [e]	0.137	0.034	**0.132** ***
Perceived incidence of fake news about COVID-19 vaccines/ vaccination [f]	0.022	0.002	**0.326** ***
Frequency of COVID-19 news consumption from websites, SNS, and IM apps [g]	−0.012	0.026	**−0.015**
Adj R^2	**0.157**		

The reported β weights are final β weights. ** $p < 0.01$, *** $p < 0.001$. [a] Continuous variable (in years). [b] Coded from 1 = low to 8 = high. [c] Coded from 1 = low to 7 = high. [d] Coded from 1 = low to 7 = high. [e] Coded from 1 = low to 7 = high. [f] Continuous thermometer variable (from 0% to 100%). [g] Coded from 1 = low to 7 = high.

On a general level, we found that people's perceptions about the incidence of fake news on COVID-19 topics, the usefulness of SNS, along with education and religiosity are significant predictors of belief in conspiracy theories, while the frequency of COVID-19 news consumption from websites, SNS, and IM apps, critical thinking disposition, and age do not play a significant role in the profile of the believer in such narratives.

Specifically, the results show that critical thinking disposition is not a significant predictor of belief in conspiracy theories about vaccines and vaccination; thus, H1 cannot be supported. The results show there is not a significant correlation between people's disposition towards critical thinking and their tendency to believe in COVID-19-related conspiracy theories.

On the other hand, those people who more strongly believe that SNS are useful for being updated with any type of information are more prone to believe in conspiracy theories about vaccines and vaccination, supporting H2. In line with other research studies [31],

these results show that people using social media platforms to obtain information related to COVID-19 topics are more likely to believe in conspiracy theories about the disease.

Furthermore, people who perceive a higher incidence of fake news related to COVID-19 vaccination are more prone to believe in conspiracy theories about vaccines and vaccination, supporting our third hypothesis.

In terms of the COVID-19-related frequency of news consumption from online sources (i.e., general websites other than the official ones, social networking sites, and instant messaging apps), the results are not significant, thus invalidating our fourth hypothesis. This is relatively surprising since we expected a higher frequency of news consumption from such online sources to be associated with a higher tendency to believe in conspiracy theories about vaccines/vaccination.

As far as age is concerned, the results from our study are not significant (H5 was invalidated); age is not a significant predictor of belief in conspiracy theories, even though there are studies confirming that younger people are more prone to believe conspiracy narratives [11].

In terms of education, the results confirm that less-educated people are more prone to believe in conspiracy theories about vaccines and vaccination, thus offering support for H6. This result confirms prior studies [81] suggesting that people with high levels of education are less likely to believe in conspiracy theories than people with low levels of education, with this relationship being "the result of the complex interplay of multiple psychological factors that are associated with education" [81] (p. 50).

Furthermore, the results show that people who frequently go to church (i.e., people with higher levels of religiosity) are more prone to believe in conspiracy theories about vaccines and vaccination, supporting our H7.

6. Discussion and Conclusions

Fighting and overcoming the current pandemic has become one of the most difficult issues of public concern, especially in countries such as Romania, where vaccination and mass immunization rates are discouragingly low at the moment, despite the fourth pandemic wave we have just entered [97]. The widespread acceptance of a vaccine against COVID-19 is essential both for self-protection and the protection of others, but appears to be hindered by various factors, among which conspiratorial claims and narratives play a key role [7,98]. These narratives have become increasingly popular since COVID-19-related (online) news consumption has increased dramatically, as a natural consequence of people's interest in this completely new and unexpected respiratory disease caused by SARS-CoV-2. Against this background, our study aimed to empirically underpin possible predictors of individuals' tendencies to embrace (and eventually) circulate conspiracy narratives in order to provide a clearer image of who is more prone to believe in such misleading content about the COVID-19 pandemic in Romania.

On a general note, our results show that people's perceived usefulness of social media and perceived incidence of fake information about the virus in the media along with education and religiosity are strong predictors of Romanians' inclination to believe and further proliferate conspiracy theories related to vaccines and vaccination. At the same time, a higher frequency of news consumption from online sources (i.e., from general websites, other than official ones, from social networking sites, and instant messaging apps), critical thinking disposition, and age are not significant predictors of belief in conspiracy theories. Further, we explore possible explanations for each of these empirical findings and offer useful recommendations aimed at stimulating better public responses to the ongoing crisis in Romania.

The results from this study do not show a significant correlation between people's disposition towards critical/analytic thinking and their tendency to believe in conspiracies related to the COVID-19 context. Therefore, our first hypothesis was not validated. Nevertheless, we believe that analytic thinking is an important means to counter the widespread acceptance of conspiracy theories [6,37,42], as education proved to play an important role.

In other words, we suggest that in order to successfully navigate conspiracies, misleading news, and other information disorders, one needs a complete set of skills and knowledge to critically evaluate digital content of varied types. By developing and practicing deliberation and contemplation, by stopping/pausing to critically evaluate new information before amplifying, appreciating, or sharing it, and by engaging in fact-checking, etc., people's vulnerability to misinformation could be significantly reduced.

Nevertheless, main findings show that higher use of SNS for people to keep abreast of what is happening in the world (H2) and a higher perceived incidence of fake news related to COVID-19 (H3) are strongly associated with a higher tendency to believe in conspiracy theories about vaccines/vaccination. In line with previous research [31,34], our results support the idea that people who use social media platforms to learn about the coronavirus-related topics are more likely to give credit to conspiratorial content about the disease and its wider implications. However, this is not so surprising in at least two respects: (1) information circulating on social media has been shown to have a greater potential to be misleading or even false [99]; (2) when mainstream media coverage related to COVID-19 has been lacking or provided rather conflicting aspects of what people could do to limit their exposure to the infection or to help [100], social media has covered these issues either through false or true data, and social platforms have seen high growth in engagement [101].

Furthermore, as the results validating our third hypothesis show, people who perceive a higher incidence of fake news about COVID-19 vaccination are more likely to trust conspiracy theories about vaccines and vaccination. We believe this may be due to the fact that people who believe that, with regard to the pandemic, they are also exposed to a lot of disinformation may experience high levels of stress and anxiety, thus drawing on available heuristics to navigate the "infodemic" associated with the COVID-19 pandemic. In this context, we suggest taking more effective measures to reduce informational "pollution" in the digital media environment, either by imposing stricter regulations on platforms or, even more effectively, by making people aware of the dangers they may come across in the digital media arena and by supporting them to act more responsibly when engaging with any form of online content. First, people should be aware of the potential dangers in the current media environment; then, they should be encouraged to actively check information on a regular basis—i.e., to practice lateral reading [102]. Yet, in order to achieve all the above, "public institutions need to work together and with digital platforms, media professionals, fact checkers and researchers" [103].

At the same time, in contrast to what we initially hypothesized, our results do not support the claim that people who consume more COVID-19-related news from online sources such as general websites, social networking sites and instant messaging apps are more prone to believe in conspiracy theories about vaccines and vaccination (thus offering no support for H4). Although we find this result rather counterintuitive (especially since previous studies have found a positive correlation between exposure to digital media and conspiracy beliefs—see, for instance, Ali et al., 2020 [65]; De Coninck et al., 2021 [68]; Fridman et al., 2020 [67]), one possible explanation could be that people do not always make clear distinctions between the different sources of information they use to gain knowledge about COVID-19 topics, particularly since these topics have been well covered by all media. Additionally, building on findings provided by other recent research conducted in Romania [101] which show higher levels of intermedia agenda settings during the pandemic, we argue that this could explain, at least in part, the blurring of boundaries between the role played by online and offline media in COVID times.

In terms of socio-demographic data, we tested age and education as significant predictors for people's tendencies to believe in conspiracies. With respect to age, our results did not support the claim that younger people are more likely to believe conspiracy theories about vaccines and vaccination (thus invalidating H5). In contrast to similar research that provided empirical evidence for the tendency of younger people to hold conspiracy beliefs related to COVID-19 [7,27], in our study, age does not appear to play an important role in

this regard. While it would be instructive to further investigate the complex interactions between demographic factors such as age and belief in conspiracy narratives, we argue, based on our findings, that people of all ages are vulnerable to conspiracy theories; therefore, solutions against misinformation should be designed and applied to people of all ages. Media and information literacy courses might be helpful in making people more aware of conspiracy theories and of other forms of misleading/false information circulating online.

Unlike age, education seems to affect Romanians' conspiratorial beliefs about COVID-19. Specifically, as our results show, people with a low level of education are more prone to believe in such theories (H6 validated). Consistent with previous research [27,85], our study provides empirical support for the idea that the more educated citizens are, the less likely they are to embrace conspiracy narratives. This demonstrates the need to design solutions that should include education as a key factor in guiding effective responses to crisis situations of all kinds (and especially health-related ones) [103]. However, it does not mean that people's educational background alone may be able to prevent individuals from trusting conspiracy messages, particularly in today's media landscape, which is far too complex and far too abundant in health-related topics. Our point is that education, seen as a complex of factors, can help equip citizens with the tools to debunk false stories and conspiracies. As many scholars have suggested, education is linked to cognitive sophistication, skepticism, critical thinking abilities, or the sense of control over one's social environment [40,81,84], which all have the potential to raise people's attention to the dangers associated with misleading or conspiratorial information surrounding the pandemic and increase their resistance to the latter.

Finally, one last relevant result of this study (validating H7) shows that a higher frequency of church attendance is associated with a higher tendency to believe in conspiracy theories about vaccines and vaccination. This is in line with previous studies that highlight that higher levels of religiosity correlate positively with people's propensity to give credence to false claims about the virus and its treatment [71,91]. We argue that this result is of major importance given that people are usually very sensitive when it comes to their religious attitudes and behaviors. Additionally, given people's highly interactive behavior, they tend to form small, often close-knit communities around the church, which could facilitate the emergence of "offline echo chambers" (i.e., spaces where people are not often exposed to alternative opinions/ voices). These communities can prove fertile ground for the dissemination and amplification of conspiracy narratives, and recent research [104] has provided evidence regarding certain conspiracy theories circulating among church members. Furthermore, in Romania, there are many priests and clerical figures who explicitly and openly promoted vaccine skepticism and conspiracy theories [105,106]. Against this background, we argue that people should be encouraged and taught to think for themselves, get information from trusted sources, and avoid taking all the news stories circulating in their small groups for granted (whether family groups, groups of friends, religious groups, etc.). In this respect, the need to increase digital media and information literacy among citizens (mainly among the so-called "digital-natives") is extremely evident and strongly advocated for by specialized institutions and experts (e.g., the European Commission's High-Level Expert Group on Fake News and Online Disinformation). Based on our findings, we also support and argue for the need to develop strategies to deeper integrate media literacy into the existing curricula. In fact, there is a strong preoccupation across Europe for increasing media literacy among citizens (especially youths) and for developing strategies to fight false information online. Finland, for instance, topped the ranking of Europe's most media- and digital-literate country [107]. The Finnish government took the fight against online disinformation seriously and launched a scaling up project to increase media literacy and reform the national educational system to emphasize critical thinking in K-12 institutions (from kindergarten to high school). The same report [107] shows that, unlike Finland, Romania is among the countries least equipped to resist the post-truth, fake news, and their offshoots. Hence, we believe that teaching media literacy

and educating (a younger) audience to critically evaluate digital content of various kinds is a timely and extremely important effort in the increasingly complex information ecosystem.

Beyond the variables mentioned above and the interaction between them, which outline a rather personalized profile of Romanians' propensity to believe and propagate conspiracy narratives, we argue that there are other factors that could further explain and refine the results of our study. They could be related to what we call the peculiarities of the Romanian citizens and include various aspects such as those we expose below. The population's generalized distrust in authorities—i.e., in government, public institutions, and political leaders—has a long history in Romania and seems to be deepening quite a lot (for a detailed argumentation see, for instance, Radu and Dobrescu, 2019 [108]). The lack of trust in societal institutions leads, in our opinion, to more and more people disregarding both established government rules (e.g., public health directives) and established social norms (e.g., adopting socially respectful behavior, i.e., wearing a mask, keeping a safe physical distance, taking a COVID-19 vaccine, etc.). In addition to higher levels of distrust in political bodies and other public structures, Romanians appear to experience a lack of interpersonal trust among themselves, which we suggest may also provide support for the findings presented by the current research. A lack of trust in other people is also widespread, and, we believe, deeply rooted in the communist past of the country, a time when no one could trust anyone. Finally, another circumstance that may support and nuance the results of our research refers to the emergence of extreme political ideas and parties that promote a discourse with nationalistic and xenophobic overtones (see the case of the recently founded AUR Political Party, whose leaders' voices have been strongly represented in the public space, militating against mask wearing and all the other types of restrictions and protective measures aimed at keeping the population safe). Corroborated with citizens' negative perception of domestic political performance in general and the inability of political institutions to provide timely solutions to citizens' demands (especially during the current crisis), this discourse that attempts to speculate on a sense of insecurity and discontent that exists in one part of society could pave the way for a whole series of conspiracy theories related to COVID-19.

The World Health Organization and health authorities around the globe are now working closely with social media platforms to provide citizens with evidence-based information about the current pandemic and to help them understand more about the problematic times they are living in. However, the widespread distribution of factually correct COVID-19-related information is countered by a corresponding amount of conspiratorial and misleading narratives targeting the same hot topic on everyone's agenda and infusing people's minds with lots of rumors, doubts, and conflicting ideas. Certainly, not all the people are equally affected by the current health misinformation and its seemingly uncontrollable virus-like spread in the new digital ecosystem. Still, as our findings show, there are many people that remain vulnerable when confronted with false and conspiracy-driven narratives about vaccines and vaccination, and their profile appears to be shaped by various factors such as the perceived usefulness of social media, the perceived incidence of fake information about the virus in the media, education, and religiosity.

As any other social sciences study, this study comes with limitations too. One important limitation is linked to the subjective way some predictor variables (e.g., critical thinking disposition and perceived incidence of fake news) used in this study were measured. Nevertheless, taking into account the main scope of this study, which is to analyze and inform the reader about the profile of the believer in conspiracy theories in the context of the COVID-19 pandemic, we believe that self-assessment variables might prove to be useful tools in unveiling people's perceptions regarding different issues in the current media environment.

Learning more about the profile of the believer in conspiracy theories is just one of the important steps that need to be taken to combat COVID-19-related disinformation and limit its complex and deeply negative impact on individuals and society. In this context, we hope that our study can help to advance evidence-based recommendations for key stakeholders

(e.g., policymakers, journalists, health professionals, researchers, teachers, etc.) who are in a position to develop or implement measures to address the dangers posed by potentially harmful information circulating as misleading narratives about COVID-19-related topics, discouraging people from complying with restrictive and protective measures.

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Article

Libraries Fight Disinformation: An Analysis of Online Practices to Help Users' Generations in Spotting Fake News

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Abstract: The work of libraries during the COVID-19 pandemic, as facilitators of reliable information on health issues, has shown that these entities can play an active role as verification agents in the fight against disinformation (false information that is intended to mislead), focusing on media and informational literacy. To help citizens, these entities have developed a wide range of actions that range from online seminars, to learning how to evaluate the quality of a source, to video tutorials or the creation of repositories with resources of various natures. To identify the most common media literacy practices in the face of fake news (news that conveys or incorporates false, fabricated, or deliberately misleading information), this exploratory study designed an ad hoc analysis sheet, validated by the inter-judge method, which allowed one to classify the practices of N = 216 libraries from all over the world. The results reveal that the libraries most involved in this task are those belonging to public universities. Among the actions carried out to counteract misinformation, open-access materials that favor self-learning stand out. These resources, aimed primarily at university students and adults in general, are aimed at acquiring skills related to fact-checking and critical thinking. Therefore, libraries vindicate their role as components of the literacy triad, together with professors and communication professionals.

Keywords: libraries; librarians; disinformation; fake news; literacy practices; open-access resources

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1. Introduction

The relevance of libraries as allies against fake news has been evidenced, unfortunately, amid the pandemic caused by COVID-19. In this period, they have provided their support to citizens in their queries about numerous of hoaxes, rumors, and suspicious contents that they received or found through their devices when they were connected. However, this role is not new; in the fight against information disorders ('misinformation', 'disinformation', and 'malinformation'), libraries have assumed a leadership role for years by creating great variety of materials, tools, and resources for those users [1], from the smallest children, to young university students, to adults, so that they can critically face any type of content (disinformative, pseudohistorical, and pseudoscientific) and learn to evaluate it before giving it credibility.

For researchers, this is a natural role; the libraries of the XXI century must educate and help users to become critical and intelligent consumers and producers of information and defend the importance of the veracity and reliability of the information [2] that librarians provide; together with teachers and journalists, they constitute "the Triad of Truth-Workers" [3]. In this sense, librarians feel competent to guide users in the face of fake news [1] because they are concerned about the phenomenon of disinformation and other related challenges, such as an overproduction of digital content—which is unattainable—that they should deal with; bots that mimic academic writing and are capable of creating seemingly scientific documents; the proliferation of databases with predatory journals; or the use of unreliable sources in academic papers, among other threats [2,4]. Furthermore,

we cannot forget that prestige is at stake, since "the way libraries classify materials related to the past, that is, history, fiction, beliefs, counterfactual narratives, etc., has an impact on the credibility and legitimacy of what has been classified" [5] (p. 960).

