



# Consuming Fake News: A Matter of Age? The Perception of Political Fake News Stories in Facebook Ads

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**Abstract.** Social media are increasingly being used by young and old as a source of information. Fake news is also on the rise. The role played by age in the consumption of fake news on social media, however, is unclear. This paper explores the generational differences in the consumption of fake news, first by discussing previous empirical studies in this field and then on the basis of an empirical study carried out between the beginning of February 2018 and the end of June of 2018. In that empirical study, 14 political fake news articles (e.g., relating to Brexit and Donald Trump) were disseminated in the form of advertisements on Facebook. User interaction with the fake content was tracked in order to analyze the number of users in the age groups 13–17, 18–24, 25–34, 35–44, 45–54, 55–64, 65+. The results of the empirical study show that the articles had a higher reach amongst the older age groups, as well as that many people likely took the headlines at face value without clicking on the link. The number of emotional responses posted by the pro-Brexit and pro-Trump groups was greater than those posted by the pro-remain and anti-Trump groups. All of the posts were permitted to run as advertisements on Facebook despite Facebook’s efforts to limit the spread of fake news on their platform. In the final section, conclusions are drawn, limitations described and implications for future research are outlined.

**Keywords:** Fake news · Social media · Facebook · Age · Generations · Disinformation · Misinformation

## 1 Introduction

Looking up information about medical treatments, comparing programs of political parties at election time, browsing reviews to find a good restaurant: these are just a few examples from everyday life showing how often we rely on being able to find reliable information. In the past, we depended on family members, friends, neighbors and traditional media such as radio, television and printed versions of newspapers for such information. In today’s digitized society, a host of new media are available, providing information about any topic we wish. Yet how can we be sure that the information we

read online can be trusted, so that we find the right treatment, the right politician to represent us or the right place to have a good dinner at a fair price in a nearby restaurant?

The problem of information credibility is nothing new [1–7]. As Obadă (2019) [7, p. 148] states: “Fake news is not a new phenomenon [8, 9] because the partisan press has always peddled biased opinions and stories lacking factual basis” [9]. New technologies, from the telegraph in the 19th century to contemporary social media algorithms, have led to the proliferation of fake news [8]. For example, Gelfert (2018) [8] refers to an article that appeared in the *Arena* journal written by J. B. Montgomery-McGovern in 1898, entitled “An important phase of gutter journalism: Faking”, to outline the challenges of fake news in the 19<sup>th</sup> century. In his article, Montgomery-McGovern (1898) complains about “fake journalism”, considered to be “the most sensational stories” published by news organizations (1898, 240), and he explains the “stand-for” technique used by “fakers” to deceive: they recruited a reputable member of the community (e.g., a doctor, dentist, architect, or other professional or business man) who, against payment, would corroborate the fake story.

Though the problem of news credibility is from time immemorial, the role of traditional information gatekeepers such as doctors, news agencies and restaurant critics has been diminished. Media displacement [10] has brought about the rise of social media networks, allowing everybody to post and read unfiltered information on social media networks such as Facebook and Twitter 24/7. Obadă (2019) [7, p. 148] states: “Gelfert (2018) [8] considers nowadays fake news creators eliminated the “middle-men” and address the readers directly, by sharing the sensational stories on social media.” This leads to an increased risk of fake news, which has been defined by Aldwairi and Alwahedi (2018) [11, p. 215] as “fictitious articles deliberately fabricated to deceive readers”. Commercial gain (profit through clickbaits or to make a competitor look bad), power (winning elections) are just some of the reasons for the production and distribution of fake news.

This is a dangerous development for our civil society, constituting as it does a threat to access to reliable information as a ‘primary good’ Rawls (1993) [12], as referred to by Van den Hoven (1994, p. 369) [13]. Bovens (2002) [14] and Bovens and Loos (2002) [15] even suggest that the equal right of access to information should be considered a basic right of all citizens, comparable to the classic (human) rights (see also De Jong and Rizvi, 2008 [16]). The European Commission states that “the exposure of citizens to large scale disinformation, including misleading or outright false information, is a major challenge for Europe. The Commission is working to implement a clear, comprehensive and broad set of actions to tackle the spread and impact of online disinformation in Europe and ensure the protection of European values and democratic systems.” Humprecht et al. (2018) [17] analyzed how the content of fake news differ across Western democracies. They conclude: “(...) the current study (...) compares online disinformation republished by fact checkers from four Western democracies (the US, the UK, Germany, and Austria). The findings reveal significant differences between English-speaking and German-speaking countries. In the US and the UK, the largest shares of partisan disinformation are found, while in Germany and Austria sensationalist stories prevail. Moreover, in English-speaking countries, disinformation frequently attacks political actors, whereas in German-speaking countries, immigrants are most

frequently targeted. Across all of the countries, topics of false stories strongly mirror national news agendas.” If we want to guarantee the right of access to reliable digital information for all citizens, it is important to be aware of the role generational differences could play.

