Fighting Disinformation and Fake News FI.DO

Intellectual Output 2

The FI.DO. Manual

Project n. 2020-1-IT02-KA227-ADU-095441

Publication Coordinated by:
University of Humanities and Economics in Lodz

Project Partners

Coordinator

Soc. COOP. A.Fo.Ri.S.Ma (Italy) aforismatoscana.net

Partners

IDEC SA (Greece) idec.gr

DAFNI KEK (Greece) kekdafni.gr

QZR srl (Italy) qzrstudio.com

Rusaalka Films (Slovenia) rusaalkafilms.com

University of Humanities and Economics in Lodz (Poland) ahe.lodz.pl

Zasavje People's University (Slovenia) zlu.si

Ag Number: 2020-1-IT02-KA227-ADU-095441

Co-funded by the Erasmus+ Programme of the European Union

The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein

Contents

Introduction

About the project

The Project FI.DO 'FIghting fake news and DisinfOrmation' is a project funded by the Erasmus+ Program under the KA227 - Cooperation for innovation and the exchange of good practices Partnerships for Creativity, in the field of adult education. It engaged partners from 4 European countries representing 4 different cultural sectors: Soc. COOP. Aforisma and QZR srl. from Italy, IDEC and DAFNI KEK from Greece, ZLU and RUSAALKA from Slovenia and AHE from Poland.

The project objectives and activities were designed to enhance seniors' digital skills. The target group of the project are older users of social media. Two partners, RUSAALKA and DAFNI KEK are from the Visual and Film Production sectors, there is one partner representing creativity sector, QZR srl. with experience in the management and production of IT contents, social media and videogames, and last but not least, the scientific support is given by AHE, the University of Humanities and Economics of Łódź. Having this diverse array of experience and expertise, the project team developed innovative practices (activities and Intellectual Outputs) aimed at supporting the skill improvement of seniors and the development of trainers; 5 partners, Soc. COOP. AFORISMA, ZLU (Zasavje People's University), IDEC and AHE are actually educational organizations for adults.

The project's main target group are senior citizens who have already developed a certain knowledge of the digital world, often acquired through practical use of the tools but not supported by any theory or specific preparation. Seniors have tumbled into a digital age, whose mechanisms they may have difficulty recognizing. To this extent, they are more vulnerable and permeable to poor information. Clearly, knowledge of these mechanisms would help them manage digital tools differently and more knowingly, as the Web is fraught with numerous pitfalls. It is an excellent resource and it has broadened the horizons of our knowledge; still, it is increasingly necessary to develop the tools that can enable users to benefit from it in the best possible way. Improvement of skills in FI.DO project focuses on those necessary to recognize fake news and disinformation.

The rapid spread of the Covid-19 epidemic has multiplied the possibility of accessing false news that can go around the world in a moment, bringing the unaware and unequipped user to believe it, especially that false or manipulative info was also spread by mainstream media. By supporting the setup and access to upskilling pathways, the FI.DO project aims to improve digital literacy of seniors, particularly in recognition of fake news and disinformation. In the context of the contemporary information age, media and information literacy have become an essential competence, as it is the starting point for developing critical thinking and good personal practices for discourse online, and consequently, in the offline world. The present information age requires life-long learning in terms of media literacy, in order to reduce social exclusion. To achieve this goal, it is necessary to intervene on various levels. One way is to

empower users of online services, making them aware and providing them with the tools to adopt a critical approach to the issue. The project intends to strengthen the social inclusion of the 'disadvantaged' age group when it comes to the digital world.

180 seniors in total (45 in each partner country) have been selected by the educational organizations AFORISMA, IDEC, ZLU and AHE, as participants of training activities. The selected candidates attended the Living Labs held in Italy, Greece, Slovenia and Poland. All partners have contacted 60 seniors, with a request to submit a simple questionnaire, drafted in the initial phase of the project. The questionnaire aims to multiply the target audience to have a wide spectrum of needs, problems and criticalities in recognizing fake news and, generally, in the correct understanding of the news. By adding together, the participants of the Living Labs in the 4 partner countries and the total participants in the questionnaire, 240 seniors have been reached by the project initiatives and have benefited from its results.