In this context, and taking into account the perception that users have of the service provided by libraries—approximately eight out of ten adults consider that public libraries help them to find reliable information, to learn new things, to obtain information and to take decisions [6]—the scientific community proposes to raise the information literacy skills of librarians to a completely new level [7], to produce professional trained and dedicated staff to meeting the needs of information users [8]. The most recent initiatives include the updating of the syllabus of the public examinations for library staff stands out, to incorporate the fake news topic, with the aim of covering the knowledge and skills necessary for the professional profiles that currently manage and energize libraries [9]; the creation of a model to automate the evaluation of digital content that librarians classify [4]; the claim of librarians as influencers [10]; and the repositioning of the profession in the public sphere through the reinforcement of librarians' professional identity, as experts, so that they form part of the circle where the fight against disinformation is discussed [1]. Having acquired this role as members of mediating institutions [11], librarians must work on designing practices that allow people to develop skills so that they themselves can identify false information [12], critically evaluate sources, and find sources of reliable and authoritative information [13].

This research aims to find out, in an exploratory way, what the practices are (videos, tools, resources, materials, events, etc.) that librarians make available to citizens to help them deal with misinformation. For this reason, this article examines the repositories of 216 libraries of different characteristics. The results point to a wide range of checklists, video tutorials, guidelines, workshops, etc. Regarding the content of these resources, it is also diverse; while some place emphasis on activities that promote critical thinking, others do so on those that allow the acquisition of skills and abilities proper to verification.

2. Literature Review

2.1. Libraries' Authority to Face Disinformation

There are a great many libraries in the world: 320,000 public libraries and more than one million parliamentary, national, university, scientific and research, school, and special libraries. They all ensure that the information and knowledge to use information are available to all, making them fundamental institutions in the digital age [14]. However, according to Bridget Forster, a library teacher at Strathcona Girls' Grammar School in Melbourne's eastern inner suburbs, libraries' relevance will depend on their ability to upgrade and modernize [13]. For the teacher, the increase in disinformation on the Internet and the accentuated use of social networks to be informed show the necessary intervention of libraries to teach students to critically evaluate content. In the case of university libraries, the researchers also claim to reflect on the role of the librarian in relation to fake news and its relationship with ALFIN (media literacy) and the training of users [15]. At Forster's school, where the teacher-librarian professional category exists, they are training students against disinformation: "We're equipping students to be discerning consumers of information and that entails not only being able to identify fake news and the like, but also knowing where to go to find reliable, authoritative sources of information" [13]. In university libraries, they try to do the same, even in a timid way [16].

This enormous challenge posed by disinformation for librarians, which has opened the debate on expanding the concept of Media Literacy and its methodological application [16], has become clear during the health crisis caused by COVID-19, due to its proven capacity to act as an intermediary between users and access to reliable information: from raising awareness, teaching how to search for information, filtering false information, supporting researchers and teachers, providing consultation services or sending documents, to solving doubts about questionable content or pseudoscientific content. On the other hand, the confinement of the population in their homes, also motivated by the health situation,

exponentially increased user access to electronic resources related to health [17], which in turn shows that innovation and permanent modernization in libraries has made it possible to offer quality information when it is most needed (hence its relevance). All this invites, therefore, one to promote more open-access projects [15] and to rethink the provision of new services and pedagogical actions to train the different agents in the new context of digital information [16].

2.2. Anti-Misinformation Practices

In the era of "factual recession" [3], libraries, as social services integrated in plural communities, must propose collaborative actions to help people develop the capacity to use information effectively and preserve information to guarantee permanent access for future generations, as set out in Goal 16 of the 17 Sustainable Development Goals (SDG), of the new United Nations 2030 Agenda [18]. In addition, this goal says that librarians are committed to promoting literacy-related skills in the use of data to ensure that they are used and interpreted correctly; generate strict standards on information ethics; guaranteeing digital inclusion through access to ICT, with the help of specialized personnel to promote new digital capabilities in its user community; and taking charge of processing, preserving, and making available information acquisition procedures that users need, among other responsibilities.

In recent years, there have been numerous libraries that, in addition to providing proven and reliable information, have tried to respond to these demands by building websites and guides to help both the general and specialized public to recognize fake news, beyond its function as a mere facilitator of bibliographic tools. Moreover, they have encouraged students to work more in the research and evaluation process. However, there is still a need to develop programs to help community members detect fake news (such as false or misleading statements, videos, or images displayed out of the proper context; questionable statistics; manipulated content; partisan propaganda; or satire) and evaluate information online [17]. This last practice is where the experts place the greatest emphasis because, when teaching information literacy, librarians must focus on something more than the reliability of the editor or author of the news; the reliability of the news sources used by the author also must be evaluated [19]. It is necessary to develop a strategy that affects an evaluation of the source based on authority; librarians must promote critical thinking by making use of educational tools and actions aimed at information literacy to discern what information may be true or false [20]. For all the above, first, it is important to analyze the tangible practices of libraries, discuss their efficiency, and provide a categorization of those practices [21].

To date, libraries have included among their training proposals sessions on the use of electronic resources aimed at developing skills and abilities to respond to the informational needs of users [22]. For example, the library staff has produced updated material in multiple formats and has focused on the importance of the verification of information and the use of sources, for the responsible and committed consumption of information by users. These initiatives are complemented by the European Higher Education Area with the training of students in transversal skills related to information management. However, it is up to libraries to lead strategies that exercise a continuous evaluation of the quality of the information [18].

The most recent research [10] includes some proposals with the aim of reducing the effect of fake news and protecting the veracity of information: permanent collaboration from childhood, in schools, to awaken critical thinking from an early age, for the youngest to question, reason, and discuss approaches and sources and distinguish between quality and truthful information and doubtful or partially or totally false information; training to learn to distinguish sources and citations; promotion of media literacy to recognize misleading elements not only in texts but in all information records, such as photographs, videos, and infographics, among other formats; and transmitting and sharing with the user the knowledge and techniques that the librarian has developed to identify authority over

content (this is the prestige and recognition of the source), as well as learning to find out the purpose of the information (political, economic, propaganda, etc.).

3. Method and Materials

The general objective of this research, which is of an exploratory nature, is to know the role of libraries as mediators in the fight against disinformation, through the observation of the websites in which they host practices (events, training, guides, resources, contents, etc.) to assist users in this task. To achieve this goal, the following research questions were posed:

RQ1: What kinds of libraries have practices to help users deal with disinformation?

RQ2: What are the practices undertaken by libraries to help patrons deal with disinformation?

RQ3: Who owns the authorship or intellectual property of the practices that libraries make available to users to help them deal with misinformation?

RQ4: What user profile is the recipient of the practices that libraries make available in their web spaces to combat disinformation?

RQ5: Who is the mediator between the practices offered by the library to combat disinformation and the user who receives them?

RQ6: What skills favor the practices that libraries make available to users to deal with misinformation?

3.1. Procedure

To answer the research questions, a content analysis sheet was designed. The categories of this instrument were defined in the code book. These categories were divided into two large groups: firstly, those related to the contents of the library's website—date of publication, authorship, target, initiative, mediator, action, competences, and link to the action—and, secondly, those corresponding to the type of library—name of the library, type of ownership, and country.

To verify the reliability of the instrument, first a pilot was carried out with experts in the field: researchers, documentalists from private university libraries, coordinators of a network of public libraries, and school librarians, who were given the analysis sheet together with the coding book and told how to observe the website. Five selection criteria were considered [23]: independence, professional solvency, research activity, geographic diversity, and level of responsibility. These responses were collected in the statistical software STATA in which the Kappa coefficient of Fleiss (1971) [24] was applied to know the robustness of the instrument. This statistic yielded a significant degree of inter-judge agreement [25,26] and was of significance (alpha) with a p value of 0 (<0.05). Finally, two researchers were involved in the process of coding the content of 216 libraries.

3.2. Sample Selection

To locate disinformation treatment practices on library websites, a random sample of websites was carried out by searching for keywords (always using the same nomenclature, in different languages) and using the same search engine [25]. The search for these practices and their categorization was carried out during June 2021.

4. Results

The statistical results, which are of a descriptive nature, allow us to describe the state of the art about this research through the calculation of relative frequency (fi). In total, the study sample is made up of N = 216 libraries geographically distributed in countries such as Argentine (1%), Australia (1%) Canada (5%), France (20%), Ireland (2%), Italy (8%), Netherlands (2%), Spain (8%), United Kingdom (8%), United States (42%), Qatar, New Zealand, and Costa Rica, whose practices against disinformation originated in 2017 (8%) and continued thereafter in 2018 (6%), 2019 (4%), 2020 (8%), and 2021 (8%); the majority—65%—do not have a specific date (undated). The fact that we find the first ones from 2017

is justified in that it was that year when the term fake news was used the most, which is why the prestigious Oxford Dictionary designated it as word of the year. Previously, in 2016, post-truth had been the chosen word and, already then, there was talk of the need to combat hoaxes.

Regarding libraries that have resources to help users deal with misinformation (RQ1), we find different types of ownership (Figure 1), with public university libraries (56%) being the most active in this regard, among which we find names such as "Penn State University Libraries" (United States) or the "University of Amsterdam Library" (Netherlands). In second place are the public libraries (24%) such as "Biblioteca Pública de Navarra" (Spain) or "La bibliothèque publique d'Information (Center Pompidou)" (France). Behind these, there are also the private university libraries (9%); this is the case of the "High Point University Library" (United States) or the "Bodleian Libraries Oxford University (United Kingdom), while libraries constituted as a non-governmental association represent 6% of the sample, such as the "American Libraries Association" (United States) or "Biblioteca de Caudete" (Spain). The public libraries association (3%) includes the "Network of municipal libraries of Seville" (Spain) and, finally, the digital libraries (1%), including the "Network of municipal libraries of Barcelona (Virtual Library)" and the "School Library Association" (United Kingdom), represent the most minority models.

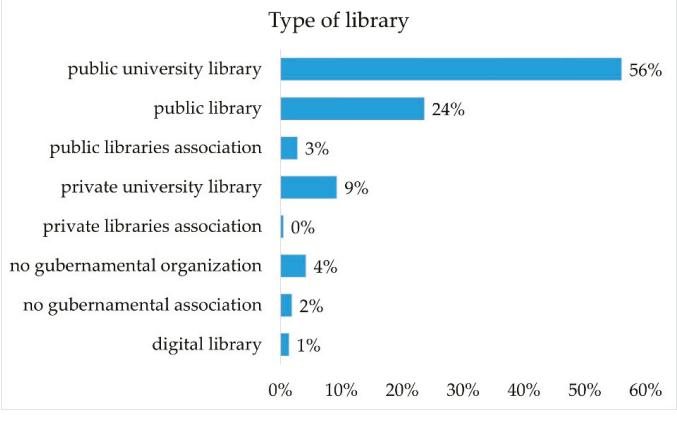

Figure 1. Type of library. Source: prepared by the authors.

Eighty-six percent of the practices are an initiative of the library itself; 7% are in cooperation with a public entity/institution; 3% are in cooperation with a media communication; 1% are in cooperation with a private institution; and the remaining 3% represent public and private institutional cooperation.

These libraries stand out for their work in helping users cope with disinformation (RQ2). Among the most common practices, we find a model that is repeated, as can be seen in Figure 2: 56% of libraries have a kind of open-access container on their web pages, with very varied resources, including audiovisual materials (videos, audios, interactive, and quizzes), guidelines (guidelines to identify informational disorders, on how to evaluate the credibility of a source, learn about concepts related to the phenomenon of misinformation, etc.), links (to web pages reference), reports (on the state of the art, such as what is post-truth, what is fake news, what we face, and how vulnerable users are), and bibliographies (catalogs of topics with the latest scientific publications and information that explain the phenomenon of disinformation).

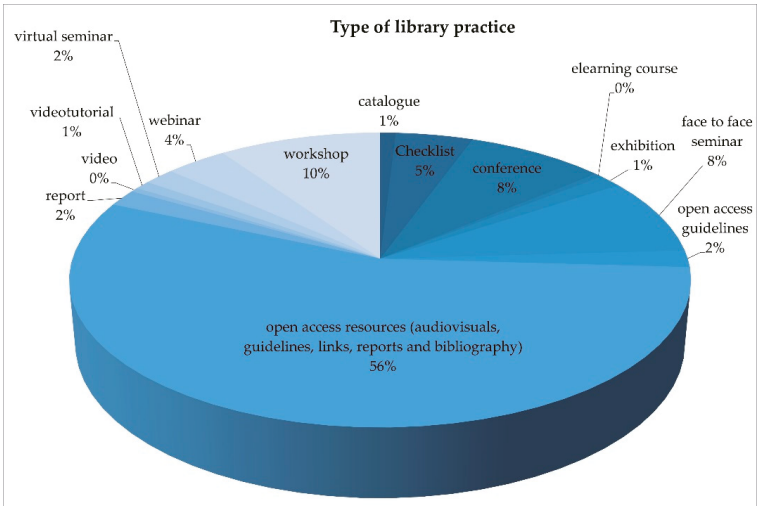

Figure 2. Type of library practice. Source: prepared by the authors.

To classify these practices, their titles were also considered. Some examples are listed in Table 1:

Table 1. Libraries' practice name.

Library	Type of Library Practice	Practice Name
Houston Community College Libraries Maastricht University Library Library of London South Bank University	catalogue	Fake News: Ebooks
	checklist	Tips and tricks for dealing with fake news
	conference	This Is Not A Fake Conference
University of Michigan LibrariesLa bibliothèque publique d'Information (Centre Pompidou)	eLearning course	Fake News, Lies, and Propaganda: The Class
	exhibition	Exposition "Fake news: art, fiction, mensonge"
Biblioteca Universitá di Bolonia Biblioteca regional de Murcia Vancouver Public Library House of Lords Library UK Parliament	face to face seminar	Incontro: Il labirinto delle fake news. Come trovare un altro filo d'Arianna
	open-access guidelines	Reflexión. Guía de lectura para el pensamiento crítico
	open-access resources	Fake News and the Disinformation Age
	report	Research Briefing Fake news
Biblioteca di Marghera Casa di quartiere Bibliothèque Université Toulouse III Paul Sabatier	video	Come individuare le fake news e limitarne la diffusione in rete-1–4
	videotutorial	Fake news: le tuto de la BU
Lake Forest Library	virtual seminar	Fake news and fact checking: how to be a conscious
Australian Library and Information Association	webinar	The Impact of Digital Technologies: beyond fake news (webinar)
American Libraries Association	workshop	New Workshop—Fake News, Real Concerns: Developing Information Literate Students

Source: prepared by the authors.

These contents (RQ3) are presented under different formulas; half (50%) genuinely belong to the library (many of them include the librarian's signature). An example of this is checklists such as the CRAAP test, created by Sarah Blakeslee (University of Chico Library,

California, 2004); the TRAAP-Source Evaluation, created by Caitlin Stewart (Library of Washington, 2020); the SIFT-Source Evaluation, a four-step method to quickly ascertain the accuracy of social media posts and websites by using fact-checkers' strategies of cross-referencing information, created by Carol Fisher (University of Washington Library, 2020); and the checklist of the International Federation of Library Associations and Institutions (IFLA, 2017). Other libraries (38%) include, in addition to library resources, third-party materials (this is when their own content is added or enriched with links to reference web pages, fact-checking media, prepared media literacy videos by the media, etc.). For example, some libraries embed on their websites video tutorials produced by media such as Buzfeed, CNN, Poynter, BBC, and Find the Facts, and even materials generated by institutions or organizations (such as First Draft), or others that are the result of competitive projects against disinformation (such as the European projects We Verifiy, Debunker, Co-Inform, etc.). Finally, there are those library websites that directly host third-party open-access resources (12%) or are limited to linking to reference sites.

The recipients of these practices (RQ4) are university students (55%), in line with the results obtained on the type of ownership of the library. As discussed above, more than half are public university libraries. The explanation for this may be that it is in the university stage when students need to resort to more sources to prepare their academic works or to complete their notes and, therefore, they make more intensive use of library services during this time.

The second most frequent profile for which these initiatives are designed is adult users of libraries in general (22%), which also corresponds to the fact that the second most common category of library is publicly owned, as has already been mentioned. Third, in a small percentage, 7%, it is found that librarians themselves are the target audience of libraries. This result may respond to the need expressed by researchers, in the theoretical section, to train library experts so that they can help users (Figure 3).

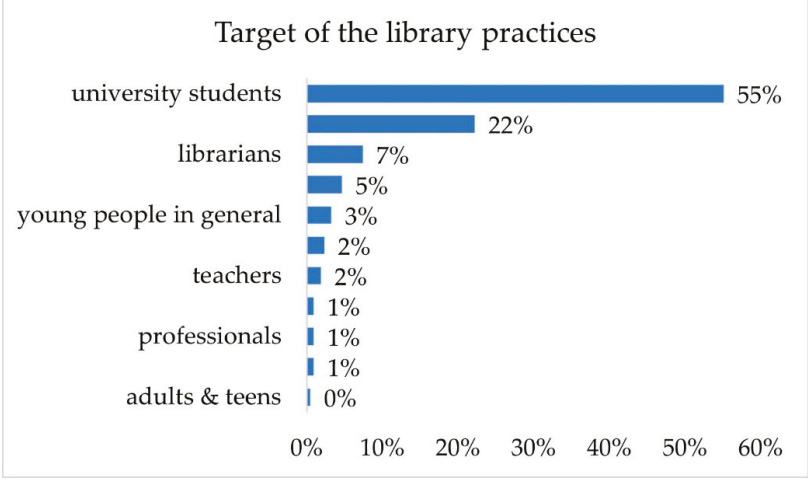

Figure 3. Type of library. Source: prepared by the authors.