Though age-related limitations such as declining vision, hearing, cognition, and visual-motor functions may affect the use of ICT devices by older old people [18], the enhanced user friendliness of such devices (e.g., iPads) have, at the same time, made them accessible to this same age group. Moreover, compared to a decade ago, older people today are also more familiar with the new media, which has led to more ICT and internet experience [19–22]. Perceived benefits [23] by seeing examples of use by younger people may have also increased older adults’ new media use and probably also convinced many older laggards [24] to start using ICT devices. Whatever the reason, the fact remains that over the past years, the number of older people using new media has clearly been on the rise in western societies. A survey conducted by Pew Research Center [25] revealed that in the USA in 2017 “roughly two-thirds of those ages 65 and older go online and a record share now own smartphones – although many seniors remain relatively divorced from digital life”. Statistics from the EU show that 51% of people aged 55 and older used the internet at least once a week in 2017 [26, p. 16].

Older people’s social media use has also grown in recent years. According to the results of a Pew Research Center survey conducted from January 8 to February 7, 2019 in the USA, 46% of people aged 60+ used Facebook in 2018. Despite this rise in social media use, the social media adoption rate among adults aged 60+ is still relatively low compared to other age groups (18–29: 79%, 30–49: 79%, 50–64: 68%) [27]. Further discussion of this topic is beyond the scope of this paper; we refer to Quinn [23], for a clear overview of studies presenting possible explanations. We also refer to Holt et al. [28, p. 31], who performed a four-wave panel study conducted during the 2010 Swedish national election campaign that found that “although younger people pay less attention to political news in traditional media than older people, they simultaneously are more frequent users of social media for political purposes.”

Social media allow us to connect and share information with others, but it appears that social media users are increasingly shielding themselves from opinions which differ from their own. Ofcom’s Adults: Media use and attitudes report 2019 shows that “compared to 2017, social media users are less likely to say they see views they disagree with; a quarter say they ‘rarely’ see views on social media they disagree with (vs. 18% in 2017). As such, more social media users say they ‘rarely’ see views they disagree with (24%) than say they ‘often’ see views they disagree with (17%)” [29, p. 9]. And the Reuters Institute digital news report 2017 states that “only a quarter (24%) of our respondents think social media do a good job in separating fact from fiction, compared to 40% for the news media. Our qualitative data suggest that users feel the combination of a lack of rules and viral algorithms are encouraging low quality and ‘fake news’ to spread quickly” [30, p. 8].

The vulnerability to fake news often focuses on younger people (e.g., [31–33]), as the following quote also illustrates: “(...) the [European] Commission will encourage fact-checkers and civil society organizations to provide educational material to

schools and educators and include targeted initiatives on disinformation online in the #SaferInternet4EU Campaign” [34].

As we have made clear in this section, it is important that all citizens, regardless of their age, have access to reliable digital information, and that we gain insight into the vulnerability of older adults to fake news on social media. In this paper, therefore, we address the role of age in the susceptibility to fake news and will explore the following research question: What is the role of age in fake news consumption on social media? To that end, we will not only discuss previous empirical studies in this field but also present an empirical study carried out by ourselves, in which we disseminated 14 political fake news articles (e.g., relating to Brexit and Donald Trump) in the form of advertisements on Facebook. We then tracked the number of users consuming fake news in the age groups 13–17, 18–24, 25–34, 35–44, 45–54, 55–64, 65+ consumed Fake News. The methods results are presented in Sects. 3 and 4. In the final section, conclusions are drawn, limitations described and implications for future research outlined.

## 2 Fake News on Social Media

### 2.1 Introduction

While a detailed discussion of the dynamics of fake news on social media is beyond the scope of this article, we nonetheless refer to a number of empirical studies providing background information in order to set a context for our topic: the role of age in fake news consumption on social media.

Allcott et al. (2019) [35, p. 1] offer a clear view on trends in the diffusion of what they call misinformation on social media: “In recent years, there has been widespread concern that misinformation on social media is damaging societies and democratic institutions. In response, social media platforms have announced actions to limit the spread of false content. We measure trends in the diffusion of content from 569 Fake News websites and 9540 Fake News stories on Facebook and Twitter between January 2015 and July 2018. User interactions with false content rose steadily on both Facebook and Twitter through the end of 2016. Since then, however, interactions with false content have fallen sharply on Facebook while continuing to rise on Twitter, with the ratio of Facebook engagements to Twitter shares decreasing by 60%. In comparison, interactions with other news, business, or culture sites have followed similar trends on both platforms. Our results suggest that the relative magnitude of the misinformation problem on Facebook has declined since its peak.”

For a current state-of-the-art study on fake news *detection*, we recommend Mosinzova et al. (2019) [36]. More information about the *consumption* of news via Facebook can be found in the work of Flintham et al. (2018) [37] and Quintanilha et al. (2019) [38]. Resende et al. (2019) [39] provide insight into the characteristics of shared textual (mis)information in WhatsApp groups, while Meinert et al. (2019) [40] outline the development of fake news in the communication on social media platforms.