As mentioned before, the project activities have also addressed the needs of trainers, as regards their professional skills and educational methods to adopt, when working with senior learners. A new approach, the Intellectual Output 1, Training Methodology has been developed thanks to the contribution of all partners. After discussing their professional skills, they developed a training methodology applying various knowledge and experience. The methodology was evaluated during Living Labs, when the participants were able to learn and, at the same time, explain how they consume media materials and move around in the digital world.

Furthermore, the Intellectual Output 2, Manual – that you are holding in your hands - is addressed to trainers and will help them learn more and extend its contents to be used in trainings. It was developed during the lifespan of the project and all activities contributed to its improvement. The Manual focuses on topics such as:

- Historical examples of fake news;
- Fake news perspectives of broadcasters and receivers;
- Diffusion of false information and bad media consumption habits;
- Development of the capacity of seniors in recognizing trusted sources of information;
- How to empower and provide tools for critical thinking in news consumption;
- How to make safe the use of Internet and social media, being alert to fake news;
- How to identify reliable information.
- Terminology, e.g., *fake news* or *disinformation*

Finally, the Intellectual Output 3 'Serious Videogame', is addressed to seniors, as a creative educational tool. Serious games are digital games that are not exclusively or primarily intended for entertainment but contain educational elements as well. Generally, serious games are training tools and, ideally, their serious and playful aspects are in balance. Search engines tend to profile users, offering content that is ever closer to their gusto and thought, generating a bubble in which there is no contradiction but only confirmation. This phenomenon becomes more evident and understandable if experienced directly, step by step, in which playful models have shown practical effectiveness, since they are used to test oneself in a safe environment, in which the game leads the experience towards moments of growth. Over the years, the play

world has expanded out of the restricted field of games, getting to knot with marketing, entertainment and learning. The concept of gamification starts from the idea of making an obligatory or boring process entertaining, by applying theories and models of play to layers of social life that are not necessarily playful. The gamification represents the intent to introduce common dynamics to the games, without the user necessarily noticing, in a way that allows them to perceive the benefits. The FI.DO project expands the playful learning perspective promoted by researchers by applying it to adult learners.

Project objectives

The information age requires life-long learning in terms of media literacy, to reduce social exclusion, as explained by the European Digital Agenda. The strength of media and computer literacy is that it is a preventive, rather than a reactive solution, provoking critical thinking, which is crucial for the 21st century citizen living in an ever-increasing digital environment. The FI.DO project identifies seniors as citizens above the age of 65, who are newcomers to digital media and therefore are more vulnerable to fall prey to e.g., fake content or manipulated images.

The general project objective is development of seniors' skill and inclusion through creativity and the arts. The specific project objectives are:

1) to improve seniors' digital competences in recognizing media disinformation and fake news, and to support their inclusion in a digital world through creativity and arts.

Taking into account the activities this goal will be reached by:

a) participation of 180 seniors to the Living Labs;

b) offering seniors the possibility to explain, during the Living Labs, their needs and their difficulties to avoid traps of a digital world;

c) free access to educational tools, such as the manual and the serious videogame developed during the project.

2) to improve trainers' skills and performance through the exchange on a transnational level. The Living Lab will be coordinated and moderated by facilitators identified by the partners specialized in education and training. Thanks to the Intellectual Output 3 Training Methodology, trainers will acquire new competences on how to manage and coordinate group activities and focus on the project-specific themes.