Regarding the learning model that these practices favor (RQ5), it is worth highlighting self-learning above the rest of the formats (64%), which undoubtedly requires an effort on the part of the user who must navigate through these contents autonomously. The reason for this learning to be individual is that, at present, it is not compulsory training, although some institutions are beginning to include related contents among their regulated/compulsory training. On the other hand, we have become accustomed to being self-taught online. To facilitate this experience in acquiring knowledge, the resources, materials, etc., are

perfectly organized and hierarchical for on-demand learning, in such a way that the menu is designed so that each topic/exercise makes sense on its own alone, but as a whole, if you interact with everything, the user's vision is much more complete and the level of learning, therefore, is greater. As can be seen in Figure 4, the librarian also plays a fundamental role as a mediator of these activities (23%). Most of the practices offer a form to contact the librarian or, directly, their corporate contact information. This reveals, as defended in theory, the figure of closeness that these professionals represent for users.

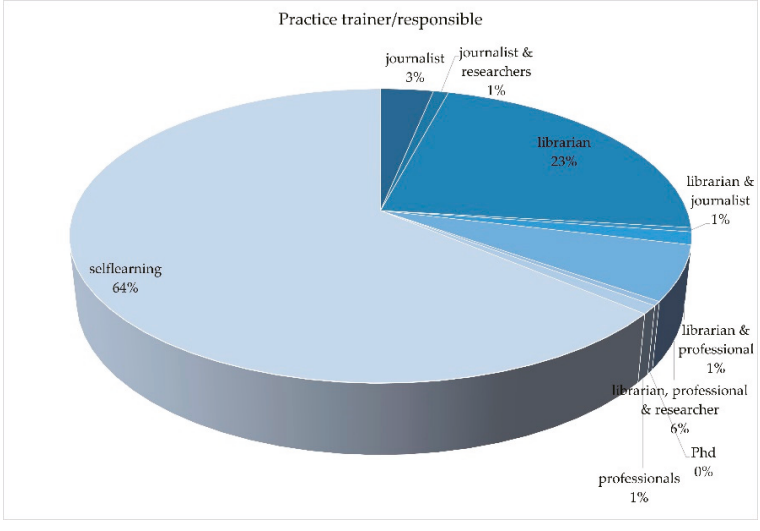

Figure 4. Libraries' practice trainer or responsible. Source: prepared by the authors.

Already to a lesser extent, an association that seems to work in the fight against disinformation is that of the popular "Triad of Truth-Workers" [3], since 6% are librarians, professor-researchers, and journalists who watch over the truth from their field of knowledge.

Finally, and taking into account the definition of competencies related to disinformation [27] (RQ6), the results obtained show that the most frequent practices offered by libraries are those that combine fact-checking skills and critical thinking (67%), followed by those specific to spot fake news (19%), as seen in Figure 5.

Among the former are, for example, exercises to learn to search for information; evaluating the credibility of sources; training the gaze through manipulated or distorted images; lateral reading to check understanding of a text and its purpose/intention; and understanding in depth the effects of misinformation. In the case of practices categorized as spot fake news, it is observed that the competences are more limited, and they focus on automating the activation of certain senses and mechanisms to learn to discern reliable content from that which tries to deceive us.

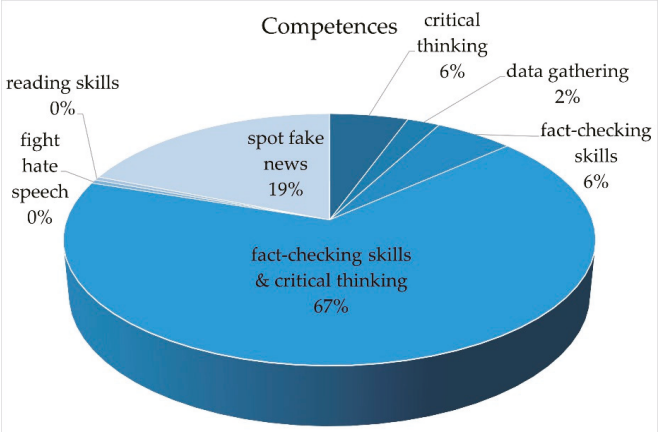

Figure 5. Competences that favor library practices. Source: prepared by the authors.

5. Discussion and Conclusions

In 2019, within the framework of the 15th International Library Congress entitled Fake News: Information and Libraries, the workshop "Libraries that fight against fake news" was held. In this context of exchange of experiences, many of the practices that this article collects, with their limitations, came to light. This exploratory research collects and describes all those ways in which librarians are developing all their creativity and knowledge to contribute to the solution of global problems such as infodemic and disinformation [28]. Thus, they will be able to enter with solvency and knowledge into the circles in which the conversation about contributions against disinformation takes place [1] because, as authors say, librarians are essential in this mission, together with teachers and journalists [3].

The skills and abilities that are activated with the use of the tools, instruments, resources, materials, activities, examples, videos, tutorials, eLearning courses, checklists, etc., provided from the libraries, are the most effective tools for learning to seek information and evaluate it according to its rigor, thus responding to the demand of the scientific community for tangible learning [21]. In fact, many of these resources are based on the practices and routines of verification professionals.

On the other hand, all this effort by libraries demonstrates a self-demand to continue being useful to citizens, and they have proven to be so; during the largest known wave of infodemic, generated because of COVID-19 [28], they have been a fundamental ally. An example of this can be found in the seminar entitled: "Incertitude, vérité, débat: on parle Fake News dans le séminaire #BiblioCovid19", organized by L'École nationale supérieure des sciences de l'information et des bibliothèques de l'Université de Lyon; in the open-resource guide prepared by the Public Library of Navarra (Spain), "COVID-19 What should we know"; in the resources provided by the American Libraries Association in the repository: "Libraries Respond: Fighting Xenophobia and Fake News in Light of COVID-19"; or in the open materials of the École nationale supérieure des Sciences de L'information et des bibliothèques de l'Université de Lyon (France) under the name: "Fake News à l'heure de la covid 19". The case of specialized health libraries that have partnered with journalism professionals to offer truthful and contrasted information on the virus or vaccines, such as the Public Health England Library, is significant.

This work also talks about the flexibility of the institutions and library staff when responding to upcoming informational phenomena born from the digital context. All this is done the sole intention of laying the foundations of a well-informed, critical, and responsible society in the consumption and creation of information. In this sense, libraries have another challenge, such as facing the unaffordable production of digital documents that will affect their work routines because it will be increasingly difficult to decide, due

to their quality, which sources are most reliable. Accordingly, libraries may need to incorporate verifying journalists among their professionals to work in cooperation with librarians, archivists, and documentation specialists in the future.

Just as in Spain there is the Instituto Salud Sin Bulos, through which medical professionals report, together with information professionals, about rumors, hoaxes, myths, and fake news related to health, work for which they have received training from fact-checkers, librarians could constitute a reference group to disseminate keys that help public opinion to function in a more informatively complex world.

Finally, future studies should approach the users of libraries to really measure the effectiveness of the practices analyzed in this work [21], asking them directly about their perceived self-competence before and after using the resources provided by these institutions.

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Article

Fake News and the "Wild Wide Web": A Study of Elementary Students' Reliability Reasoning

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Abstract: Online research presents unique challenges for elementary students as they develop and extend fundamental literacy skills to various media. Some features of internet text differ from that of traditional print, contributing to the challenges of discerning "fake news." Readers must understand how to navigate online texts to conduct research effectively, while applying critical thinking to determine the reliability of online information. Descriptive data from an ongoing study revealed that children in grades 1–5 lack some basic understanding of how to search the "wild wide web." Just as children benefit from explicit instruction related to text features, children benefit from instruction related to the features of the internet. This article presents a study of website evaluation that occurs early in the search process prior to the selection of a particular website or article. The application of the web literacy skills required to conduct an internet search is addressed, and recommendations prompt teachers to consider searches beyond the "walled garden," as well as ways to handle the "messiness" of internet exploration.

Keywords: wild wide web; fake news; new literacies; web literacy; critical thinking; reliability reasoning

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1. Introduction

Research processes for most of today's young learners include online searches. However, the ability to conduct online searches and discern online information is a challenge for children and adolescents [1–4], and children struggle with basic skills [5,6]. This struggle is in part due to the unique features of what we call the "wild wide web" [4], which contains unvetted content, fake news, ads, and other features that distract from desired information and make internet searches complicated [2,7]. The term "fake news" has been used to describe fabricated news, with no factual basis, that is presented to the public as a credible report [8,9]. Loos, Ivan, and Leu [10] (2018) as well as other researchers [11–14] suggest that fake news threatens information access, which is a basic right of all citizens. In addition, the threat of "fake news" on the internet complicates instruction related to the internet as an information source. To discern credible information and news, readers must apply critical thinking to develop what we call "reliability reasoning" [5] (pp. 85–86), or the ability to determine the credibility of online information. The development of such critical thinking requires instruction and practice; yet many teachers are reluctant to allow children to search the wild wide web due to safety concerns [4]. A 2019 study found that most teacher-recommended websites designed for elementary students operate in neat, tidy, and safe walled gardens; students navigate pre-vetted websites, avoiding the "wild wide web" [4] (p. 97). In a walled garden environment, searches are restricted to content within the host's website [15], which limits authentic experiences and does not pose the same "messy" (p. 112) challenges of discerning between relevant content and ads and other distractors.

How can students discern information on the internet without authentic practice? Children will use the internet as an information source, with or without instruction on how to do so. As educators, we have a responsibility to keep our young readers safe, and we also have a responsibility to equip them to handle the discoveries and distractions of wild online reading. Therefore, over the past five years we have continued our work with elementary students in grades 1–5 to understand the skills students exhibit when it comes to searching for and evaluating information on the internet. We recently revisited a 2006 University of Connecticut study in which seventh graders lacked the skills needed to determine the credibility of a website about a tree octopus. Using the same website twelve years later, we re-examined how 68 first- through fifth-grade students evaluated the source and shared rationales about its authenticity. Although the students in our study were more critical of the tree octopus article, 65% of students trusted the information. Only at the fifth-grade level did more students question the accuracy of the website information than those who trusted it [6]. Many students believed the tree octopus article to be credible because it had "real" pictures. If young learners trust "real" photos, then other issues present with fake news, in which articles hide behind a "mask of legitimacy" [3], may be problematic. Since this study, we have extended our work with students in grades 1–5 to evaluate concepts of online text and concepts of online research. For the purpose of this article, we discuss findings related to internet searches on the "wild wide web," using two tasks that require the narrowing and evaluation of websites and their content. The guiding question for this study was: What search and evaluation skills do students in grades 1–5 demonstrate during an internet query?

2. Background

As students evaluate paper-based or web-based information, they must apply critical thinking skills, which involve the ability to analyze, assess, and reconstruct information [16]. Dewey [17] (1933) considered critical thinking to be a stance or disposition in which a learner actively applies reflective thinking. This view situates critical thinking within a constructivist theoretical perspective. Dewey suggested that learners think critically when "selecting and weighing the bearing of facts and suggestions as they present themselves, as well as of deciding whether the alleged facts are really facts and whether the idea used is a sound idea or merely a fancy" (pp. 119–120). Evaluating online information also reflects a *new literacies* perspective. A dual-level theory of New Literacies conceptualizes new literacies on two levels: upper case and lowercase new literacies [18]. In general, New Literacies (upper case) attempts to explain the phenomenon of new literacies (lower case) created by the emergence and constant influence of technology and the expanding definitions of literacy [18]. As patterns of findings evolve from new literacies studies, they inform this theory [18]. Critical literacies are among the principles of New Literacies that appear to be common across the research and theoretic work taking place.

The ability to think critically is a key factor in evaluating online information and becoming web literate [18,19]. Readers must become healthy skeptics [19] of online information, developing what we call reliability reasoning [5] to determine deceptions and truths found on the internet. Because we live in a world of convenient internet access and abundant information, teachers must understand, teach, and model web literacy skills [2], which entail the knowledge and skills required to locate, evaluate, synthesize, organize, and communicate information found online [2,20]. As Dalton [21] (2015) reported, "Web literacy is huge. It's everything we do on the Web" (p. 605). Much of the literature related to web literacy skills focuses on the ability to evaluate the content of an article or other information found on the internet. We expand on current discussions to include search processes that lead to the desired content. We suggest that the issue of evaluating information begins early in the search procedure, prior to the selection of a particular website or article. The process of searching the internet and thinking critically about online information is often referred to as web literacy [2,20]. Students must understand how to conduct effective research, and part of this process requires them to understand the massive nature of the

internet. A typical internet search results in millions of website suggestions. Students need basic knowledge of what a browser is and that an online search provides unlimited content. Students also need to practice evaluative skills and reliability reasoning in order to recognize ads and inappropriate or unrelated content.

When a search is initiated, internet users can see the number of "hits" a search produces in various ways. When using Google, the search engine provides the number of websites that the search resulted in. Figure 1 shows that a search for "dolphins" resulted in about 285,000,000 results. When using a tablet, such as an iPad, Safari is typically the search engine used. With Safari, the number of results is not listed, but users can select "more results" at the bottom of the search.

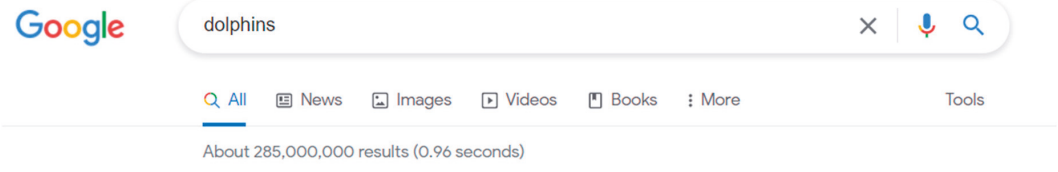

Figure 1. Google search result.

Because of the vast amount of information on the internet, the ability to narrow a search plays a role in finding information. Teaching students to narrow online searches enables them to significantly reduce the amount of information they must sift through. There are many ways to narrow a search, including altering key word phrases, using quotation marks, or applying Boolean terms. A search can be narrowed further by using tools such as the Google toolbar, which enables internet users to conduct advanced searches using criteria such as language, readability, file type, usage rights, or other settings. For example, a Google search for *fake news* yields approximately 992,000,000 results. By conducting an advanced search, the results requiring the words "fake news" in the title are either inclusionary or exclusionary terms. A search of this nature yields 2,520,000 results. The results could be narrowed further by selecting language, location, date ranges, or domain options until a manageable number with a specific focus is curated.

After a search is conducted and potentially narrowed, the next step is to determine which website to select for further examination. In our work, we have noticed that many students go straight to images, searching for visuals. As adult learners, we do this sometimes as well. However, ads and suspicious content may be avoided by applying evaluation skills early in the search process. Once a website is selected, evaluation continues as students examine the website's content for relevance and accuracy. Reliability reasoning is no easy task! One could check the website's URL for clues about a website's content. Internet users must understand the domain and extension (.edu, .org, .com), find the author, and utilize many other clues URLs may provide. For example, the tilde (~) is a clue that the website is a personal page authored by any person without review or validation of content. In addition, suspicious content can be cross-referenced with other sites. Web literacy skills require critical thinking, a necessary skill in the information age.

3. Materials and Methods

Since 2016, we have conducted ongoing research to learn more about elementary students' web literacy skills [6]. In order to assess web literacy skills, we initially developed the Concepts of Online Text (COT), which measured the knowledge of online navigation and text features of students in grades 1–5. Traditional assessments of concepts about print inspired the development of the instrument, which includes an observation protocol of online text, similar to the observation protocol Marie Clay [22] (1979) used with print-based text. Table 1 provides a comparison of the COT and Clay's concepts about print assessment. The COT instrument consists of seven tasks that align with two main constructs: (1) website orientation and navigation and (2) knowledge of webpage text

features. Construct 1 involves the orientation of a website, including the understanding of principles involving directional arrangement of text and media. Construct 2 involves the identification and understanding of webpage text features such as author, publisher, titles, headings, menus, captions, graphics, and hyperlinks. While emerging readers typically master print awareness and concepts of print in kindergarten [23], research conducted with the COT, published in 2018, indicated that knowledge of text features and website navigation occurs during the later elementary years [6].

Table 1. Considerations for concepts of online text assessment based on concepts about print assessment.