For more information on the role of fake news in journalism we refer to Waisbord (2018) [41]. Good examples of empirical studies focusing on fake news during the 2016 US presidential elections, are those conducted by Allcott and Gentzkow (2017) [42], Bakir and McStay (2018) [43], Guo and Vargo (2018) [44] and Guess et al. (2018, 2019)

[45, 46]. Mehta and Guzmán (2018) [47, p. 111] analyzed news media discourses around those same elections by looking at their use of quantitative visual rhetoric (persuasive multimodal moves that draw on quantification through visual, spatial, and textual manipulation). Pierri et al. (2019) [48] analyzed the role of Twitter in Italian disinformation spreading during the European elections, Morstatter et al. (2018) [49] present a Twitter analysis of the 2017 German federal election in which they also address fake news, while Broersma and Graham (2012) [50] analyzed the role of Tweets as a news source during the 2010 British and Dutch elections. Dutton et al. [51, p. 5] conducted an online survey of Internet users in seven nations: Britain, France, Germany, Italy, Poland, Spain, and the US, to examine how Internet users “use search, social media, and other important media to get information about political candidates, issues, and politics generally, as well as what difference it makes for individuals participating in democratic processes.” Finally, Fedeli (2018) [52] focuses on the phenomenon of fake news in the context of travel and tourism.

## 2.2 Generational Differences

Neither in the edited volume *Detecting Fake News on social media* [53] nor in *The Handbook of Research on Deception, Fake News, and Misinformation Online* [54] nor in the Reuters Institute digital news report 2017 [30] is any attention paid to generational differences relating to the *consumption* of fake news. A google scholar search (01.02.2020) using the key words ‘social media’ AND ‘Fake News’ AND ‘generation’ OR ‘Age’ OR ‘young’ OR ‘old’ also failed to return any hits for scientific papers on this topic.

While handbooks, manuals, reports and empirical studies offering insight into the role that age differences play in the consumption of fake news on social media would appear to be unavailable, a limited number of reports have been published that shed some light on the topic, albeit in relation to *only one specific age group* (mainly younger people).

In *Net Children Go Mobile: The UK Report*, Livingstone et al. [55, p. 30] showed that in 2013, 61% of the UK respondents aged 11+ reported that they compare websites to decide whether information is true. It should be noted that these findings are based on self-reported data that might or might not reflect real behavior, and that they relate to websites in general and not to social network sites specifically.

Marchi (2012) [56, p. 257] used individual interviews and focus groups with 61 US high schoolers aged 14 to 19 to explore how teenagers view news, and found that “teens gravitate toward fake news, “snarky” talk radio, and opinionated current events shows more than official news, and do so not because they are disinterested in news, but because these kinds of sites often offer more substantive discussions of the news and its implications.” This is another example of a study based on self-reported data.

A report released in 2016 by the Stanford History Education Group [57, 58] focused on students’ capability to judge the credibility of information. It described how several online tasks were administered to 7,804 students in middle school through college to reason about information found on the internet, and particularly on social media sites. The main conclusion regarding their social media use was: “Our ‘digital natives’ may be able to flit between Facebook and Twitter while simultaneously uploading a selfie to

Instagram and texting a friend. But when it comes to evaluating information that flows to social media channels, they are easily duped” [57, p. 4].

Another empirical study [59, p. 407], which focused on university students in Spain (Andalusia) yielded the following: “In order to ascertain the degree of credibility that young users in Andalucía give to information, this study presents the results of the evaluation of online news by university students pursuing degrees in communication and education (N = 188), using the CRAAP test. The data reveal differences in gender and degree program in the credibility assigned to the news. The conclusion is that university students have difficulty differentiating the veracity of the sources, in line with previous studies, with fake news earning higher ratings than real news.”

Gottfried and Shearer (2016) [60] report that in the US, 62% of adults get their news from social media and that about one third say they trust the information they get from social media ‘some’ or ‘a lot’. Once again, these findings are based on self-reported statements.

Regarding the role of generational differences in the *dissemination* of fake news, we found one recent study by Guess et al. [46, p. 1], who write that they examined the individual-level characteristics associated with sharing false articles during the 2016 U.S. presidential campaign. “To do so, we uniquely link an original survey with respondents’ sharing activity as recorded in Facebook profile data. First and foremost, we find that sharing this content was a relatively rare activity. Conservatives were more likely to share articles from fake news domains, which in 2016 were largely pro-Trump in orientation, than liberals or moderates. We also find a strong age effect, which persists after controlling for partisanship and ideology: On average, users over 65 shared nearly seven times as many articles from fake news domains as the youngest age group.”