Basic concepts

This chapter provides an overview of basic concepts used in FI.DO Intellectual Outputs. The name of the project indicates the first concept, *fake news*. One must not assume that the term has a common understanding. The term *news* means verifiable information in the public interest, and as fake news does not meet standards, it may not be referred to as news. Therefore, the term *fake news* is in a way, a self-contradictory phrase, which can change the credibility of information not meeting the standards of real news. It is often created to influence views or political motives. Another term that has emerged in this area is *post-truth*.[1]

Fake news includes disinformation that is generally used to refer to deliberate attempts to confuse or manipulate people. Spreading fake news can start from an individual seeking profit, from state actors who wish to advance geopolitical interests and from opportunists looking to discredit official sources.[2] It is often combined with different and intersecting communication strategies, with hacking and making compromises, which create disagreement between people. In this way it can be a very powerful and destructive tool.[3] If we explain the disinformation in a simple way, it means spreading misinformation, but those two terms differ when it comes to their intent.

Misinformation is false information distributed, regardless of intent to mislead. When it is not clear that the information is false and it is shared, then we refer to it as misinformation. It may be easily distributed through technology and social media, which makes it difficult to recognize, as one may never be 100% sure of the intent behind the misinformation. Sharing misinformation is especially a concern for journalists and authors, who can be sued for libel if they breach professional standards and ethics.

We know that various types of disinformation can be originated from a number of sources, contexts and supported by different tools: photoshop, conspiracy theories, propaganda, deepfakes, fake news, hoaxes, frauds, scams.[4] The authors of fake news animate users, so that the information gets shared for a variety of reasons. It is a problem for people who cannot afford or do not have access to quality journalism or public service news media. It is difficult to generalise, but one can assume that not all older people have access to them, just as people living in poor areas of the world.

---

[1] UNESCO. (2018). *Journalism, 'Fake News' and Disinformation: A Handbook for Journalism Education and Training*. Published by the United Nations Educational, Scientific and Cultural Organization. Retrieved from: https://unesdoc.unesco.org/ark:/48223/pf0000265552

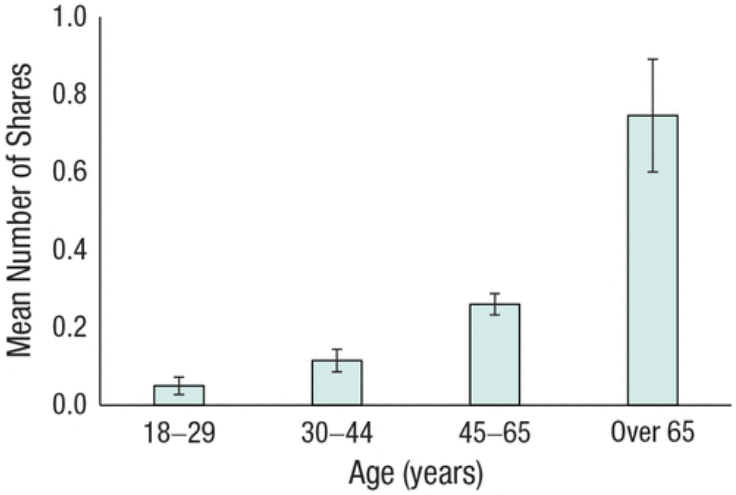
[2] Europol. (2021). *COVID–19: Fake news: Disinformation and misinformation around COVID-19 – a sneaky threat*. Retrieved from: https://www.europol.europa.eu/covid-19/covid-19-fake-news

[3] *Dictionary.com.* (2021a). ''Misinformation'' vs. ''disinformation'': Get informed on the difference. Retrieved from: https://www.dictionary.com/e/misinformation-vs-disinformation-get-informed-on-the-difference/

[4] *Dictionary.com.* (2021a). ''Misinformation'' vs. ''disinformation'': Get informed on the difference. Retrieved from: https://www.dictionary.com/e/misinformation-vs-disinformation-get-informed-on-the-difference/