M. Clay's Concepts About Print Assessment		**Concepts of Online Text Assessment**
Concepts of print-based text	Reader prompts	Considerations for COT assessment development
Orientation or layout of text/front of book	Where is the front of the book? Where is the back of the book? Open the book to where the story begins.	What parts of a website does a student need to know? The URL leads to the "book"/site. Do students know this term? Know its purpose? Consider layout of a website—similarities and differences from a print-based text.
Print, not pictures, carries the message	Show me the picture. Show me the words.	Components of a webpage all carry meaning: print, visuals, hyperlinks, structure/organization, etc.
Direction of print	Show me where to start reading. Where do I read after this?	• Direction of print/reading is different on a webpage/website (not necessarily linear). How does a reader scroll, move forward/back?
Page sequencing	Where do I read after this?	• "Page" sequencing: webpages within a site (not necessarily linear) • How does a reader "turn pages" in a non-linear format?
		Print features particular to online text: • Hyperlinks. (various formats and purposes (definitions, additional information, graphics, etc.) • Differences between websites and webpages (one hyperlink can lead to another website- taking the reader to another "book" rather than another page/chapter within the same book); can the reader differentiate? • Titles and headings (throughout website/webpage)
Difference between letter and word.	Show me one letter. Show me one word. Show me the first letter in a word. Show me the last letter in a word.	This is requisite knowledge needed for reading online text.
Return sweep	Where do I read after this?	• Same skill needed for tracking online text; however, online text may require clicking on "read more" types of links to additional webpages for complete text then navigating back to original page.
One-to-one correspondence	Point to each word as I read this line.	• This is requisite knowledge needed for reading online text.
Punctuation	Do you know what this is? What is this for?	• This is requisite knowledge needed for reading online text.

Table 1. *Cont.*

M. Clay's Concepts About Print Assessment	Concepts of Online Text Assessment
	• Synthesizing information: • How does a reader look at the various print components on a website/webpage and synthesize meaning? How do they determine the main idea or topic of a site/page? • How does a reader determine the author/owner/publisher of a website? • How does a reader determine the publication date of a website?
	Evaluation information: • What information does a reader need to evaluate the credibility of a website? • Which components are indicators a website can/cannot be trusted?

Source: Pilgrim et al., 2018 [6].

The COT-R, an updated protocol, extends the assessment instrument to evaluate knowledge of internet research. The COT-R instrument added a research component to the assessment, which included additional constructs: (3) Application of Research Skills and (4) Evaluation of Online Information. Construct 3 involves the ability to use digital skills to search, save, cite, and share information. Construct 4 involves the ability to evaluate search results, websites, and content for relevance and the credibility/trustworthiness of sources. For the purpose of this study, we focus on construct 4, the evaluation of information found during an authentic search on the *wild wide web.*

Data Collection and Analysis

In the spring of 2020, we began recruiting teachers across the US to administer the COT-R to students in grades 1–5, with the goal of administering the assessment to at least 500 students. Prior to the pandemic, we recruited teachers from four states—one west coast state, an east coast state, and two southern states. Teachers completed a brief training session, in which the interview protocol administration and scoring processes were explained. After gathering both guardian consent and student assent, teachers conducted one-on-one interviews using the COT-R protocol. Teachers began data collection, which was interrupted temporarily as the doors of schools across the nation closed. Although data collection resumed during the fall of 2020, recruiting teachers to collect data was difficult, as teachers were overwhelmed with COVID-19-related issues. Therefore, data collection continued through the spring of 2021. A total of 354 first- through fifth-grade students participated in this study, including 183 female participants and 171 male participants. The authors and certified teachers trained to give the assessment collected the data. Table 2 presents the number of participants per grade level.

Table 2. Number of participants per grade level.

Grade Level	*N*
First	58
Second	78
Third	105
Fourth	52
Fifth	61
Total	N = 354

Students in this study used a laptop or desktop using a Google search engine. The research tasks began with a prompt in which students were asked to search for an animal,

specifically a dolphin. If the participant needed help with spelling, the administrator assisted by spelling the word aloud or typing it for the student, if needed. Many students selected the target word from the auto-complete drop-down box. It was also noted that a few students used the microphone feature to start their search. Then, students examined search results and discussed their search. Two tasks were assessed, including the ability to narrow information and the ability to evaluate information. The first task was evaluated with the following prompts: (1) Show me how many websites your search provided and (2) Show me how you could narrow the dolphin search to find what dolphins eat. Examples of answers that received credit for question one had to be specific. For example, a student might say, "A search for 'dolphins' provides 86,000 sites." Most searches will reveal multiple pages of sites, so the child would earn credit for the question if he/she understood that results extend beyond those visible on the first page. Counting visible links or websites on first screen is NOT correct. Examples of answers that received credit on question two included: the website titles/subtitles, context clues, and credible sources. Examples of answers that received no credit: first link, an advertisement, or images. The number of correct responses on each task for each grade level was calculated and converted to a percentage. Examples of actions that received credit on question two included the addition of keywords, typing a more specific question, or using quotation marks (with two or more words). Boolean terms (and, or, not) or the use of advanced searches would also count as an appropriate action. If students simply clicked on a link or indicated they did not know how to narrow a search, they received no credit. Teachers were provided a space to take notes during the administration of the assessment.

The second task was evaluated with the following questions and prompt: (3) How do you know which website will provide the best information about your topic; (4) Click on one of the websites you found. How can you tell if this website is relevant to your search? In other words, how can you tell if this website will give you the kind of information you need; and (5) How can you tell if this website will provide correct information that is true, or accurate? Examples of answers that received credit on question 3 included: the website titles/subtitles, context clues, and credible sources. Examples of answers that received no credit: first link, an advertisement, or images. Students received credit on question 4 if they were able to determine that the website(s) they selected matched their topic. For example, the child might say, "It is about dolphins." A website about the football team, the Miami dolphins, would be an inappropriate response to this question. Students received credit on question 5 if they were able to explain a way to check the validity or credibility of the website. They could respond with answers such as "Go to the home page and look for information about the publisher," "It is part of the Family Education Network (reliable source)," "Cross-reference the website," or "I trust the author because s/he is a scientist (or other occupation)". Examples of answers that received no credit include: it is the first website; it is not an advertisement, and it is a .org or .net (not always reliable). Again, teachers were provided a space to take notes during the administration of the assessment.

In order to analyze data, we examined student responses for the five tasks that are reflective of Construct 4. Binary data were analyzed using quantitative statistics in which students scored a "1" for a correct response and a "0" for an incorrect response. The number of correct responses on each task for each grade level was calculated and converted to a percentage. Teacher notes on the surveys were a potential qualitative data source. Even though few teachers included written notes, this qualitative source was analyzed by a search for themes that came out of each task/question.

4. Results

The primary purpose of this research was to examine student knowledge and evaluation of information found during an authentic internet search. The findings pertain to initial outcomes for Construct 4 of the COT-R observational survey. Through the observational survey process, we were able to evaluate the search and evaluation skills of 354 students in grades one through five.

4.1. Task 1: Narrowing Information

Task 1 addressed the ability to narrow information and was evaluated with two prompts. The number of correct responses on each prompt per grade level was calculated and converted to a percentage. Table 3 presents findings from the prompt in which students had to determine how many websites a search provided. Overall, 20.1% of the participants earned credit for their response to this task. It was noted that in most cases, students either counted the number of results on each page or did not know how to determine the answer.

Table 3. Show me how many websites your search provided.

Grade	% Correct
1	3.4
2	5.1
3	18.1
4	25
5	54.1

Table 4 presents findings from the prompt in which students had to narrow the dolphin search to find out what dolphins eat. Overall, 81.9% of the participants earned credit for their response to this task. It was noted that most students typed in a question in the search bar in order to narrow the search. For example, a common search was "What do dolphins eat"?

Table 4. Show me how you could narrow the dolphin search to find what dolphins eat.

Grade	% Correct
1	53.4
2	66.7
3	93.3
4	94.2
5	98.4

4.2. Task 2: Evaluating Information

Task 2 addressed the ability to evaluate information encountered in an internet search and was assessed with three questions. The number of correct responses for each question per grade level was calculated and converted to a percentage. Table 5 presents findings from the prompt in which students had to determine which of the search results would provide the best information about the dolphin topic. Overall, 40.9% of the participants earned credit for their response to this task. One COT-R test administrator noted that students often referred to images when asked this question. This could explain why fewer students earned credit for this prompt as opposed to the next one.

Table 5. How do you know which website will provide the best information about your topic?

Grade	% Correct
1	20.7
2	25.6
3	52.4
4	46.2
5	55.7

Table 6 presents findings from the prompt in which students had to first select a website and then tell if the website was relevant to their search. Overall, 74.6% of the participants earned credit for their response to this task. Because students searched what dolphins like to eat, many students were able to use images on the website they selected

to confirm they had found what dolphins like to eat. Images seemed to catch a child's attention more easily than other text features.

Table 6. Click on one of the websites you found. How can you tell if this website is relevant to your search? In other words, how can you tell if this website will give you the kind of information you need?

Grade	% Correct
1	37.9
2	58.9
3	86.7
4	90.4
5	95.1

Table 7 presents findings from the prompt in which students had to determine the accuracy of the website they selected. Student performance was the weakest on this task. Overall, 18.9% of the participants earned credit for their response. Observation notes indicated that many students believed websites had correct information because the pictures were real.

Table 7. How can you tell if this website will provide correct information that is true or accurate?

Grade	% Correct
1	1.7
2	2.6
3	26.7
4	25
5	37.7

5. Discussion and Implications

Although the tasks included in this study provide just a glimpse into the search process, it is clear that young readers need to develop skills to be savvy consumers of online information. According to our findings, many elementary students demonstrated a lack of knowledge about online research. We believe this is in part due to a misunderstanding of the nature of the internet as an information source. It is apparent in the first prompt for Task 1 that participants did not understand that a web search typically results in millions of website suggestions. This lack of understanding is a problem, and it is not a new one. A 2008 study of 7-, 9-, and 11-year-old children searching the internet in the home reported that the majority of the participants never went beyond the first page of results during a search [24]. The researchers also found that the first website result was typically selected to examine further. Students need to understand that the internet, a global library system, has become the largest repository for locating information [2]. They also need to understand that much of the information on the internet has not been vetted and, therefore, must be scrutinized.

Task 1 also assessed students' abilities to narrow an internet search. Students performed well at this task, with 90% of students in grades 3–5 narrowing searches effectively. It was interesting that students knew how to narrow searches by changing the keyword to a question. For example, many students asked, "What do dolphins eat?" By using a question in the search bar, students were able to obtain more specific results that did not include websites about the Miami Dolphins, for instance. Even though search engines use key words in the websites they search, the questions asked seemed to provide a combination of key words that worked for this particular search. However, because students did not understand the vast number of results provided by a search, we wonder if students would have narrowed the initial search if they had not been instructed to do so. We also wonder

if students tend to use questions instead of key words as they search the internet. These questions would be worth further investigation.

Task 2 assessed students' abilities to evaluate information during an internet search. The results of the three prompts are similar to previous studies in which students were asked to evaluate information. The participants across all grade levels struggled with the question *How do you know which website will provide the best information about your topic*? To answer this question, students must start the process of evaluating information before they select a website. For example, it would be appropriate for students to avoid ads or irrelevant websites. Students in younger grades may not be able to read well enough to determine which website to select. It was noted that after initiating a search, many of the younger students started clicking images or websites without examining the list of website results. However, 52.4% of third graders, 46.2% of fourth graders, and 55.7% of fifth graders missed this question, indicating a need for explicit instruction related to how to examine search result lists. Internet search results are not numbered, but companies such as Google apply an algorithm that is used to determine search results. A library search using a database does present numbered search results, with vetted articles. Teaching students to search library databases may help in information location. However, students need to be taught the skills necessary for locating accurate information on the wild wide web.

The last question was the most difficult for all students: *How can you tell if this website will provide correct information that is true or accurate*? Only 18.9% of participants were able to answer this question correctly. Participants were unable to verbalize ways to examine credibility. Inaccurate answers were common, which students either mentioning or pointing at "real" photos. This finding suggests students are often fooled by fake news on the internet that includes realistic photos.

Teacher data collectors for this study were surprised by student performance on the COT-R. Perhaps educators assume students know more than they do when it comes to the internet. We know this is the case with general technology use, as researchers [25,26] have challenged Prensky's [27] idea that children born after the 1980s are "digital natives" who are fluent with computer and internet technology. Because students lack knowledge about searching the internet, they are at risk of being fooled by fake news. Education is key. We recommend that they need increased opportunities to practice internet searches in safe environments. We are not suggesting teachers should provide the websites for research. We support instruction in which students engage in the "messiness" of online searches [4] (p. 98), where teachers guide students to become critical consumers of information. Students need authentic opportunities to safely search the wild wide web with teacher support and guidance. The need for strong web literacy skills will "increase, not decrease, the central role teachers play in orchestrating learning experiences for students as literacy instruction converges with internet technologies" [18] (p. 1173).

What does this mean for educators? Just as teachers teach nonfiction text features in paper-based books and how to use the glossary, heading, charts, tables, and facts vs. opinions, in the online information age, they are charged to teach how to determine source credibility and help them to develop reliability reasoning. This instruction needs to begin at an early age if we are to equip students with the tools and thought processes needed to critically examine information. The International Society for Technology in Education published standards for students identifying web literacy competencies for learning in the digital age [28]. The standards, adopted in all 50 US states and in many countries, are available in eight languages. Standard 3 relates to the content of this article with its focus on students as "Knowledge Conductors" [28] (para. 4) The corresponding skill states that "Students evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources" (para. 4). The age range for the student standards is unclear. Perhaps such skills should be the focus of teachers around the globe.

6. Conclusions, Limitations, and Implications for Future Research

The guiding question for this study was: What search and evaluation skills do students in grades 1–5 demonstrate during an internet query? Findings from this study indicate that upon initiating an internet query, participants in grades 3–5 could narrow an internet search efficiently. Even students in grades 1 and 2 had some success narrowing an internet search, with more than half of the students demonstrating this skill with some success. Students also demonstrated proficiency at determining which of the websites may be relevant to their search. However, participants did not understand the breadth of the results their query provided. Only at the fifth-grade level could half of the students understand how many websites their query produced. The most challenging of the research tasks was the evaluation of information. Participants lacked the evaluation skills needed to determine which website would provide the best information about their topic. Then, once they selected a website, they lacked the evaluation skills necessary to determine if the website was true, or accurate. Only 18.9% of the participants responded to this evaluation task with acceptable answers.

An educational approach using media literacy [10] and teaching strategies to determine reliable and trustworthy sources may be among the most important literacy work in the 21st century. Fake news will need to be addressed explicitly with educational strategies to equip students to navigate the wild web. Just as teachers model concepts with young students using big books [29] and enlarged texts, they can do the same with internet searches on large presentation screens. For example, rather than having an image or video at the ready, teachers can model search process methods, including some typical internet missteps [30] about their process, starting from the search engine or opening page of a website.

This study had a number of limitations which should be considered by researchers seeking to replicate the study. Although our goal was to collect data from across the United Sates, most of the data in this study were collected from four states. In order for the data to be more generalizable, data need to be representative of each state in the United States. We feel the 2020 pandemic impacted our ability to recruit teachers during the spring of 2020. In addition, some states continued online learning during the fall of 2020. Finally, limited sociodemographic information prevented deeper analysis related to the implications of this study.

The findings from this study have implications for teacher preparation and development. Preservice teachers' literacy education should extend to concepts of digital print. In addition, in-service teachers' continued professional development should include evolving digital literacy skills. Navigating online texts is a current need, not a future need. Understanding student knowledge of digital literacy, as well as ways digital texts and media work in an online environment, provides insight into the instruction needed in current elementary settings. Rather than assuming students will learn the needed skills as they engage with online text, we must acknowledge the need for explicit instruction and the benefit of learning through experience.

Our plans for future research include the use of the COT-R with older participants. We will extend data collection into grades 6–8. Future research could also compare the performance of students from varying demographics, such as rural versus urban schools, or schools with and without 1:1 technology initiatives. Finally, the inclusion of participants from across the globe would provide further insight into students' search and evaluation skills.

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Source Information Affects Interpretations of the News across Multiple Age Groups in the United States

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Abstract: People have access to more news from more sources than ever before. At the same time, they increasingly distrust traditional media and are exposed to more misinformation. To help people better distinguish real news from "fake news," we must first understand how they judge whether news is real or fake. One possibility is that people adopt a relatively effortful, analytic approach, judging news based on its content. However, another possibility—consistent with psychological research—is that people adopt a relatively effortless, heuristic approach, drawing on cues outside of news content. One such cue is where the news comes from: its source. Beliefs about news sources depend on people's political affiliation, with U.S. liberals tending to trust sources that conservatives distrust, and vice versa. Therefore, if people take this heuristic approach, then judgments of news from different sources should depend on political affiliation and lead to a confirmation bias of pre-existing beliefs. Similarly, political affiliation could affect the likelihood that people mistake real news for fake news. We tested these ideas in two sets of experiments. In the first set, we asked University of Louisiana at Lafayette undergraduates (Experiment 1a n = 376) and Mechanical Turk workers in the United States (Experiment 1a n = 205; Experiment 1b n = 201) to rate how "real" versus "fake" a series of unfamiliar news headlines were. We attributed each headline to one of several news sources of varying political slant. As predicted, we found that source information influenced people's ratings in line with their own political affiliation, although this influence was relatively weak. In the second set, we asked Mechanical Turk workers in the United States (Experiment 2a n = 300; Experiment 2b n = 303) and University of Louisiana at Lafayette undergraduates (Experiment 2b n = 182) to watch a highly publicized "fake news" video involving doctored footage of a journalist. We found that people's political affiliation influenced their beliefs about the event, but the doctored footage itself had only a trivial influence. Taken together, these results suggest that adults across a range of ages rely on information other than news content—such as how they feel about its source—when judging whether news is real or fake. Moreover, our findings help explain how people experiencing the same news content can arrive at vastly different conclusions. Finally, efforts aimed at educating the public in combatting fake news need to consider how political affiliation affects the psychological processes involved in forming beliefs about the news.