Finally, we refer to an original empirical study conducted by Roozenbeek and Van der Linden [61] who developed a game drawing on “an inoculation metaphor, where preemptively exposing, warning, and familiarizing people with the strategies used in the production of fake news helps confer cognitive immunity when exposed to real misinformation. We conducted a large-scale evaluation of the game with N = 15,000 participants in a pre-post gameplay design. We provide initial evidence that people’s ability to spot and resist misinformation improves after gameplay, irrespective of education, age, political ideology, and cognitive style. (...) There was a significant difference for age so that older players adjusted their reliability ratings somewhat less (...), although the standardized difference was so small that it can be considered negligible.”

As the findings of the empirical studies discussed in this section demonstrate, there is a lack of research into the role of age regarding the consumption of Fake News on social media. We therefore decided to conduct an empirical study ourselves, with the aim of generating more insight into this field.

### 3 Materials and Methods

To gain a better understanding of the generational dynamics in the online consumption of fake news and the perception of fake news by its audiences (e.g., [62]), the second author of this paper created, together with a Belgian fact checker (see acknowledgements), a fake news website of their own. We copied the approach of ‘real’ fake news websites and

chose Facebook as the social media platform to disseminate the stories. Facebook offers page owners insights into their audiences and makes it possible to analyze who that audience is. Moreover, Facebook is the platform of choice for many fake news websites because it offers the opportunity to create targeted advertisements and increase their post reach by ‘boosting’ the posts, enabling larger audiences to be reached. We launched a fake news website, that closely mimicked ‘real’ fake news websites, making use of click-bait styled articles featuring the same type of language and tactics as ‘real’ fake news websites (e.g. playing into preexistent biases, sparking outrage, making absurd claims). We used a simple Wordpress website and a Facebook account to disseminate our articles, just as fake news websites do. The only difference with ‘real’ fake news was that our posted articles contained a surprise message about fake news for readers actually clicking on the link (see Appendix 1 and 2 for the text of the post).

Our posts followed the usual structure: a clickbait headline with a clear image was posted on Facebook; users clicking on the link were redirected to our website where they could read the first paragraph/introduction of the article with the made-up news. In the middle of the article, a question was asked (or we stopped halfway through a sentence), which was first followed by a few blank lines or an image and then came the surprise message aimed at educating users about fake news.

Facebook offers page users the opportunity to ‘boost’ posts, which is basically a feature that turns Facebook posts into online advertisements. This can be used to reach a greater audience, and to appear on the timeline of people who do not follow the page the article is published on. The feature also includes a menu with specific audience targeting options based on demographic information like location, age, gender and interests.

We posted 14 political fake news articles (see below for more information) and used €50 per article to create the advertisements, which we targeted at different audiences. All of our audiences were based in the UK and/or the USA and included people who had shown interest in the topic of the article (i.e., the political articles were targeted at people who, according to Facebook, were ‘Likely to engage with political content’ (conservative), ‘Likely to engage with political content (liberal)’ or ‘Likely to engage with political content (moderate)’. The age group option was set to 13–17, 18–24, 25–34, 35–44, 45–54, 55–64, 65+.

Once the advertisements were created and approved by an automated Facebook tool, the ads ran for seven days. During these seven days, the Facebook algorithms showed the advertisements to different audiences (based on non-specified demographics to avoid any bias) in an effort to maximize the reach for the dedicated budget. The articles were not published on different pages or platforms, but were written in as ‘clickbaity’ style as possible, after which we let the Facebook algorithm do the work for us. Facebooks algorithms tend to include previous user behavior and current engagement with similar content in order to optimize the reach (appearances on peoples timelines) of each advertisement.

Regarding the content of the articles, we observed the following ethical guidelines: No use of racism, hate speech or real conspiracies. Use vague language so people can fill in the blanks (‘they’, ‘experts’, etc.). Don’t show ads on the website. Don’t use spam tactics, such as bought likes and fake profiles. Show a surprise educational message about fake news once people click on the link.

For the topics of our fake news Facebook posts we decided to write articles playing into the biases of two groups within a polarized debate. The following two examples illustrate this approach: 1. We posted an article on the Big Ben, the famous British monument, reporting that it would allegedly be moved from London to Brussels because of Brexit. We expected this news to antagonize both the remain camp (it's the fault of Brexit) and the Brexit camp (it's the fault of Brussels). 2. Our posted article on Donald Trump's Wall, who allegedly had to pay royalties to China for using the words 'the wall'. We expected this to spark outrage amongst his supporters, and glee amongst his opponents.

We hoped to discover whether age was a factor in the extent to which these political groups became outraged by this political fake news, without even clicking on the link or doing some simple fact-checking. We come back to these two cases in Sect. 4 (see also Appendix 1 and 2).