Malinformation is another type of false information and it means true information shared with an intent to cause harm.[5] A study measuring and assessing the level and effect of fake news on older adults, was made in Ecuador in 2020 on adults aged 65 or older. The results showed that fake news had a negative influence on older adults, including an impact on their mental health. The members of the study group showed concern, distress, confusion, insecurity that can affect both physical and mental well-being. In the time of the Covid-19, the problem was that individuals were promoting fake products and services, misleading information about treatments and questioning the official narrative on websites, sources and guidelines.[6] The study proves that although using social networks can be beneficial for solving a problem, the use of false information may influence one's health negatively. Emotions that people experience and share with others, combined with disinformation can be more contagious than any virus. It is important that not only the media and social networks need to contrast false content, but also national public control and sanction policies should be a standard for all[7]

Vulnerability of older adults is caused by cognitive deficits, because with age, episodic memory and reasoning start to fade. Evaluating whether news is false or correct, becomes increasingly difficult and it might result in finding mental shortcuts, which can make false information seem more real. Many studies have confirmed that susceptibility to fake news increases with age. This is also proven by the fact that people over 65 years old on Facebook share 7 times more links with fake news domains[8]



Source: Brashier, 2020

[5] International center for non-for-profit law. (2021). *Legal responses to disinformation.* Retrieved from: https://www.icnl.org/wp-content/uploads/2021.03-Disinformation-Policy-Prospectus-final.pdf
[6] Europol. (2021). *COVID–19: Fake news: Disinformation and misinformation around COVID-19 – a sneaky threat*. Retrieved from: https://www.europol.europa.eu/covid-19/covid-19-fake-news
[7] Menéndez-Zambrano, C. (2021). Influence of fake news on older adults. *Revista Científica Y Arbitrada De Ciencias Sociales Y Trabajo Social: Tejedora*. ISSN: 2697-3626, 4(7), 91-103. Retrieved from: https://publicacionescd.uleam.edu.ec/index.php/tejedora/article/view/217/381
[8] Brashier, N. M., Schacter, D. L. (2020). Aging in an era of fake news. *Current Directions in Psychological Science*. 2020;29(3):316 - 323. Retrieved from: https://journals.sagepub.com/doi/full/10.1177/0963721420915872

The need for digital critical literacy, i.e. understanding how technology and society work is now higher than ever. Educating people about how communication media operate, how information is shared, processed and consumed by others, can prepare individuals to be critically engaged and better democratic citizens. Clearly, false news stories cause people to lose trust in public media and politics, also due to lack of understanding as to what is a reliable news source. This in turn, leads to loss of trust in journalism, mainstream media and information.

History of fake news

The phenomenon of fake news dates back to as long as the history of storytelling, print, books, news and media; true and false information seem to have been going hand in hand from their very beginning till nowadays. One may find numerous examples of myths, memoirs, urban legends, historical records and works of art that have appeared to be fake after closer scrutiny.

False information and hoaxes in the past were fabricated for a number of reasons, e.g., as provocations or in the hope to obtain benefits, also financial. Some became famous, like Orson Welles *War of the Worlds* broadcast followed by a wave of panic, or the forgeries of Han van Meegeren. Other still keep being distributed and reproduced as authentic like e.g., the Vietnamese photo of two children[9] repeatedly used in tear-jerking news about catastrophes from all parts of the world. Three historical examples of false information or artefacts described in the chapter are less known and may become food for thought and inspiration for discussions and lesson materials.

Travels of Marco Polo

Around 1298 Marco Polo wrote *Description of the World*, the account of the years he claimed he had spent in China. According to the book, he travelled there in 1271 when he met China's great ruler, Qubilai Khan, who made the traveler his special emissary. Marco Polo returned to Venice in 1295 and three years later he described his travels in China to a French writer, Rustichello who in turn wrote the book about Marco Polo's voyage. The book became extremely popular and was one of the primary sources of information about the Orient for many centuries to come. 'Christopher Columbus, for instance, took the book with him on his fateful voyage to the Americas. It also inspired a number of legends, such as the idea that Marco Polo brought the secrets of spaghetti and ice cream with him back from China (he didn't).' [10]