Keywords: age; confirmation bias; fake news; heuristic approach; politics; source

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1. Introduction

As the world changes, so too does the way we consume news information. According to survey data, nearly two thirds of people now prefer to read news online [1]. Moreover, those data also indicate that the preference for online news is growing: Of those who say they prefer to watch the news, the proportion who prefer to watch it online almost doubled between 2016 and 2018 [1]. This online access provides people with additional sources of news information and has the potential to widen the scope and quality of the news people encounter. One consequence could be a more well-informed public. However, another

possible consequence is an increase in exposure to "fake news"—a catchall term used by both academics and laypeople to mean content that appears news-like, but varies in how false it is and how harmful it is intended to be [2–4]. This fake news continuum spans (but is not limited to) unprofessional journalism, sponsored content, political propaganda, and wholly fabricated information [2–4]. In the research reported here, we address the general question: How do people across a wide range of ages evaluate the credibility of reported news information?

Presumably, people expect the truth from the news and are motivated to not fall prey to fake news. In other words, people have "accuracy goals" when reasoning about the news [5]. However, news consumers are faced with a difficult challenge because news information is experienced indirectly and therefore carries a degree of ambiguity. How, then, do people determine whether news is true or false? We suspect that people behave as they do under other situations of ambiguity and draw on information beyond the news itself to guide their behavior [6–8].

More specifically, when evaluating whether news is true or false, people could rely only on the central content itself: a headline, the text of an article, or the words spoken by a reporter. However, this task is relatively effortful, particularly under conditions of ambiguity. An easier alternative is to draw on more peripheral cues to help guide evaluations of the news [8]. We therefore predict that people will try to answer the difficult question of whether news is "real" by asking themselves an easier question: Is the source of that news credible [8–10]? In attempting to answer that easier question, people can adopt a less effortful thinking style and draw on their feelings about the source as well as any pre-existing beliefs [6,11–13]. When adopting such a thinking style, people may be swayed by "directional goals," unwittingly relying on evaluative strategies that lead to a desired conclusion but away from the goal of not falling prey to fake news [5].

In this paper, we focus on one piece of information that may play a role in people's evaluations of the news: political affiliation. Evidence now suggests that political affiliation plays a role in determining which news sources people believe produce real or fake news. Specifically, people in the United States who lean politically left rate news sources favored by people who lean politically right more as sources of fake news. The reverse is also true, with people who lean politically right rating news sources favored by people who lean politically left more as sources of fake news [14,15]. Consistent with these findings, survey data show that people are becoming increasingly selective about their media exposure, narrowing down to sources that match their ideology [16]. This trend is especially problematic when politicians actively disseminate falsehoods, for example, [17], and is worsened when news sources adopt poor journalistic standards and misinform the public. In fact, people are increasingly concerned about the integrity of news sources: Public distrust in the media is growing [18–20]. Taken together, this literature is informative about how people choose and evaluate news sources, but is less informative about how people evaluate the news content itself.

What we do not know, then, is the extent to which people's beliefs about news sources affect evaluations of the news. If source credibility acts as a guide, then source information may have consequences for how people interpret and remember the news. Consistent with this idea, we already know that trusted stimuli—like photographs—can change how people remember the news [21,22]. We also know that more credible sources of information generally produce more attitude change, for a review, see [23], and that more credible sources of misinformation are more misleading [24,25]. However, other factors can sometimes change these relationships. Older adults, for example, are more easily misled than younger adults [26,27].

Source information could convey the credibility of reported news, but where does that credibility come from? It may be the product of a number of underlying factors. For example, source credibility could be due to people's beliefs about journalistic integrity, including what standards or processes should be required to declare a piece of information "true" [18–20,28]. Credibility could also be due to the extent to which a news source aligns

with a person's political views [14]. It could also arise as the product of confirmation bias: the extent to which the news content is consistent with and therefore reinforces pre-existing beliefs [12,13].

In an effort to understand what people believe about news information from various sources, we ran two initial experiments (1a and 1b) in which we asked people across a wide range of ages to rate how real (versus fake) they believed a series of news headlines were, varying the ostensible source of those headlines. From related work, we know that political affiliation predicts which sources people believe are credible and that analytical thinking predicts the ability to discern real headlines from fake ones [14,29]. We therefore hypothesized that source information can act as a heuristic cue that people turn to when faced with the difficult task of determining whether headlines are real or fake news. We predicted that people would rate headlines from sources favored by their political affiliation as "real news" more than they would headlines from other sources.

We then followed up on these initial experiments with two additional experiments (2a and 2b) in which we investigated the extent to which people's interpretations of a more familiar and real-world "fake news" event would be affected by the source of information about that event. We predicted that people's interpretations of the event would differ depending on their political views and which version of the event—real or fake—they were exposed to. Across both sets of experiments, we also examined the influence of age in additional exploratory analyses.

2. Experiment 1a

The preregistration for this experiment is available at https://aspredicted.org/zs5kv.pdf (accessed on 27 September 2021). The data were collected between 31 January and 21 April 2018.

2.1. Method

2.1.1. Subjects

Across all experiments, we aimed to recruit as many subjects as possible, based on subject pool and funding availability. No subject participated in more than one experiment. This goal resulted in a sample size of complete responses from 581 subjects for this experiment, comprised of 376 undergraduate students at the University of Louisiana at Lafayette and 205 Mechanical Turk workers based in the U.S. (381 women, 197 men, 3 unspecified; M_{age} = 27 years, age range: 18–82 years), well above our preregistered minimum sample size. According to a sensitivity analysis, this sample size gives us adequate power to detect a small interaction effect by conventional standards.

2.1.2. Design

We manipulated News Source within subject, attributing headlines to one of five sources. In addition, subjects assigned themselves into one of three Political Affiliation categories.

2.1.3. Materials and Procedure

As a cover story, we told subjects the study was examining visual and verbal learning styles. Then, we presented subjects with 50 news headlines, one at a time, in a randomized order. Each headline was attributed to one of five news sources. Specifically, above each news headline, subjects read "X reported that . . . ," where X was replaced with a news source and the ellipsis was followed by a headline (e.g., "The New York Times reported that . . . Rarely Used Social Security Loopholes, Worth Thousands of Dollars, Closed"). We asked subjects to rate each headline for the extent to which they believed that news story was real news or fake news (1 = Definitely fake news, 5 = Definitely real news).

News Sources. We chose the news sources as follows. We gathered an initial list of 42 sources from a study investigating people's beliefs about the prevalence of fake news in various media agencies [14]. For the current experiment, we narrowed this list down to the following four sources: The New York Times, Fox News, Occupy Democrats, and

Breitbart. We chose these sources on face value, in an effort to cover both relatively left- and right-leaning media sources, as well as relatively well-established and new media sources of varying levels of reputed journalistic integrity. We also included an additional unspecified fifth source, achieved by replacing X with the words "It was."

Headlines. We constructed the list of news headlines as follows. First, we scoured various U.S. national and international news websites for headlines from the 2015–2016 period. We selected headlines on the basis that they should cover a wide range of topics—including non-political or non-partisan issues—and should make a claim, rather than merely stating an opinion. This initial search produced 167 candidate headlines. We then asked a separate sample of 243 undergraduate students to rate, in a randomized order, the familiarity of each headline (1 = Definitely never seen before, 5 = Definitely seen before). Using these data, we selected a final set of 50 unique, specific headlines that were rated relatively low in familiarity (M = 2.32, Range = 1.75–3.43). The final list of headlines is available at https://osf.io/h6qen/ (accessed on 27 September 2021).

No headlines were drawn from our four specified sources. We counterbalanced presentation of the materials such that each subject observed 10 headlines attributed to each source, and each headline was attributed to each source equally often across subjects. We included two attention check items among the headlines that looked similar but specified the response subjects should select if they were paying attention.

Following the headline rating task, we asked subjects how they identified politically (1 = Very conservative, 5 = Very liberal), which political party they were a member of (1 = Democratic party, 2 = Republican party, 3 = Other or none), and basic demographic information. We also administered several exploratory measures: subjects completed the Social Dominance Orientation scale [30], rated how familiar they were with each news source (1 = Not at all familiar, 5 = Extremely familiar), rated how much the source information affected their ratings (1 = Not at all, 5 = A great deal), answered two open-ended questions about the purpose of the study, and indicated if they had looked up any of the headlines. We do not report results from most of these exploratory measures, but the data are available at Fake News - Headlines and Acosta. Available online: https://osf.io/h6qen/ (accessed on 27 September 2021).

2.2. Results and Discussion

For all experiments in this article, we report the results of analyses that met the standard criterion of statistical significance (i.e., $p < 0.05$). For the interested reader, additional reporting of results can be found in the Supplementary Material.

We only analyzed data from subjects who gave complete responses, and we did not exclude subjects on any other basis, contrary to our preregistration. Most subjects responded correctly to each attention check item (85% and 87%, respectively) and did not look up any headlines (93%). We also deviated from our preregistration in how we created the three political affiliation groups for analysis: Rather than categorizing subjects based on their rated political leaning, we simply used subjects' reported party membership (but using the preregistered groupings leads to similar results and conclusions; see Supplementary Material).

Of the 581 subjects, 229 identified as Republicans, 177 as Democrats, and 175 as Other (or none). Distributions of the political leaning variable were consistent with these data: The modal selections were "somewhat conservative" for Republicans, "somewhat liberal" for Democrats, and "Moderate" for Other.

Recall that our primary question was: To what extent does political affiliation influence how source information affects people's interpretations of the news? To answer that question, we examined subjects' mean headline ratings as a function of their political affiliation and news source. Table 1 shows the mean rating for each condition. A Repeated Measures Analysis of Variance (RM-ANOVA) on these ratings revealed a statistically significant interaction between political affiliation and news source, suggesting that the influence of political affiliation on headline ratings depends on source information, $F(8,$

2312) = 3.09, $p < 0.01$, $\eta^2_p = 0.011$. We also included age as a covariate in an additional exploratory Repeated Measures Analysis of Covariance (RM-ANCOVA), and found only a main effect of Age, such that each year of aging was associated with a small shift toward rating headlines more as real news, irrespective of source or political affiliation, $B = 0.005$, $t(579) = 3.77$, $p < 0.01$.

Table 1. Descriptive Statistics for Ratings of News Classified by Source of Material and Subjects' Political Affiliation.

Source [a]	Political Affiliation [b]								
	Republican		Democrat		Other		None		
	M	95% CI	*M*	95% CI	*M*	95% CI	*M*	95% CI	
				Experiment 1a					
New York Times	3.30	[3.22, 3.37]	3.47	[3.39, 3.56]	3.32	[3.24, 3.40]	–	–	–
Fox News	3.35	[3.27, 3.42]	3.28	[3.20, 3.36]	3.26	[3.19, 3.34]	–	–	–
Occupy Democrats	3.20	[3.12, 3.27]	3.35	[3.27, 3.43]	3.21	[3.14, 3.29]	–	–	–
Breitbart	3.22	[3.14, 3.30]	3.24	[3.15, 3.33]	3.16	[3.08, 3.24]	–	–	–
Unspecified	3.20	[3.12, 3.28]	3.33	[3.25, 3.40]	3.19	[3.11, 3.27]	–	–	–
				Experiment 1b					
CNN	3.30	[3.11, 3.48]	3.25	[3.13, 3.37]	3.50	[3.37, 3.63]	–	–	–
Fox News	3.39	[3.24, 3.55]	3.13	[3.02, 3.24]	3.44	[3.31, 3.57]	–	–	–
Unspecified	3.13	[2.96, 3.30]	3.17	[3.06, 3.28]	3.34	[3.24, 3.45]	–	–	–
				Experiment 2a					
Altered	2.65	[2.37, 2.93]	2.02	[1.71, 2.33]	2.02	[1.67, 2.37]	–	–	–
Looped	2.80	[2.45, 3.15]	1.72	[1.48, 1.96]	2.01	[1.69, 2.32]	–	–	–
Original	2.96	[2.69, 3.23]	1.92	[1.65, 2.19]	2.30	[1.99, 2.60]	–	–	–
				Experiment 2b					
Altered	2.48	[2.32, 2.64]	2.14	[1.98, 2.30]	1.98	[1.50, 2.46]	2.17	[1.98, 2.36]	
Original	2.69	[2.53, 2.86]	2.08	[1.91, 2.24]	2.41	[1.94, 2.88]	2.36	[2.20, 2.53]	

Note. In Experiments 1a and 1b, ratings concerned the "realness" of various news headlines; in Experiments 2a and 2b, ratings were a composite of four items concerning the negativity of a CNN journalist's interaction with a White House intern as depicted in video footage recorded during a press conference given by President Trump. [a] In Experiments 1a and 1b, headlines were attributed to various news sources; in Experiments 2a and 2b source was one of several versions of a videoed event. [b] In Experiments 1a, 1b, and 2a, "Other or none" was a single political affiliation response option, whereas in Experiment 2b, "Other" and "None" were distinct response options.

To determine where any meaningful differences occurred, we then ran five one-way ANOVAs testing the influence of political affiliation on mean headline ratings for each news source (we did not explicitly specify these follow-up analyses in our pre-registration). These analyses yielded mixed results. Subjects' political affiliation had no appreciable influence when headlines came from the two sources favored by people who lean politically right (all p values > 0.26). However, subjects' political affiliation did have an influence when headlines came from the remaining three news sources, $F_{\text{New York Times}}(2, 578) = 5.17$, $p < 0.01$, $\eta^2_p = 0.018$; $F_{\text{Occupy Democrats}}(2, 578) = 4.57$, $p = 0.01$, $\eta^2_p = 0.016$; $F_{\text{Unspecified Source}}(2, 578) = 3.34$, $p = 0.04$, $\eta^2_p = 0.011$.

More specifically, Tukey-corrected post hoc comparisons for those three sources revealed that Democrats rated headlines from the New York Times as slightly more real than Republicans ($M_{\text{Diff}} = 0.18$, 95% CI [0.04, 0.31], $p = 0.01$) or Others ($M_{\text{Diff}} = 0.15$, 95% CI [0.01, 0.29], $p = 0.04$). Similarly, Democrats rated headlines from Occupy Democrats as slightly more real than Republicans ($M_{\text{Diff}} = 0.15$, 95% CI [0.03, 0.28], $p = 0.01$) or Others ($M_{\text{Diff}} = 0.14$, 95% CI [0.00, 0.27], $p = 0.04$). Finally, Democrats rated headlines from an unspecified source as more real, in the mean, than Republicans ($M_{\text{Diff}} = 0.12$, 95% CI [−0.01, 0.26], $p = 0.07$) or Others ($M_{\text{Diff}} = 0.14$, 95% CI [−0.00, 0.28], $p = 0.06$). These last differences were not statistically significant once adjusted for multiple comparisons, however.

Taken together, this collection of results is partially consistent with our hypothesis. We predicted that people would rate news headlines from sources favored by their political affiliation as more real than headlines from other sources. That prediction was correct—but only for headlines attributed to sources favored by people who lean politically

left (Democrats). How are we to explain these results? One possibility is that Democrats—and only Democrats—make meaningful distinctions among news sources, but we can think of no theoretical reason this explanation would be true. An alternative possibility is that the sources we used varied in unanticipated ways. In fact, exploratory examination of subjects' source familiarity ratings reveals data consistent with this idea: The New York Times and Fox News were rated more familiar than Occupy Democrats and Breitbart ($M_{\text{New York Times}}$ = 3.36, 95% CI [3.25, 3.47]; $M_{\text{Fox News}}$ = 3.56, 95% CI [3.46, 3.66]; $M_{\text{Occupy Democrats}}$ = 1.69, 95% CI [1.60, 1.78]; $M_{\text{Breitbart}}$ = 1.72, 95% CI [1.62, 1.81]). We also note that the headline rating differences were small, suggesting that our sources may not be construed as meaningfully different from one another in terms of their credibility. We conducted Experiment 1b to address these concerns.

3. Experiment 1b

The preregistration for this experiment is available at https://aspredicted.org/pi83g.pdf (accessed on 27 September 2021). The data were collected on 17 February 2019.

3.1. Method

3.1.1. Subjects

We collected complete responses from 201 Mechanical Turk workers based in the U.S. (112 women, 88 men, 1 unspecified, M_{age} = 40 years, age range: 18–77 years), one more than our preregistered sample size. A sensitivity analysis indicates this sample size gives us adequate power to detect a small-to-medium interaction effect by conventional standards.

3.1.2. Design

We manipulated News Source within subject, attributing headlines to one of three sources. In addition, subjects assigned themselves into one of three Political Affiliation categories.

3.1.3. Materials and Procedure

The experiment was identical to Experiment 1a, except as follows.

News Sources. We chose different news sources for this experiment. To more formally identify and quantify experimentally useful news sources, we first asked a separate sample of 202 Mechanical Turk workers to provide familiarity, trustworthiness, and bias ratings for each of the original list of 42 news sources [14]. The preregistration for this norming study is available at FA2018 - Fake news - Sources norming (#13611). https://aspredicted.org/4ep7p.pdf (accessed on September 2021). Subjects observed the names of these news sources, one at a time, in a randomized order. For each source, subjects provided a familiarity rating (1 = Not at all, 5 = Extremely), a trustworthiness rating (1 = Not at all, 5 = Extremely), and a bias rating (1 = Strong liberal bias, 5 = Strong conservative bias). We also asked subjects about their own political leaning and party affiliation. From these data, we identified the two news sources rated maximally different on trustworthiness across Democrats and Republicans: CNN (M_{Democrat} = 3.73, $M_{\text{Republican}}$ = 2.52) and Fox News (M_{Democrat} = 1.95, $M_{\text{Republican}}$ = 3.27).