These two posted articles were part of a total of 14 articles bearing, in no particular order, the following headlines: 'BREAKING: Plans revealed to skip National anthem during superbowl!!'; 'Is Valentine's Day a communist holiday?!'; 'Horrific! Can You See Why This Local Pedophile Got Exactly What He Deserved?'; 'Experts: Trump must pay royalties to Chinese government for the 'Wall'.'; 'Big Ben to be moved to Brussels because of Brexit?!'; 'Breaking: Reservation of Proud Native Tribe Declares Independence!'; 'Huge Cambridge Analytica Data Leak! Is Your Data Affected?'; 'Tables Turned: Personal info of every US company leaked!!'; 'JUST IN: You Won't Believe Who Is Scrambling In Full Panic Mode After The Shocking Truth Is Revealed'; 'Experts: Blocking Website Visitors For GDPR Reasons Is Illegal Under GDPR'; 'BREAKING: this celebrity just got arrested for domestic violence!!'; 'Russian influence suspected in 2018 FIFA World Cup!!'; 'New Treatment Kills Cancer Cells From 500 Yards Away'; and 'Campaign to save the Pacific Northwest tree octopus is gaining momentum'.

We spent 700 euros to boost these articles, while using different topics in order to diversify our audiences as much as possible. Strikingly, Facebook permitted all of the posts to be turned into advertisements. We collected our data with the help of the Facebook 'insights' tool, and Facebook's 'ad center' in the period from the beginning of February 2018 to the end of June of 2018.

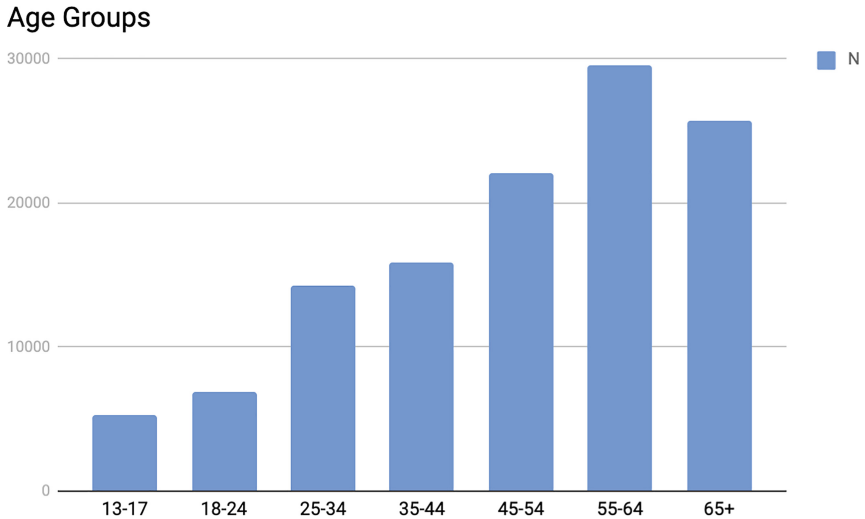
## 4 Results

We reached 119,982 people with the 14 articles we posted, 41.2% of whom were women and 58.8% men. A mere 12.7% of those reached actually clicked on the link to our website, while the rest only saw the headline of the article on Facebook. In other words, 87.3% did not have the opportunity to read our surprise educational message about fake news. We reached the following age groups (following Facebook's age segmentation based on the following age-groups): 13–17: 5,293 (4.4%), 18–24: 6,856 (5.7%), 25–34: 14,265 (11.9%), 35–44: 15,928 (13.3%), 45–54: 22,051 (18.4%), 55–64: 29,603 (24.7%), 65+: 25,736 (21.5%).

Figure 1 shows that persons of all ages consumed the 14 posted articles. This is an important finding, as intervention programs such as the #SaferInternet4EU Campaign by the European Commission [34] (see also Sect. 1) are specifically targeted at schools.



Media literacy programs in primary and secondary education are often mentioned as a way to combat fake news (e.g., [31–33]), but Fig. 1 clearly demonstrates the need to target older people as well.



**Fig. 1.** Fake news consumption by age group (N) for all 14 posted articles

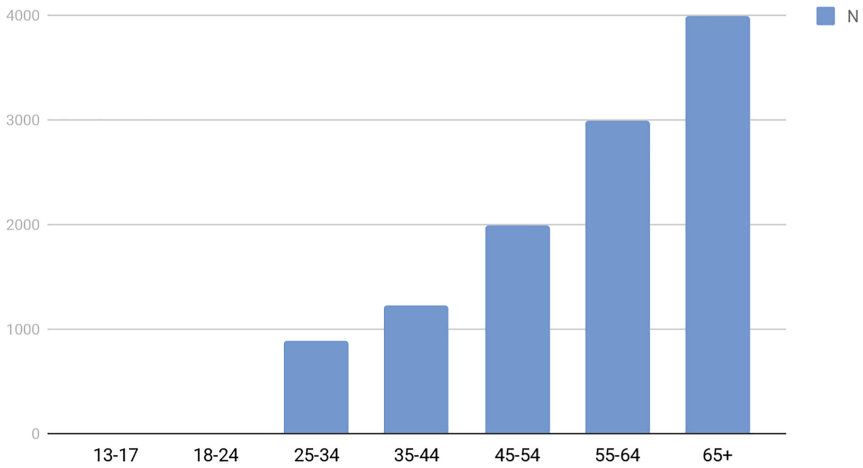
The headlines triggered many emotions and drew much comment in the comment section below the post on Facebook (see Appendix 1 and 2 for some examples). A closer look at two of our more popular and antagonizing posts reveals more about the Facebook audience these attracted.