Nowadays, however some researchers (e.g., Frances Wood in her book *Did Marco Polo Go to China?)* suspect that Marco Polo had actually never reached China. The arguments involve a number of missing records and puzzling omissions. Firstly, there is no reference in Chinese archives to the Italian visitor, although Chinese documentation from that time mentions the presence of many other travelers from Europe. If Marco Polo had really been an emissary to

[9] http://hoaxes.org/weblog/comments/nepal_quake_victims_photo

[10] http://hoaxes.org/archive/permalink/the_travels_of_marco_polo

the Great Khan, it seems rather odd that his presence would not have been noted. Secondly, the book, recording seventeen years in China does not include important details about Chinese geography and culture, e.g., names of places, Chinese style of writing or woodblock printing. The traveler never mentioned the custom of drinking tea, foot-binding, the use of chopsticks or the Great Wall of China, either.

On the other hand, Marco Polo did describe some important features of Chinese society, e.g., porcelain, the use of coal, paper money, all of which were unknown to Europeans in the thirteenth century. Scholars suspect that he never travelled further than his family's trading posts on the Black Sea, but that he had known Persian and Arabic guidebooks to China, which served him as a source of information.

The Voynich manuscript[11]

The manuscript is a book of around 240 pages of text in an unknown alphabet, illustrated with images of plants and astrological diagrams. The text has not been translated and it is not clear how old it is, although some date it to the fifteenth century. The document first came to the attention of scholars in 1912, when it was discovered by Wilfrid Voynich in the Italian library of Villa Mondragone. The previous history of the manuscript is puzzling, there was a seventeenth century letter inserted between its pages addressed to the scholar Athanasius Kircher from Johannes Marcus Marci, who explained that the book had been owned by Emperor Rudolf II. It was believed that it had been written by the English monk Roger Bacon. Marci was hoping that Kircher would translate the manuscript, but to no avail.

After returning to America, Voynich circulated copies of the manuscript to cryptographers with the request to decode its alphabet. The first to announce a solution was William Romaine Newbold in 1921, who examined the letters of the manuscript and decided that they were not meaningful but the real meaning lay in the individual pen strokes that composed each letter and which corresponded to an ancient Greek form of shorthand. This theory, however, did not hold up, as what Newbold believed to be pen strokes were, in fact, cracks in the manuscript's ink caused by age.

In 1943 Joseph Martin Feely, who worked on the assumption that the manuscript had originally been written by Roger Bacon, attempted to match the frequency of characters in the text, to the frequency of characters in Bacon's other texts, which again proved unsuccessful. In the 1970s, Robert Brumbaugh, came up with a theory that the manuscript might have been a medieval treatise on the elixir of life, using a complicated decoding scheme. Since then, a number of hypotheses have been suggested. In 1978 John Stojko argued that it was an account of a civil war written in an ancient, vowelless form of Ukrainian. In 1987 Leo Levitor suggested it was an ancient prayer-book, offering repetitive meditations on the themes of pain and death. Most recently, Jacques Guy has wondered whether it might not represent an ancient attempt to transcribe an east-Asian language like Chinese or Vietnamese. The fact, that the text has not been translated, led many to a belief that the writing was actually meaningless and that the text itself was fabricated.

[11] http://hoaxes.org/archive/permalink/the_voynich_manuscript

Computer scientist Gordon Rugg has argued that a hoaxer could have created the book using an encryption tool known as a cardan grille and that the text was written by a sixteenth-century Englishman, Edward Kelley in order to deceive Emperor Rudolph II. There have also been theories that the manuscript may have been an 'alchemical herbal', a book of nonsense writing that doctors used to impress their patients. In 1986 Michael Barlow suggested that Voynich himself might have written the manuscript as a hoax, since as an antique book dealer, he had the necessary knowledge. However, there is no evidence to prove this. To this day the Voynich manuscript remains a mystery.