Subjects in the current study were presented with 48 headlines, randomly selected from the original set of 50, so that subjects rated 16 headlines per source. Each headline was attributed to one of three news sources. Specifically, subjects read: "X reported that . . . ," where X was replaced with either "CNN," "Fox News," or "It was" for the unspecified source. This time, subjects did not rate the familiarity of each source. The data are available at https://osf.io/h6qen/ (accessed on 27 September 2021).

3.2. Results and Discussion

We analyzed data only from subjects who gave complete responses, and we did not exclude subjects on any other basis, contrary to our preregistration. Most subjects responded correctly to each attention check item (97% and 98%, respectively) and did not look up any headlines (98%).

Of the 201 subjects, 44 identified as Republicans, 92 as Democrats, and 65 as Other (or none). Distributions of the political leaning variable were consistent with these data: The modal selections were "somewhat conservative" for Republicans, "somewhat liberal" for Democrats, and "Moderate" for Other.

Recall that our primary question, as in Experiment 1a, was: To what extent does political affiliation influence how source information affects people's interpretations of the news? To answer that question, we examined subjects' mean headline ratings as a function of their political affiliation and news source. Table 1 shows the mean rating for each condition. A RM-ANOVA on mean headline ratings revealed—as in Experiment 1a—a statistically significant interaction between political affiliation and news source, suggesting that the influence of political affiliation on headline ratings depends on source information, $F(4, 396) = 2.52$, $p = 0.04$, $\eta^2_p = 0.025$. We also included age as a covariate in an additional exploratory RM-ANCOVA, but found that age had no meaningful influence (all age-related p values > 0.18).

To determine where any meaningful differences occurred, we then ran three one-way ANOVAs testing the influence of political affiliation on mean headline ratings for each news source (we did not explicitly specify these follow-up analyses in our preregistration). As in Experiment 1a, these analyses yielded mixed results: Subjects' political affiliation influenced ratings of headlines only from CNN and Fox News, $F_{CNN}(2, 198) = 3.84$, $p = 0.02$, $\eta^2_p = 0.037$; $F_{Fox\ News}(2, 198) = 7.78$, $p < 0.01$, $\eta^2_p = 0.073$.

More specifically, Tukey-corrected post hoc comparisons for these two sources revealed that Democrats rated headlines from CNN as less real than Others ($M_{Diff} = 0.25$, 95% CI [0.03, 0.47], $p = 0.02$). Democrats also rated headlines from Fox News as less real than both Republicans ($M_{Diff} = 0.26$, 95% CI [0.04, 0.49], $p = 0.02$) and Others ($M_{Diff} = 0.31$, 95% CI [0.11, 0.51], $p < 0.01$).

Taken together, this collection of results is consistent with our hypothesis, but only partially so. We predicted that people would rate headlines attributed to sources favoring their political affiliation as more real than headlines attributed to other sources. That prediction was correct, but in contrast to Experiment 1a, only for headlines attributed to a source favoring people who lean politically right: Fox News.

Overall, the results of Experiments 1a and 1b suggest that source information contributes to people's interpretations of the news. However, there are two key limitations to this conclusion. First, the observed differences were small, and not entirely consistent across our two samples. Consider, however, that subjects were provided with only the mere name of a source. It is perhaps surprising that such limited information can have any influence at all. Second, the headlines were normed to be relatively unfamiliar. We chose to use unfamiliar headlines in an effort to control for pre-existing knowledge, but it is possible that unfamiliar headlines convey so little information that they are almost meaningless. Again, however, it may be surprising that source information can influence interpretations of almost meaningless headlines.

Having conducted these initial investigations, we were then presented with a unique opportunity. In November of 2018, a United States White House intern attempted to take a microphone away from CNN's Jim Acosta during a press conference. Acosta clung to the microphone, resulting in brief contact between the two. Shortly afterward, then-Press Secretary Sarah Huckabee Sanders posted video footage of the interaction to Twitter. Sanders used the video as justification for revoking Acosta's White House press pass, claiming his behavior was inappropriate. However, rather than posting the original CSPAN footage, Sanders posted a subtly altered video that appears to have originated from a conservative media site [31].

Several media agencies raised concerns about the potential suggestive influence of this manipulated footage. Consistent with these concerns, a partisan split emerged, with those on the left tending to claim Acosta's behavior was unremarkable, while those on the right tended to claim his behavior was problematic. One explanation for this split is that the version of the video people observed guided their interpretations of Acosta's behavior.

However, we suspected that the explanation was more nuanced, hypothesizing that any influence of the video would depend on political affiliation. More specifically, we predicted that due to beliefs about media sources, Republicans would be more susceptible to any potential influence of the altered video than Democrats. In Experiments 2a and 2b, we therefore tested the extent to which altered video footage of a real-world event affected people's interpretations of that event. In contrast to Experiments 1a and 1b, video footage of a real-world event provides a richer context than a sparse headline and allows us to explore the role of familiarity with the news story.

4. Experiment 2a

The preregistration for this experiment is available at https://aspredicted.org/da3hg.pdf (accessed on 27 September 2021). The data were collected on 2 May 2019.

4.1. Method

4.1.1. Subjects

We collected complete responses from 300 Mechanical Turk workers based in the U.S. (200 women, 98 men, 2 unspecified, M_{age} = 38 years, age range: 18–76 years). In a deviation from our preregistration, we did not recruit additional subjects from an undergraduate population and so we collected more responses than planned from Mechanical Turk. A sensitivity analysis indicates this sample size gives us adequate power to detect a small-to-medium interaction effect by conventional standards.

4.1.2. Design

We manipulated Video Version between subjects, showing each subject one of three versions of the event. In addition, subjects assigned themselves into one of three Political Affiliation categories.

4.1.3. Materials and Procedure

As a cover story, we told subjects the study was examining visual and verbal learning styles. Then, we asked subjects to watch a brief video of an interaction between a journalist and a White House intern during a press conference, randomly assigning them to see one of three versions of this event. We collected these data approximately six months after the event occurred. Subjects then made several ratings related to the depicted interaction, to gauge how they interpreted the journalist's behavior.

Video Versions. The video versions were as follows. The "altered" version of the video is that tweeted by the then-Press Secretary. It is a 15 s clip with no audio that loops the brief interaction between the journalist and the White House intern a total of six times; on the second loop, and again on the third loop, the video zooms in and it remains zoomed in thereafter. From the original CSPAN footage, we created two additional versions, each 15 s long with the audio removed. Our "looped" version of the video consists of the brief interaction, looped. The "original" version of the video consists of the interaction itself, as well as approximately 6 s of footage preceding the interaction and 6 s of footage following it. Links to all three videos are available at https://osf.io/h6qen/ (accessed on 27 September 2021).

Ratings Items. Subjects made four key ratings related to the interaction they had just seen. Specifically, subjects first rated the harmfulness of the journalist's behavior toward the intern (1 = entirely harmless, 4 = entirely harmful), then the reasonableness of the journalist's behavior toward the intern (1 = entirely unreasonable, 4 = entirely reasonable; reverse scored). Next, we told subjects that as a result of the interaction, the White House took away the journalist's press pass, meaning he was banned from the White House. Subjects then rated the White House's response (1 = entirely unreasonable, 4 = entirely reasonable). We then told subjects that a federal judge later ruled that taking away the journalist's press pass was a violation of his right to a fair and transparent process, ordering that the ban be lifted. Subjects then rated the judge's ruling (1 = entirely unreasonable, 4 = entirely reasonable; reverse scored).

Following these ratings, subjects provided information about their political affiliation and basic demographics, as in the previous experiments. We also administered several exploratory measures, asking subjects to rate how familiar they were with the events shown in the video, prior to the study (1 = entirely unfamiliar, 4 = entirely familiar), as well as questions variously addressing their prior familiarity with specific pieces of information related to the event and its aftermath, characteristics of the video version they observed, if they had looked up any related information during the study, and the purpose of the study; we do not report results for most of these measures here. The data are available at https://osf.io/h6qen/ (accessed on 27 September 2021).

4.2. Results and Discussion

We analyzed only the data from subjects who gave complete responses, and we did not exclude subjects on any other basis, contrary to our preregistration. Most subjects did not look up any related information (97%).

Of the 300 subjects, 80 identified as Republicans, 133 as Democrats, and 87 as Other (or none). Distributions of the political leaning variable were consistent with these data: The modal selection was "somewhat conservative" for Republicans, "somewhat liberal" for Democrats, and "Moderate" for Other.

Recall that our primary question was: To what extent does political affiliation influence how people interpret video footage of a real-world news event? To answer that question, we first calculated, for each subject, an average of their ratings across the four key items. We preregistered to conduct multivariate analyses across these four ratings, but because they were highly correlated (rs = 0.58–0.69; Cronbach's $\alpha = 0.87$) we chose instead to combine them for univariate analysis (but conducting the preregistered analyses leads to similar results and conclusions; see Supplementary Material). Higher scores on this composite measure reflect more negative interpretations of the journalist's behavior. Table 1 shows the mean composite rating for each condition.

We then examined subjects' composite rating as a function of the video version they observed and their political affiliation. A two-way ANOVA revealed only a main effect of political affiliation, suggesting that when it came to how negatively people interpreted the journalist's behavior, only political affiliation mattered $F(2, 291) = 28.95$, $p < 0.01$, $\eta^2_p = 0.166$. More specifically, Tukey-corrected post hoc comparisons revealed that Republicans rated the journalist's behavior more negatively than did Democrats ($M_{Diff} = 0.92$, 95% CI [0.64, 1.21], $p < 0.01$) and Others ($M_{Diff} = 0.68$, 95% CI [0.37, 0.99], $p < 0.01$).

We also included age as a covariate in an additional exploratory RM-ANCOVA and found that each year of aging was associated with a shift in judgment about the journalist's behavior, but the direction and strength of this shift depended on political affiliation, $F_{\text{Age x Political Affiliation}}(2, 292) = 4.48$, $p = 0.01$, $\eta^2_p = 0.030$. More specifically, for Democrats only, each year of aging was associated with a statistically significant shift toward a more positive interpretation of the journalist's behavior, $B = -0.015$, $t(130) = 2.34$, $p = 0.02$.

These findings indicate that concerns over the suggestive nature of the altered video may have been unwarranted. What, then—if not the video—drives the observed differences across the political spectrum? One possibility is prior familiarity with the event itself. To explore this possibility, we split subjects into two groups classified according to their ratings of prior familiarity with the event: Subjects who reported they were entirely or somewhat unfamiliar with the event were classified as "unfamiliar" ($n = 146$), while subjects who reported they were somewhat or entirely familiar with the event were classified as "familiar" ($n = 154$). We then re-ran the two-way ANOVA for each of these groups in turn. Although exploratory, the results suggest that familiarity mattered: The only statistically significant factor was political affiliation—with the same pattern of means as above—and only among those who were already familiar with the event (Familiar: $p < 0.01$; Unfamiliar: $p = 0.08$).

We conducted Experiment 2b to replicate these findings with a simplified design and a slightly larger sample.

5. Experiment 2b

The preregistration for this experiment is available at https://aspredicted.org/437a8.pdf (accessed on 27 September 2021). The data were collected between 18 September and 21 November 2019.

5.1. Method

5.1.1. Subjects

We collected complete responses from a total of 485 subjects, comprised of 182 undergraduate students at the University of Louisiana at Lafayette and 303 Mechanical Turk workers based in the U.S. (292 women, 186 men, 7 unspecified, M_{age} = 32 years, age range: 18–75 years), in line with our preregistered sampling plan. A sensitivity analysis indicates this sample size gives us adequate power to detect a small-to-medium interaction effect by conventional standards.

5.1.2. Design

We manipulated Video Version between subjects, showing each subject one of two versions of the event. In addition, subjects assigned themselves into one of four Political Affiliation categories.

5.1.3. Materials and Procedure

The experiment was identical to Experiment 2a, except as follows. We collected these data approximately 10 months after the event occurred. Because we found no effects of video version in Experiment 2a, we simplified the design, dropping the "looped" version of the video and randomly assigning subjects to watch either the "altered" version or the "original" version. We also allowed subjects to differentiate between having an "Other" political affiliation and "None." Finally, we included some slightly different exploratory measures, which we do not report the results of here. The data are available at https://osf.io/h6qen/ (accessed on 27 September 2021).

5.2. Results and Discussion

We analyzed data only from subjects who gave complete responses, and we did not exclude subjects on any other basis, contrary to our preregistration. Most Mechanical Turk workers did not look up any related information (95%).

Of the 485 subjects, 130 identified as Republicans, 184 as Democrats, 143 as None, and 28 as Other. Distributions of the political leaning variable were consistent with these reports: The modal selections were "somewhat conservative" for Republicans, "somewhat liberal" for Democrats, and "Moderate" for Other and None.

Recall that our primary question was: To what extent does political affiliation influence how people interpret video footage of a real-world news event? To answer that question, we again calculated, for each subject, an average of their ratings across the four key items. As before, we preregistered to conduct multivariate analyses across these four ratings, but because they were all at least moderately correlated (rs = 0.40–0.61; Cronbach's α = 0.80) we chose instead to combine them for univariate analysis (but conducting the preregistered analyses leads to similar results and conclusions; see Supplementary Material). Table 1 shows the mean composite rating for each condition.

We examined subjects' composite rating as a function of the video version they observed and their political affiliation. A two-way ANOVA revealed main effects of video version, $F(1, 477) = 4.78$, $p = 0.03$, $\eta^2_p = 0.010$, and political affiliation, $F(3, 477) = 10.77$, $p < 0.01$, $\eta^2_p = 0.063$. These results suggest that the version of the event people observed and their political affiliation each mattered for how they interpreted the journalist's behavior.

More specifically—and contrary to our predictions—people who viewed the "original" version of the video gave slightly more negative ratings of the journalist's behavior than people who viewed the "altered" version (M_{Diff} = 0.14, 95% CI [−0.00, 0.27]). Tukey-corrected post hoc comparisons further revealed that, in terms of people's political affiliation, Repub-

licans rated the journalist's behavior more negatively than Democrats (M_{Diff} = 0.49, 95% CI [0.27, 0.71], $p < 0.01$), Others (M_{Diff} = 0.40, 95% CI [0.00, 0.80], $p = 0.05$), and members of no party (M_{Diff} = 0.32, 95% CI [0.09, 0.56], $p < 0.01$).

We also included age as a covariate in an additional exploratory ANCOVA and found that each year of aging was associated with a shift in interpretation of the journalist's behavior, but the direction and strength of this shift depended on political affiliation, $F_{Age\ x\ Political\ Affiliation}(3, 476) = 3.67$, $p = 0.01$, $\eta^2_p = 0.023$. More specifically, for Democrats and those reporting not belonging to any political party, each year of aging was associated with a statistically significant shift toward a more positive rating of the journalist's behavior, $B_{Democrats} = -0.017$, $t(181) = 4.33$, $p < 0.01$; $B_{None} = -0.012$, $t(141) = 2.54$, $p = 0.01$.

This pattern of results is largely consistent with the findings of Experiment 2a and reinforces the idea that concerns over the suggestive nature of the altered video may have been unwarranted. As in Experiment 2a, we wondered about the influence of subjects' prior familiarity. We again split subjects into two groups, classifying them as "unfamiliar" (n = 309) or "familiar" (n = 178) with the event, according to their rating of prior familiarity. We then re-ran the two-way ANOVA for each of these groups in turn. In these exploratory analyses, only political affiliation remained statistically significant—with the same patterns of means as above—and only for those who indicated prior familiarity (Familiar: $p < 0.01$; Unfamiliar: $p = 0.09$). These results are consistent with the findings of Experiment 2a, suggesting again that familiarity with the event matters.

6. General Discussion

Across four experiments encompassing a variety of news sources and a real-world event that varied in familiarity, we found that the influence of source depends on political beliefs.

In Experiment 1a, we found that Democrats rated unfamiliar news headlines as more likely to be real than Republicans or Others did—but only when those headlines were attributed to news sources favored by Democrats. This result shows that a simple change to the ostensible source of news information can affect people's interpretations of that news. In addition, we found that the older people were, the more "real" they rated headlines, regardless of the source of those headlines or people's political affiliation. Our sources had not been normed for credibility, however, leaving room for alternative interpretations. In Experiment 1b, we sought to resolve this issue and build on our initial findings, examining two news sources previously rated most distinct in trustworthiness across the political spectrum. Here, we found that Democrats rated unfamiliar headlines as less likely to be real than Republicans or Others—but only when those headlines were attributed to a news source not favored by Democrats.