Our posted article on the Big Ben (see also Appendix 1) reached 11,094 people (women: 29.3%, men: 70.7%), and collected 178 comments directly on the post. Of these, 12.92% had read the article and got the joke, 19.22% responded emotionally with a pro-Brexit stance; 3.37% responded emotionally with an anti-Brexit stance; 24.73% responded emotionally without a clear political affiliation; 28.56% responded with skepticism, and 10.67% responded in other ways. Figure 2 shows that the posted articles had a higher reach amongst older age groups than the younger ones, which could be due to the type of news (political).

Interestingly, while this post failed completely to reach the two youngest age groups, we found that all the other age groups consumed the news of this post (Fig. 2 and Table 1).

Our posted article on Donald Trumps' Wall (see also Appendix 2, Fig. 3 and Table 2) reached 7,500 people (women: 29.8%, men: 70.2%), and got 108 comments. Of these, 12.04% had read the article and got the joke; 20.37% responded emotionally with a pro-Trump stance; 5.56% responded emotionally with an anti-Trump stance; 12.96% responded emotionally without a clear political affiliation; 44.44% responded with skepticism; and 4.63% responded in other ways.

### Age Groups



**Fig. 2.** Fake news consumption by age group (N) for the posted article on the Big Ben

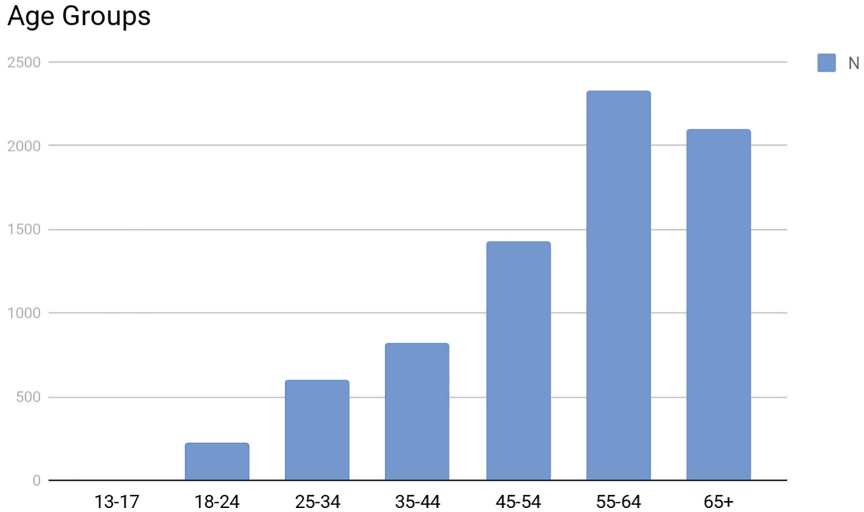
**Table 1.** Fake news consumption by age group (%) for the post on the Big Ben

13–17: 0%
18–24: 0%
25–34: 8%
35–44: 11%
45–54: 18%
55–64: 27%
65+: 36%

**Table 2.** Fake news consumption by age group (%) for the post on Donald Trump’s

Wall
13–17: 0%
18–24: 3%
25–34: 8%
35–44: 11%
45–54: 19%
55–64: 31%
65+: 28%

As Fig. 3 shows, the youngest age group was wholly uninterested, and the 18-24-year-olds in this audience were only barely interested in this post. However, the other age groups were clearly interested in the news of this post.



**Fig. 3.** Fake news consumption by age group (N) for the post on Donald Trump's Wall

Hence these two items proved to act as emotional triggers for people, who were then happy to broadcast their political views even without clicking on the link to read the entire article (see also Appendix 1 and 2). Of those who commented, only 12.04% and 12.92% had clearly read the article and understood that it was meant as a lesson on Fake News. Some 28.56% and 44.44% respectively displayed an instinctive skepticism without elaborating on a lesson having been learned. They may very well have therefore not clicked on the link as they disbelieved the headline of the article to begin with. Those responding emotionally (whether with anger, insults or with satisfaction at the news) showed no indication of having learned any lesson or of having understood the purpose of the article. They are likely not to have clicked on the article for further reading and simply to have taken the headline at face value. Of those with emotional responses, 19.22% were pro-Brexit and 20.37% pro-Trump versus 3.37% who were anti-Brexit and 5.56% anti-Trump. This might imply that the pro-Brexit and pro-Trump groups are both more likely to believe and actively comment on fake news and are more easily emotionally triggered.