Wine Awards for excellence[12]

Since early 80's the magazine *Wine Spectator* has granted 'Awards of Excellence' to restaurants offering its clients exceptional wine lists. To win an award, a restaurant has to submit their wine list and pay a $250 application fee. Most restaurants would receive the award and *Wine Spectator* earns over $1 million a year in fees. In 2008 the magazine granted an award to *Osteria L'Intrepido*, an Italian restaurant in Milan. Quite embarrassingly, it appeared that the restaurant did not exist. It was Robin Goldstein, the author of *The Wine Trials*, who submitted the fake restaurant application and a false wine list that included *Wine Spectator*'s lowest scoring Italian wines. In order to make the hoax work, he created its website and posted fake reviews online. He claimed that he wanted to determine how the awards reflect the quality of wine offerings. Goldstein revealed the truth in August 2008 saying that the hoax proved the Awards of Excellence to be a profitable advertising scheme, rather than an honest assessment of restaurants' wine lists.

Clearly, the historical examples showcase the reasons, ways and effects of false information made available to the public.

[12] http://hoaxes.org/archive/permalink/wine_spectator_hoaxed

Theory of fake news and disinformation

www.pexels.com

A lie travels around the globe, while the truth is putting on its shoes.

Attributed to Mark Twain

Media consumption habits and trends

The world nowadays is largely dominated by information and data-driven processes. These can be better explained and understood if we frame two important figures in this sense: the content creator and the content consumer. For the sake of this study, the focus will mostly be on the role of consumers. In the project, the 65+ year old consumers are the age group in question. However, for the sake of comprehensiveness, its reach in terms of analysis and attention, will be much wider than this single pool of consumers.

If we are to approach the topic of media consumption from the point of view of current trends, the age group of seniors appears to be a reasonable choice in the light of media consumption habits nowadays.

The socio-demographic characteristics of the consumers influence to a great extent the type of consumed content, across all media, social or traditional, such as radio, cable television or newspapers. These are the findings of a survey by the multinational consulting company Deloitte, presented in a recent report on media trends[13]. For socio-demographic aspects, one mostly considers the age, the social group, the geographical location, the level of education and other features making up the consumer persona. Consequently, the Deloitte study identifies possible explanations behind consumer choices, including individual tendencies and preferences including the influence of external factors, such as marketing.

The first big divide, thanks to which it is possible to understand the current trends for media content consumption is the age. According to different studies spanning beyond the insights provided by Deloitte, the age group most commonly defined as 'Generation Z' has a consumption pattern much different from the 'Boomers', who are the addressees and beneficiaries of the FI.DO project.

To give some clarity on such categorization, Generation Z includes those born after 1997 (and in principle until 2007, still the period is too recent for a proper classification). On the other hand, the Boomers represent those who were born in the years 1947 – 1965, basically in the aftermath of the Second World War. It was when the world experienced an unprecedented economic growth, relative stability and the spiking growth ('boom') of births.

Understandably, the older generation remains more loyal or attached, both emotionally and practically, to more traditional media: newspapers, radio, and cable tv. However, with some exceptions, the generation of seniors already records a shift toward more modern forms of media, for both news and entertainment.

The Generation Z now represents the forefront of most online innovations in both consumption and production. Taking a closer look at how its representatives use media, one is likely to identify the direction that will become more prominent in the future, as more and more younger people will follow the tendency initiated by this group of consumers. For them, the main forms of content to engage in, are videogames, music, and social media.

[13] Deloitte Insights. (2021). Digital media trends, 15th edition. *Deloitte*.

First and foremost, the role of entertainment seems paramount in both studying and using such media platforms for leisure. Although traditionally, media have been tools for the communication of informative content, such as radio and television with their news broadcasts, now media mostly produce entertainment for the end user. Videogames and music perfectly fit in this category, complemented with podcasts.

With all the differences in the use of media, the younger generations do not merely 'shift' from traditional news outlets to more recent ones. In fact, while for more cable tv and radio the audience is more stable, it is clearly not the case for social media, with changing trends, even in short periods of time. At the same time, social media appear to favor, or rather, to be favored in the consumption of entertainment material rather than informative content or news feeds.