In Experiments 2a and 2b, we found evidence to suggest that prior knowledge of a real-world "fake news" event strongly influences people's beliefs about that event. More specifically, when people indicated they already knew about the depicted event—that is, the interaction between CNN's Jim Acosta and a White House intern—ratings about the journalist's behavior were consistent with political affiliation: Democrats rated the journalist's behavior more favorably than Republicans. Moreover, this influence of familiarity dwarfed any influence of the version of the video people observed. We also found that the older people were, the more positively they rated the journalist's behavior, but only among Democrats or people who belonged to no political party. These results suggest that concerns about the suggestive nature of the altered video may have been unwarranted, especially when considering that those unfamiliar with the event rated the journalist's behavior *more* favorably after watching the altered video than after watching the original CSPAN footage.

Our findings are consistent with related work showing that people's political beliefs predict which news sources they consider to be "fake news" [14]. Our data build on this work, suggesting that in some cases, differences in beliefs about the trustworthiness of news sources carries forward into judgments of the veracity of news information. That finding is concerning, because related research shows that "fake news" is often political in

nature and can have serious consequences, such as non-compliance with behaviors that inhibit the spread of a deadly virus [32–34]. Our research is also reminiscent of other work showing that individual differences—like age, the need to see the world as structured, or the propensity to think analytically—predict endorsement of or skepticism about "fake news" and misinformation [26,27,29,35,36]. With respect to age specifically, we found two small but noteworthy patterns. First, age was positively associated with the belief that news headlines were "real" in Experiment 1a. This finding should be interpreted cautiously, however, because we did not observe the same association in Experiment 1b. Second, age was positively associated with more favorable views of the journalist's behavior in Experiments 2a and 2b—although not for Republicans. Together, these findings are consistent with work showing differences in the ability to think critically as people age [37]. Finally, our results also dovetail with prior research demonstrating that people are more easily misled by sources of information deemed credible [24,25].

One limitation, however, is that news source information appears to have only a small influence on people's beliefs about the news. Take, for example, the finding from Experiment 1b, in which Democrats rated headlines attributed to Fox News as less real than either Republicans or Others. The confidence intervals for those differences ranged from 0.04 to 0.51—or put another way, from almost zero to half of a point along a 5-point scale. However, considering that subjects were given sparse information in the form of brief and unfamiliar news headlines, any effect at all may seem surprising.

There are at least three possible explanations for the small size of these effects. The first is that people require more context (e.g., a longer news article) for news source information to powerfully sway interpretations of the news. The results from Experiments 2a and 2b are consistent with this idea, because differences in event interpretations due to political affiliation were strongest amongst those already familiar with the event. The second explanation is that people do not rely on source information when evaluating news content that is already relatively plausible [38–40]. The third explanation—and one we should take seriously when designing interventions to help people detect fake news—is that people are increasingly skeptical of news sources in general [18–20]. If that trend continues, then it will become difficult to find any meaningful differences in people's interpretations of the news according to where that news is sourced, because all sources will eventually be considered "fake news." In fact, given the proliferation of digitally altered footage in which people are convincingly replaced with others (i.e., "deep fakes"), we may be approaching a tipping point, beyond which no news will be considered credible [41].

Another limitation is that we lacked control over what people already knew about the real-world "fake news" event in Experiments 2a and 2b, instead choosing to measure naturally occurring familiarity. We therefore cannot be sure what caused differences in interpretations of the event amongst those already familiar with the event. We know that the video itself is an inadequate explanation, because video version had no meaningful influence among people who were unfamiliar with the event. We suspect a likely explanation is that Democrats and Republicans encountered different reports of the event due to selective news source consumption [16]. Consistent with this explanation, Fox News's reporting of the event featured a Tweet from a conservative commentator stating that Acosta had bullied the intern and should have his press credentials revoked [42].

One implication of this research hinges on the finding that the same news was interpreted differently when it came from different sources. That finding implies that people rely on more than just the news content when forming beliefs about the news. This implication is consistent with other work showing that people sometimes draw on whatever is available—like how easy it feels to process information—when making judgments about various targets [6,8,43]. It is similarly consistent with an explanation in which people's political motivations influence their reasoning about the news, and more generally with work showing that people find information more persuasive when it comes from a more credible source [5,23,44]. Finally, it is consistent with a framework in which people use source information when making attributions about remembered details [10]. A future

study could examine the extent to which people can remember the source of encountered news information. We suspect that given the trend towards news source selectivity, people will be relatively good at remembering those sources they are familiar with, but relatively poor at remembering those sources they are not familiar with [16].

This narrowing source selectivity likely acts as a negative feedback loop, serving to reinforce pre-existing, ideologically aligned beliefs—even when those beliefs are not accurate [5]. Moreover, people may be unaware such selectivity is happening: Multiple technology giants such as Google and Facebook curate content according to algorithms, resulting in externally generated selectivity [45]. Such a "filter bubble" may be especially concerning when news sources blatantly misinform. Take the recent example of Fox News publishing digitally altered images, placing an armed guard into photos of protests in Seattle [46].

What steps could be taken to reverse this selectivity? Can we successfully encourage people to engage with a wider variety of news sources and to be more critical of news reporting? Some efforts are underway, though it remains to be seen whether these approaches are successful [47–49]. Given the increasing distrust in the media, a more successful approach may be to make systemic regulatory changes to the media itself [18–20]. One idea, for example, is to re-establish the Fairness Doctrine, ensuring that broadcasters cover multiple aspects of controversial issues [50]. Such regulatory measures may ultimately increase accurate and decrease inaccurate news reporting, and in doing so reduce the burden on individuals to detect fake news.

Supplementary Materials: The following are available online at https://www.mdpi.com/article/10.3390/soc11040119/s1, Additional Analyses.

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Testing Children and Adolescents' Ability to Identify Fake News: A Combined Design of Quasi-Experiment and Group Discussions

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Abstract: Nowadays, people increasingly choose to turn to the Internet and especially to social media for news and other types of content, while often not questioning the trustworthiness of the information. An acute form of this problem is that children and adolescents tend to include the use of new technologies in all the aspects of their daily life, yet most of them are unable to distinguish between fake news and trustful information in an online environment. This study is based on a Dutch empirical study and was conducted in Romania to examine whether schoolchildren and adolescents were able to identify a hoax website as fake, using a self-administrative questionnaire and open group discussions about the given online source. Similar to other studies based on the same research design, this research aims to explore the vulnerability of students to fake news and the way they experience an experimental situation in which they are exposed to online fake information. This exploratory study revealed that both children and adolescents are not preoccupied with the trustworthiness of the information they are exposed to in social media. While only 4 of the 54 students stated that they would not choose to save a fake animal (from a hoax website), all four of them had reasons that proved that they did not perceive the information as being a hoax. Thus, participants proved that they would act upon being exposed to fake information even when they do not trust the source.

Keywords: fake news and online information; children and adolescents and fake news; vulnerability to fake news

1. Introduction

In the summer of 2018, a Facebook user uploaded a moving story that caught the eye of people on the social platform as well as the media. The post presented the efforts of a Romanian that saved more than 70 lives from the Greece wildfires, which were a widely publicized event at the time. The author stated that the "hero" was hospitalized in Vienna with 70% body surface burns. A photo of the man's burnt face had gone viral. It was only a few days later that the story was pointed out to be fake and the photo was proven to show actor Ryan Reynolds wearing makeup for his role in the movie Deadpool [1]. This is far from a singular incident of fake news being spread through Facebook, indicating the fact that it is not necessary for a story to be extremely detailed or particularly credible for it to have an impact.

Today, more than ever in the history of mankind, the process of acquiring information is simpler, being facilitated by the Internet. Social media platforms are now preferred by individuals in terms of acquiring information, due to their quick and easy access. This means that the diffusion of data spread is almost instant, helping fake news reach a remarkable number of people. The free and effortless access to information also brings up an urgent need for fact checking. Thus, to be certain of the accuracy of the information, it is imperative that people assess the online news they come across and consider to be noteworthy. Consequently, the issue of people's ability to distinguish fake news from truthful

information arises, the case of young people being an important one, as this age group is extremely exposed to online information.

Even though multiple studies have been conducted on schoolchildren around the world [2–7], fake news has only recently been approached [8,9] from a Romanian children (especially high school students) perspective. This study seeks to add to the academic examination of the fake news phenomenon and to the study of children's ability to identify fake news. It addresses these issues through an exploratory research, using a one-group post-test only quasi-experimental design, mixed with qualitative debriefing sessions. The findings revealed that even though only 4 of the 54 students stated that they would not save a fake animal, thus indicating they did not trust the hoax source, all 4 of them had reasons that proved the contrary. The children and adolescents proved that they would act upon being exposed to fake information even when they do not trust the source.

This article initially examines the scholarly perspectives on fake news and the particular ways individuals—especially young people—perceive this phenomenon, followed by the second section of the article presenting the Methods and Materials and comparing the results of the experiment conducted in the Romanian study in 2019 with the results of the 2017 study conducted in The Netherlands. The paper ends with a discussion of the findings and suggestions regarding the manners in which people could handle fake news.

2. Literature Review

2.1. Digital Literacy and Fake News

The existence and rapid evolution of digital media have led to the development of new ways of thinking, obtaining information, learning, and relating to others. Today, the way people born in the last four decades process things in terms of internalizing information is profoundly different from that of those who were of mature age when new communication and information technologies were introduced into everyday life [10]. This dissimilarity is mainly a result of the way the newer generations grew up surrounded by ICT.

Digital natives, the term introduced by Prensky [10,11] and later critiqued by scholars, stands for people born after the 1980s, who are fluent in the online language of computers, and that have "e-lives" that revolve around the Internet. One of the matters most discussed by scholars regarding digital natives refers to their critical thinking ability when assessing online information. Some authors even define the concept of digital natives, emphasizing rather low results when taking into consideration the critical thinking ability of this generation, which uses "the digital tools of today, without reflecting on what they are or how they can be used" [12] (p. 23). Internet access leads to a major change in both the information process and the way in which individuals use information after retrieving it. Some authors [13–18] disagree with the use of the digital natives and digital immigrants concepts. Their research confirms the contrary and shows that the perspectives claiming that people who grew up surrounded by digital media "are universally savvy with information and communication technologies" are rarely founded on empirical evidence [15] (p. 92).

Research conducted by Hargittai [15] demonstrates that socioeconomic status is an important predictor for the inclusion of the Internet in day to day life, with those from more privileged backgrounds using it in more activities and in a more informed way. Similarly, Gallardo-Echenique et al. [18] state that age is not as important a factor as gender, education, experience, social inclusion, culture, institutional context, and socioeconomic context and suggest the use of digital learners instead of digital natives.

The issue of individuals' ability to adequately evaluate and use information has become more pronounced, as the access to both acquiring and sharing information is the easiest it has been yet. This is not a concern particular to the digital age, as there has always been a need to properly analyze the reliability of information, which has been essential for learning even before the information revolution.

However, individuals are now constantly in contact with online information—not difficult to influence and share—so the ability to analytically assess information can be viewed as a "survival skill" [19].

With recent decades' development of the digital environment, individuals are increasingly required to improve their ability to use new technologies in order to perform effectively in society. Generally speaking, a digitally literate individual "should be able to adapt to new and emerging technologies quickly, and pick up easily new semiotic languages for communication as they arise" [20] (p. 1066). While most approaches that describe young people as being digitally literate discuss their ability to easily use new digital technologies, only some of these perspectives question their ability to critically analyze information obtained through these technologies [10,21,22].

Digital literacy has been defined as the "awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyze and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process" [21] (p. 135). Using such approach, we can find a direct link between the concept of digital literacy, analytical thinking ability, and the intention to create constructive social actions. This approach thus suggests that critical thinking, the ability to objectively analyze information retrieved online, and the aptitude to form independent opinions should be among the central features of digital literacy.

Ng [20] is also one of the authors who paid attention to critical thinking in discussing digital literacy, proposing a multidimensional model. The cognitive dimension of the model is associated with critical thinking in the case of the search, evaluation, and content creation processes. This dimension requires that the individual has knowledge about the ethical and legal issues that one must respect when using content from digital sources (e.g., copyright and plagiarism). According to Ng, digital literacy involves using the filter of one's own thinking when retrieving information in the online environment, the individual having varied knowledge to help him critically analyze the information.

Digital literacy includes a set of soft skills that need to target both technical skills—the use of digital tools—and non-technical skills that rather consist of understanding, analyzing, and evaluating information (cognitive, socioemotional etc.). Thus, it would be appropriate for the term to be used "to speak of a full range of cognitive, social and emotional competences including the use of texts, tools and technologies; about critical thinking and analytical skills" [23] (p. 17).

There are significant dissimilarities between people of different ages or even between people in the same age segment when talking about digital literacy, so categorizing people as digitally literate or illiterate based solely on age would be inappropriate. However, digital literacy, as a set of skills including both technical abilities that allow people to use new technologies and non-technical skills that help individuals assess the information they retrieve online while acting like a polygraph for untruthful or manipulative information is crucial for people of all ages in today's society.

Fake news has existed over time in various forms since the proliferation of untrue information through word of mouth. It has then progressively become easier and quicker for people to be reached by information—reliable or fake—once printing was invented and today, with the almost omnipresent use of the Internet.

Fake news is a concept that can be defined as verifiable untrue information, intentionally transmitted by one person to mislead other individuals [24,25]. Social media is becoming the main source of information for an increasing number of individuals, so "misinformation seems to have found a new channel" [26] (p. 138). Research looking at fake news dissemination [5,27] showed results that are increasingly unsettling. In a recent study, Lazer et al. [27] noted that on Twitter, fake information is usually reposted by more people and much faster than truthful information is, especially in the case of politics news. Similarly, an eleven years-long study [5] that investigated the distribution of both true and false information on Twitter revealed that fake data spreading is quicker and reaches more individuals than accurate information. The authors also noted that false information was more

common than truthful in most of the cases, which caused people to distribute fake news more often in comparison to true information.

Tandoc et al. [26] explain why they consider financial and ideological reasons and motives are the two motives underlying the spread of false information. Fake news often touches upon scandalous topics, which quickly go viral online, thus attracting clicks that convert into revenue. A website that constantly offers intriguing information, discussing controversial topics, becomes appealing to individuals; the large number of publication visits is converted into financial gains following the exposure of these visitors to paid advertisements on the site.

Allcott and Gentzkow [25] analyze the ideological motivation of individuals and claim that they use fake news in order to convey certain ideas or to promote people, often implying the reputation of other entities being compromised. The authors note that individuals driven by financial motivations are considerably more numerous than those who have ideological goals. Allcott and Gentzkow [25] have observed that, in most cases, the dissemination of fake news is related to their content. Thus, news with political content have a noteworthy potential to attract clicks and generate profits—the authors explain this idea by talking about a group of young people from Macedonia, which made tens of thousands of dollars in 2016, after they shared false information during the US election campaign.

Social networks have thus become an environment where almost anyone can provide information to an extremely large number of people, an environment where both credible sources and fake news can be found; the distinction between them is difficult to distinguish and difficult to achieve. Fake news, like real news, has gone viral on social media. Although we can measure the number of individuals who have been exposed to fake news or those who have distributed fake news, we cannot determine how many people have actually read or been affected by this type of information. Nevertheless, the spread of fake news can be amplified by social media, as individuals who retrieve and distribute information implicitly approve it [27].

Fake news is a phenomenon that gains credibility by hiding behind the mask of legitimacy, so that people tend not to question it. People are often inclined to consider fake news to be true, as it closely mimics the structure of truthful news and sometimes even refers to fictitious sources in order to provide a sense of reliability [26]. A study conducted in 2016 [6] showed that young people are unable to distinguish between the real Twitter account of the American TV channel Fox News and one that faultily imitates it. Thus, the influence of fake news on Internet users is not surprising, as it is essential that people have/develop the ability to think critically in order to be able to distinguish between true and false information. Domonoske [6] presents a research conducted at Stanford University on the ability of people to identify fake news. As anticipated in the study's title—Students Have 'Dismaying' Inability to Tell Fake News From Real, Study Finds—the results show that from middle schoolers to college students, children and teenagers have limited ability to tell whether information is fake or real. The majority of the 7800 people who were part of the research failed to indicate which of the information was false. Moreover, most of the study participants accepted the information provided as true, without checking if the sources were reliable.

Domonoske [6] concludes by stating that if young people are the future, the future might be ill-informed, and—one could also state—not skillful enough when it comes to critical thinking. Fake information is widely shared by young people who often do this without assessing it, but the responsibility cannot be fully attributed to them because they were not taught to do differently, argues the study's author.

The fake news phenomenon became more visible in 2016, in the context of the presidential elections in the United States. Since then, Facebook and Google have made public reassurances regarding their effort on providing solutions that would fight the threat posed by this phenomenon [28]. Although social platforms and search engines strive to limit or even stop false information, this process is difficult and time-consuming, so people using the Internet need to be able to evaluate and identify manipulated information.

2.2. Fake News Identifying Processes

Even though fake news' negative effects are known or can be perceived, the solutions to these problems are more difficult to identify. Most of the scholarly approaches that discuss fake news and the measures that can be taken to limit this phenomenon propose two directions—technological solutions, targeting especially social media platforms [28,29] and guidance for human fake news identification [24,26,29,30].

Technological advancement nowadays is inevitable; consequently, different companies are trying to offer technological solutions to stop the spread of false information in the digital environment. Even if today's artificial intelligence would have the ability to fully filter out fake news, Waldrop [29] argues this process would be difficult because of the free speech right. It is extremely problematic for online platforms to draw a boundary between what is admitted as true information and what is rejected as being fake news, because there is a sensitive border between stopping fake news in the online environment and violating the right to free expression, the author explains.