## 5 Conclusions, Limitations and Implications for Future Research

This paper focused on the following research question: What is the role of age in fake news consumption on social media? Our review of previous empirical studies in this field showed that prior to this study, generational differences had not yet been studied in relation to this topic. A limited number of empirical studies had collected data on

the way younger people consumed this kind of news. The overall conclusion was that the media literacy of the young in relation to fake news is not yet very well developed. Or, in the words of Wineburg and McGrew (2016) [58]: “Our “digital natives” may be able to flit between Facebook and Twitter while simultaneously uploading a selfie to Instagram and texting a friend. But when it comes to evaluating information that flows to social media channels, they are easily duped. (SHEG, 2016, p. 4) [57].” The one study (conducted by Gottfried and Shearer, 2016 [60]) we found that looked at older adults reports that in the US, 62% of adults get their news from social media, and that about one third *say* they trust the information they get from social media ‘some’ or ‘a lot’. These findings, it should be noted, are based on self-reported statements.

The lack of empirical studies comparing the extent to which different generations consume fake news on social media was the reason for conducting an empirical study aimed at providing insight into such generational differences. We posted 14 political fake news articles containing a surprise educational message about fake news, as advertisements on Facebook. User interaction with the fake content was tracked in order to analyze the number of users in the age groups 13–17, 18–24, 25–34, 35–44, 45–54, 55–64, 65+. Figure 1, 2 and 3 in Sect. 4 show that the posted articles had a higher reach amongst older age groups than the younger ones, which could well be due to the kind of political news posted.

While the algorithms of Facebook are somewhat of a ‘black box’, using the same tactics and articles should produce a similar reach of these fake news pages amongst these age groups. Whether the algorithm pushed these stories based on previous behavior of the target audience or because the level of engagement was higher amongst the older age groups is not important for the end result; the fact remains that the stories had a higher reach amongst older age groups.

This is an important finding, as intervention programs such as the #SaferInternet4EU Campaign [34] by the European Commission (see also Sect. 1) are targeted at schools, while our empirical study shows that we also need to target people who are older.

Also noteworthy is the fact that only 12.7% of the people our posts reached actually clicked on the link. Given the number of emotional responses, it seems likely that many persons took the headlines at face value. Of the people who responded emotionally, those in both the pro-Brexit and pro-Trump groups were more likely to believe and actively comment on fake news, and were more easily emotionally triggered.

A limitation of our study is that we do not know whether, in a real life situation, people would have distributed the post to others. Future empirical studies should address this point (for example by conducting a controlled experiment) and should also include the role of gender, educational level and nationality. In addition, other types of articles than political fake news articles alone should be posted: age groups could differ in their preferences regarding types of articles. The Facebook advertisement tool allowed all of the articles to be published, but under the new regulations introduced after we conducted our study, this is no longer likely to be the case. The set-up of the present empirical study could be used as a guideline for the design of future evidence-based empirical studies to gain more insight into the generational dynamics of fake news consumption on social media, the audience’s perception and the effectiveness of Facebook’s tools in combatting fake news. Another limitation is that we did not track the interactions of the audiences

with the website. A tracking tool based on cookies or the ‘Facebook Pixel’ could have helped to learn more about who actually clicked on the headlines to find out more. For future studies we would recommend implementing tracking tools on the website to identify the role of age in source verification (fact-checking). A more thorough analysis (with the inclusion of a variety of age groups) of the comments is also recommended, as, due to privacy restrictions, this was not possible on a public Facebook page.

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## Appendix 1

### Fake News Post on the Big Ben

Since the EU paid for the current renovation of the Big Ben tower in London some people are claiming that the tower should be moved to Brussels. The UK has voted to leave the European Union and is scheduled to depart on Friday 29 March, 2019. The UK and EU have provisionally agreed on the three “divorce” issues of how much the UK owes the EU, what happens to the Northern Ireland border and what happens to UK citizens living elsewhere in the EU and EU citizens living in the UK. Talks are now moving on to future relations, and the Big Ben tower in London could become part of those talks. 80% of the funding for the renovation of the tower is contributed by the EU and now people want their money back!

Which people, you might ask..

Well.. None!!

Because this article is Fake!

It is written to show you how easy it is to create false headlines, and how dangerous they are. Websites that post click-bait headlines often fill their pages with ads, and are making a shitload of money. These headlines often include outrageous claims which are not supported by evidence. By clicking on unfounded sensational news you contribute to the spreading of fake news. The only thing we can do is undermining their business model!

So next time you see a headline like ours? Think twice about clicking on the link!

### Target Audience for Advertisement (Facebook Options)

Living in: United Kingdom

Age: 13-65+

People who match: Interests: Theresa May, Big Ben, Boris Johnson, London or UNILAD and Politics: Likely to engage with political content (conservative) or Likely to engage with political content (liberal).

## Facebook Results (Some Examples)

- Headline: ‘Big Ben to be moved to Brussels because of Brexit?!’
- Persons reached: 11.094 persons (women: 29,3%, men: 70,7%)
- 355 reactions (104 likes, 1 love, 226 haha, 4 wow, 20 angry)
- 206 comments (178 on post, 28 on shares)
- 47 shares
- 1.515 Post clicks (redirects to website) = 13.66%.