The digital natives and digital immigrants concepts proposed by Prensky have been debunked, but in his work on the differences between today's students and past generations, the author [11] discusses how young people have adapted to the 21st century, while schools still use a twentieth-century model when approaching the informing process, thus "most digital skills and knowledge are developed outside of formal education" [20] (p. 1066). This is a valid point of view particularly in the case of Romania, where technology is not used enough in the educational process; the consequences have been observed especially recently, when due to the pandemic lockdown, online schooling was a controversial topic [31], as in some cases, the digital environment has not been used properly by teachers and because new technologies are not widely used in Romanian teaching. The negative effects of the fake news phenomenon on both individuals and society have led to the emergence of new school and university courses. Media literacy courses are proliferating worldwide at all educational levels. Through the "Calling Bullshit" course at the University of Washington, students are taught how to detect misleading images or false statistical data, while the Italian Ministry of Education has organized a digital literacy course in eight thousand high schools to help students identify fake news [29].

Learning from the online analyzing process of some of the most prestigious journalists and fact-checking organizations in the US, McGrew et al. [28] propose three strategies that teachers could adapt to help pupils and students become smarter users of the Internet.

The first strategy involves realizing teaching young people to read "laterally"—checking the credibility of a source not only "vertically" by analyzing the elements found on the site (design, logo, references at the end of the article etc.), but to also search other web pages to find out more about the credibility of the analyzed source. Teachers could also help students make smarter search results selections, the authors suggest. When hurriedly looking for online sources, people tend to click on the first shown result, which could greatly influence the quality and truthfulness of the retrieved information. However, when choosing a source, individuals need to consider various issues, including the URL (source web address) and snippets of text that describe the site. The third method proposed by McGrew et al. [28] refers to the use of the Wikipedia site as an example in exercises that involve comparing true information with false information and especially when practicing lateral reading.

Through their work on the pedagogic approaches of the fake news phenomenon, McDougall et al. [32] collected and disseminated the findings of relevant research, of which the main purpose has been to propose an educational "preventative antidote" to the fake news threat. In a study [33] on 1676 university students and 524 professors in Brazil, Spain, Portugal, and Venezuela, Romero-Rodriguez et al. show that the findings "point to a is a need to develop transversal actions for instructing both university professors and students in media competences to face an ecosystem dominated by fake news and disinformation, as well as public policies directed at improving these skills among citizens at large" [33] (p. 326). In the process of instructing teachers about the fake news phenomenon and the ways they could adapt the information for their students, there is some relevant research proposing various materials to refer to [34–36] when teaching students of all education levels.

Some other recent studies [37,38] propose legislative measures as well as placing more emphasis on truthful alternatives of the fake stories. Nonetheless, all legal measures should be carefully stated, as they could rather easily become a threat to freedom of speech. This has been the case of the German Network Enforcement Act [39], critiqued by the UN's Special Rapporteur on Freedom of Expression, which stated that the legal procedure could potentially have greater effects than censorship [37] (p. 3).

3. Children and Adolescents' Ability to Identify Fake News in Other Studies

Over the years, several authors researched students' ability to identify fake news. The study conducted by Leu et al. [4] in the US was the first to propose the use of the hoax website http://zapatopi.net/treeoctopus in fake news research. This has then been used as inspiration by other studies [2,3] in The Netherlands and in the US. Both the results (Table 1) and the studies' designs (Table 2) were different, whilst all of them show low results in school children's ability to identify hoax sources.

Table 1. Overview of similar studies.

Study No.	Authors	Respondents	Results
1	Leu et al. (2007)	53 school children, 13 years old	6 out of 53 school children (11%) recognized the hoax source as fake.
2	Loos et al. (2018)	27 school children, 11–12 years old	2 out of 27 respondents (4%) recognized the website as being a hoax and explained why.
3	Pilgrim et al. (2019)	68 students, first graders to fifth graders	24 out of 68 school children (35%) did not trust the hoax website.

Table 2. Methodology used in studies presented in Table 1.

Study No.	Authors	Methodology
1	Leu et al. (2007)	The students were exposed to the spoof site Save The Northwest Pacific Tree Octopus (http://zapatopi.net/treeoctopus). They were then asked by another class through a fictional message to locate and evaluate the reliability of the spoof website. The students had to provide three reasons for their answer and summarize the most important information from that site. They were then asked to send an e-mail containing their information or to post this on a blog site. Following the activity, students were interviewed to ensure that they were familiar with the term "reliable", an important concept in the task.
2	Loos et al. (2018)	The author of this article was introduced by the teacher to the schoolchildren. The teacher and the respondents were told that the experiment would be an online reading comprehension exercise. The children were asked to visit the hoax website (http://zapatopi.net/treeoctopus/) and were asked to look at it, click on any links, and not hurry. Then, they were asked to answer five questions, including *Q3. If Greenpeace were to ask you to save this octopus, would you support this and sign? YES, because [. . .] NO, because [. . .] (choose one).* The pupils who answered "YES" to Q3 were judged as perceiving the site as a reliable one. In this way, it was not necessary to explicitly ask about the reliability of the site, which would have risked priming them. The schoolchildren were debriefed after the session and they received a new media literacies training.
3	Pilgrim et al. (2019)	As part of a larger project, the authors used the tree octopus hoax website (http://zapatopi.net/treeoctopus/) and interviewed 68 students in first through fifth grade to explore their abilities to critically examine the hoax website for trustworthiness and reliability. In one-on-one interviews, students were asked to review the tree octopus website and were then asked, "How can you tell if this website has accurate (or true) information?"

4. Materials and Methods

Current Study

Loos et al. [2] conducted an empirical study on 27 children aged 11 and 12 from the Netherlands—"Safe the Pacific Northwest Tree Octopus": a hoax revisited. Or: How vulnerable

are school children to Fake News? An online source was used in the research: the hoax website https://zapatopi.net/treeoctopus/, originally used by Leu et al. [4] in research on online reading comprehension, which led to other studies on fake news using different research designs, but the same online source.

One of the researchers was presented to the children by their teacher in the classroom. Both the students and the teacher were told that the study would look at children's ability to understand an online text; then, the students were instructed to access the website link, read the information, and click on any part of the site. They were encouraged to also search for any online information they wanted, and the site had been automatically translated into Dutch. The school children were then given a questionnaire and were asked to answer several questions, including "*If Greenpeace would ask you to save this animal, would you support this and sign the petition?*". The results of the Dutch study revealed that only two out of the 27 children in the research classified the website as false. The authors explain that there is a possibility that the students' responses were influenced by the environment in which the experiment was conducted—the classroom, in the presence of the teacher, as well as by the emotional involvement with the subject of the site—an animal in danger of going extinct.

This study aims to assess Romanian children and adolescents' ability to distinguish truthful information from fake news and test the theory based on other studies' [2,4,6,7,28] findings, claiming that digital natives cannot recognize fake news. In this study, two research questions are answered:

RQ1: Do Romanian children (10–11 years old, N = 33) and adolescents (18–19 years old, N = 21) perceive the hoax website *Salvăm Jacalopul (Saving the jackalope)* as reliable, as the Dutch school children did with *Save The Pacific Northwest Tree Octopus*?

RQ2: What are the mechanisms underlying the fake news identifying process?

Similarly to the previous study, the first part of this research is based on exploratory research, using one-group post-test only quasi-experimental design, mixed with qualitative debriefing sessions on a sample of N = 54 Romanian children and teenagers (26 girls and 28 boys) from two age categories: 10–11 years old and 18–19 years old. All participants lived in the same small city and went to a public school with no fake news, digital literacy, or online skills programs. Parental consent for all minor participants was obtained before the study. The research was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of SNSPA (National University of Political Studies and Public Administration)[1]. The research conducted in Romania was based on the study conducted by Loos et al. [2], following the same structure, but using a different online source—http://salvamjacalopul.wordpress.com, a website presenting information on an animal that does not exist. The choice not to use the tree octopus website was made based on two reasons: its aspect is considerably different from the way most websites look today, as it was built more than twenty years ago; also, the content presented by the site could be a limit for the research, because it could not be possible for an octopus to be part of the Romanian fauna, which could have corrupted the way subjects perceived the site.

When discussing research design, it is important to make a few mentions about the language used in the experiment. It cannot be easily disputed that "English has acquired this 'hyper-central' role not because it is a superior or intrinsically more useful language, but as a reflection of geo-political realities." [40] (p. 14). Even though there are some relevant studies looking at the influence language—and especially English—can have on the trust in media outlets [41], both the website and the research instrument were constructed in Romanian, as a considerable number of the participants were not fluent English speakers. The website gives diverse information about the animal, a considerable amount of it being enunciated as a mockery, following the original website's style: *Jackalopes are wild*

[1] Note that the Ethics Committee at SNSPA does not have an identification code. The ethics certificate for the current research (with no identification number) has been issued by the Ethics Committee at SNSPA prior to the research and it could be available at any request.

animals and should not live in captivity. [. . .] Also, they're hard to keep on a leash; Participate in marches dressed as a jackalope and have a friend attack you in a lumberjack costume to raise awareness.

Participants were asked to access the website and complete a questionnaire about the online source, then the researcher explained the purpose of the study and spoke about the fake news phenomenon and its negative impact. It was explained to the students that they were randomly selected to participate in a study whose purpose is to measure the ability of digital natives to understand an online text. After being presented with this research objective, they received through the Facebook or the WhatsApp group of the class the link that led to the website created by the researcher for this study. Another difference from the Dutch study research design was that the students participated in the experiment without receiving an introduction about the fake news phenomenon, in order to avoid priming.

The research instrument was constructed similarly to the questionnaire used in the Dutch study [2], being composed of five questions:

Q1. This website presents an endangered animal. What country does it live in?
Q2. According to the website, the jackalope is an endangered species. For what reason?
Q3. If Greenpeace were to ask you to save this animal, would you support this by signing? YES, because [. . .] NO, because [. . .] (choose one).
Q4. Were there parts of the website you did not understand? If so, please explain.
Q5. If there are any other comments about this website you would like to make, please write them below.

Students were told that they could read all the information on the site, including those presented in the secondary sections of the source, that they could search for additional information on the Internet, and that there was no time limit for website observation. After spending enough time learning about the topic presented by the website, the students were offered the questionnaire, which was completed anonymously. The researcher then explained that the *jackalope* does not exist, revealed the real objective of the study, and spoke to them about the importance of the ability to recognize fake news in the online environment. The open discussions following the experiment had the purpose of exploring the ways children and adolescents approach the fake news identifying process and the aspects that tend to potentiate the effects of fake news.

5. Results

The main focus was placed on Q3—If Greenpeace were to ask you to save this animal, would you support this by signing? YES, because [. . .] NO, because [. . .] (choose one), as it addressed the children and adolescents' disposition to undertake action when asked by an external source. Therefore, the participants that answered the third question affirmatively were considered to perceive the hoax website as trustworthy, thus avoiding biasing the students by directly asking them if the source was reliable to them.

The study conducted in the Netherlands by Loos et al. [2] in 2017 found that 2 of the 27 children in the study group recognized the hoax site as being fake. The authors suggest that there were some factors that had an influence on the respondents, including the formal environment, the trust they had in their teacher, and the fact that the animal was presented as being endangered. The latter was confirmed in the Romanian study, as 20 of the 54 respondents said they would support the Greenpeace initiative because they consider protecting at-risk animals to be especially important.

The experiment was conducted in the respondents' school and the researcher was introduced to the students by their teacher, these two aspects having increased potential to influence the answers provided and the way the respondents related to the information. During the debriefing sessions, both the students and the teachers' feedback confirmed the possibility that the answers were distorted by the environment ("*They have learned to adapt to any kind of situation presented in the texts they analyze—real or fictional—and often do not ask too many questions*", "*We also took into account the fact that we were asked to take this seriously and we did not think that would be something fake*"). Two of the high school students

expressed significant doubts about the *jackalope* during the experiment and concluded that the animal does not exist. Nonetheless, both of them answered that they would sign the Greenpeace petition, motivating their choice by explaining that they feared being ridiculed by their peers, even if they were initially told the responses were anonymous ("*We saw that everyone was answering and we didn't want them to make a fool of ourselves*"). Thus, in addition to the sensitive subject, the space, and the teacher's authority, peer pressure should be considered when observing the factors biasing the respondents.

In Romania, only 3 of the 33 children and 1 of the 21 adolescents indicated that they would not sign a petition to save the *jackalope*. Even though, following the Loos et al. [2] study's design, this would suggest that the four respondents perceived the website as fake, their motives demonstrated the contrary—"*No, because it is a dangerous creature*", "*No, as it is an aggressive animal*", "*No, because it kills*". Consequently, when analyzing this study's results or similar studies' findings, the respondents' motives should be considered. Accordingly, it would be recommended for future similar studies to include open discussions, interviews, or focus groups in their debriefing sessions, with the purpose of understanding the results accurately.

When asked if there were any additional comments they would like to make, three of the high school students confirmed they thought the source was reliable: "*I found it interesting and I have learned new things*", "*It would be useful if there was a video material on the site and I think it should emphasize more the fact that humans, through their selfish actions, destroy this species*". Nine of the 33 children wrote additional observations in this part of the questionnaire. Their statements could be placed into one of the two categories: suggesting the respondents perceived the website as being reliable ("*Great! I like that it wants to save this animal*", "*I think this website is useful, because it tries to save an endangered animal*", "*I really liked the pictures*") or on the contrary, suggesting the respondents doubted the trustworthiness of the source ("*Does this animal exist in the world?*", "*The pictures make no sense*", "*Is this animal real?*").

The open discussions that followed the questionnaire revealed interesting facts about the reasons the students chose specific answers over others and about their thoughts on the website. Some of the high school respondents claimed that they searched for supplementary information on the Internet, but failed to retrieve relevant results "*I looked online, but didn't find any photo of it*", "*Me and my desk mate talked about not answering the question, as we typed the information on the Internet and didn't get any results back, but we thought that everyone was filling up the questionnaire, so . . .* ". Hence, there were a few respondents who doubted the truthfulness of the source, but still affirmed that they would perform an action when asked by the said source. This is maybe one of the most important results of the study.

There could be important consequences of the fact that children and teenagers do as unreliable sources tell them to, on both an individual level and a societal level. Since 18- and 19-year-old high school students can use their right to vote, undertaking action when asked by an unreliable source could be a menace to the wellbeing of society. Moreover, the safety of children would be threatened by potentially being manipulated by dishonest entities.

Inasmuch as the research participants did not recognize the website as being a hoax, when observing the fake news identification process, there is an apparent lack of mechanisms helping pupils to fact check online information. During the open discussions, only three of the 54 students responded affirmatively when asked if they searched for additional online information, as the researcher mentioned this as being allowed prior to the experiment. No participant performed a reverse image search or considered the website URL to indicate an unreliable source, even though the URL extension was "wordpress.com", suggesting that the website author could be an untrustworthy or unauthorized individual.

6. Discussion and Conclusions

This study showed that only 4 of the 54 children and adolescents said they would not sign a petition to save the endangered *jackalope* if asked by Greenpeace, but through the open discussions and the answers given to the following questions, these 4 respondents proved to have considered the hoax website as trustworthy, leading to no respondent considering the source as fake. Hence,

the Romanian study's results are even worse than the 2017 Dutch [2] research results, where 2 of the 27 school children recognized the given source as unreliable and explained why they perceived it in such a manner. When considering that the four respondents answering negatively to Q3 identified the source as being a hoax, however, the percentage of the Romanian respondents recognizing fake news (4%) is the same as their Dutch counterparts' [2], but lower than the 2007 [4] (11%) and the 2019 [3] (35%) US percentages.

Most of the authors discussing possible solutions for the fake news phenomenon suggest technological solutions and supporting individuals in the fake news identification process. Considering the scholarly approaches on digital literacy and fake news [24,26,28–30] and the results of this study, the main way individuals could get to a better level of fake news identification is arguably through education. Italy and the US are just some of the states that include fake news identifying subjects in their curriculums [29]. The Romanian school curriculum currently lacks subjects—mandatory or optional—to approach digital literacy, the fake news phenomenon, and the effects it has on people or the ways people could distinguish between fake news and trustworthy information. In addition, carefully constructed legal measures could be adopted both on a national and a European level in order for the fake news outlets and authors to be held responsible and be discouraged.

This study had a number of limitations which should be considered when cited or replicated. The majority of these aspects are related to the methods or the research instrument. The number of study participants (54), even if higher than similar previous studies [2,4], could be increased in the case of future research, so that the findings could further enable generalization. In addition, not enough sociodemographic information was gathered through the questionnaire, which would have been relevant when discussing different ways the environment (educational, economic, social, digital) can influence children and teenagers' ability to identify online fake news. As priorly mentioned, the location where the experiment was conducted (the classroom) potentially affected the participants' responses.

It is recommended to conduct a similar empirical study, with adjustments to the research design, using a control group and an experimental group to receive indication on how to identify fake news online, while including a digital literacy scale. The research could also involve three age groups—children, adults, and seniors, testing Prensky's perspective [10] on the differences between digital natives and digital immigrants in the case of digital literacy. Additionally, researchers should keep in mind that several factors could bias the respondents (e.g., the experiment subject, peer pressure, or the trust the respondents have in the teacher or the person introducing the researcher).

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