### 178 Comments Directly on Post (Including Some Examples)

Read the article and got the joke: **23** (12.92%)

- “If you read it. It says that it fake news. Made up to see how things spread on the internet.”
- “Amazing comments on here. Does anyone actually read the full article these days? Or are you all happy just to read a headline and get angry?”

Emotional pro-Brexit: **35** (19.66%)

- “Teresa may is giving the EU all our other assets and freedoms they may as well have this to”
- “Might as well as the bells will be in the way of the call of prayer 5 times a day . . One they cleared out free speech”

Emotional anti-Brexit: **6** (3.37%)

- “Can you imagine the look on brexiter's faces if this had to happen? Would be comedy moment of the century.”
- “Aww crying Brexiter's really perk up my day...”



Emotional without clear affiliation: **44** (24.73%)

- “O fuck off”
- “Yep & take all the corrupt pigs in the troth with it, weak government, no morals all on the take, time to sort em out!”

Skeptical: **51** (28.65%)

- “yeah sure”
- “Sounds like April fool”

Other: **19** (10.67%)

- Reply to friend: “With you I’m always right  
- “And apparently we are going to have to keep the maroon Passports as we cannot make blue ones in the UK!!!”

## Appendix 2

### Fake News Post on Donald Trump’s Wall

Experts claim that Donald J. Trump has to pay royalties to the Chinese government for the ‘Wall’.

President Donald Trump has set in motion his plan to build an “impenetrable, physical, tall, powerful, beautiful, southern border wall” between the US and Mexico. This border is about 1,900 miles (3,100 km) long and traverses all sorts of terrain. But what he does not know, is that the collection of fortifications known as the ‘Great Wall of China’ has exclusive rights on the term “Wall”.

In Chinese histories, the term “Long Wall(s)” (長城) appears in Sima Qian’s Records of the Grand Historian, where it referred to both the separate great walls built between and north of the Warring States and to the more unified construction of the First Emperor. The longer Chinese name “Ten-Thousand Mile Long Wall” (萬里長城) came from Sima Qian’s description of it in the Records, though he did not name the walls as such. The ad 493 Book of Song quotes the frontier general Tan Daoji referring to “the long wall of 10,000 miles” Because of the wall’s association with the First Emperor’s supposed tyranny, the Chinese dynasties after Qin usually avoided referring to their own additions to the wall by the name “Long Wall”.

The current English name evolved from accounts of “the Chinese wall” from early modern European travelers. By the 19th century, “The Great Wall of China” had become standard in English, French, and German, although other European languages continued to refer to it as “the Chinese wall”. Since then a copyright has been imposed on Wall-like structures by the Chinese government. And now they are preparing a lawsuit against Donald Trump.

They’ll see him in court!

The court date has been set for never.. Because, this article is a lot of bogus. We wrote this article to show you how easy it is to make people believe in wild stories.. You probably clicked on this link because you thought it was funny, it made you angry or sparked your interest.

We are sorry to break it to you, but articles that are too crazy to believe, are probably not true!

Keep that in mind next time you see a headline like ours;-)

### Target Audience for Advertisement (Facebook Options)

Living in: United States

Age: 13–65+



People who match: Politics: Likely to engage with political content (conservative), Likely to engage with political content (liberal) or Likely to engage with political content (moderate).

### Facebook Results (Some Examples)

- Headline: ‘Experts claim that Donald J. Trump has to pay royalties to the Chinese government for the ‘Wall’. They’ll see him in court!’
- Persons reached: 7.500 people (women: 29.8%, men: 70,2%)
- 355 reactions (189 likes, 11 love, 344 haha, 10 wow, 1 sad, 28 angry)
- 118 comments (108 on post, 10 on shares)
- 121 shares
- 491 Post clicks (redirects to website) = 6.55%.

### 108 Comments Directly on the Post (Including Some Examples)

Read the article and got the joke: **13** (12.04%)

- “Yeah. Good joke”
- “It’s nothing Other than a humorous joke  

Emotional pro-Trump: **22** (20.37%)

- “Maybe we can hire Chinese labor to build the wall that Mexico is going to build.”
- “Oh my! Liberals will try anything to make our President look bad! Give it up already!”

Emotional anti-Trump: **6** (5.56%)

- “Good luck! He filed Bankruptcy on the million his Dad lent him. Never paid Daddy back either. His Attorneys will handle it.”
- “Trump sucks on all levels.”

Emotional without clear affiliation: **14** (12.96%)

- “BULLSHIT, NOTTA going to happen.”
- “STOP YOUR BULL. CHINA DIDN’T INVENT WALLS.”

Skeptical: **48** (44.44%)

- “Fake all the way. America doesn’t pay China for any wall. Only total idiots would believe this”
- “I guess I will also have to pay there is a “wall” in my backyard and the one inside





Other: 5 (4.63%)

- “[Tag of a friend]”
- “[GIF]”.

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