There is a reasoning behind this generational divide. In fact, already among adults, the level of trust toward news found on social media is quite low: 67% of them show moderate distrust vis-à-vis news found on social media. It is possible to understand how this lack of faith has trickled down also to the younger generations. Still, the fact that news are distributed in social media may not be perceived only in negative terms, as it has supported the growth in democratization and decentralization of information. Furthermore, as long as the pool of consumers is aware of the importance of critical thinking when approaching news online, it can only be considered as an advantage and added value for the overall quality of the Internet information. In fact, data do not downplay the increasing role and importance of news landing on social media.[14]

Another general trend is the increasing role of paywalls for accessing certain forms or types of content in media, either to support their own business or to pay royalties for the media they broadcast (as in the case of music platforms); end users may subscribe to multiple monthly or yearly programs for the consumption of specific content, such as music or movies. However, this appears to be a great obstacle for a big part of the consumer community, with many remaining outside of what the paywalls offer.

If we move more closely to the media consumption pattern of the Boomers, the usage of the Internet has increased for all age groups in 2020, including seniors (+6%). The ratio also reflects the increase in general media consumption and not just resources available on the Web.[15]

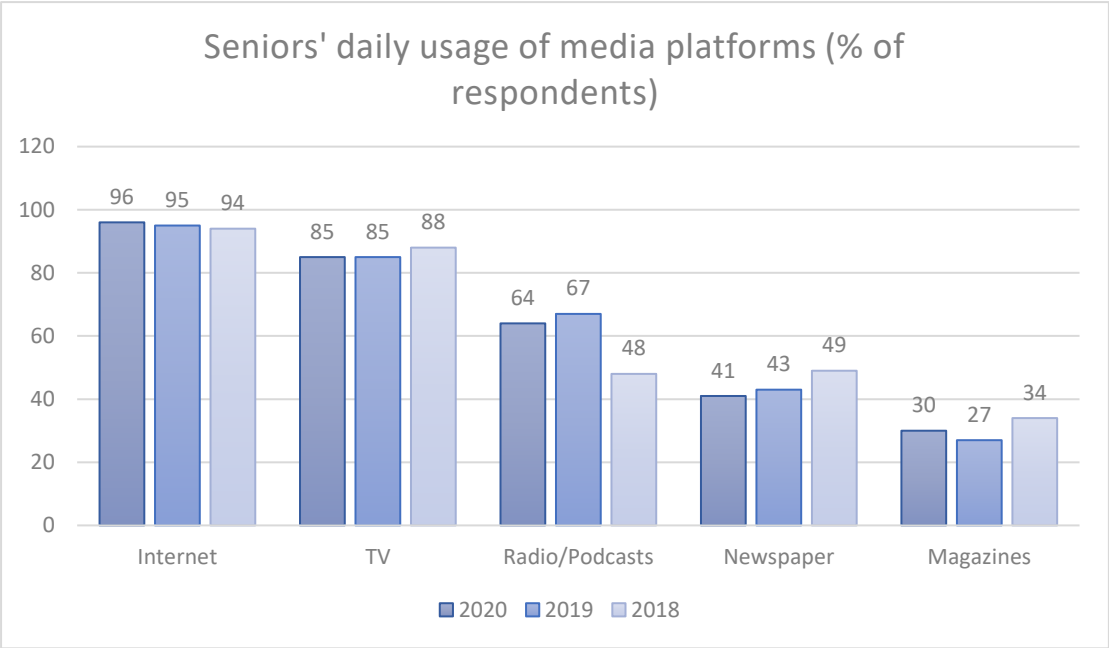
Yet, the percentage of seniors consuming Internet contents tends to vary geographically. The US seems to be in the lead, with 88% of senior citizens accessing the Net on a daily basis. These percentages can be very different in Europe, although it is itself a post-industrial society. According to Eurostat, similar proportions can be found in central or northern European countries, such as Finland or Luxembourg. However, in the south-eastern part of the continent, the situation is much less technologically advanced, with numbers spanning from 25% of seniors accessing the Internet on a daily basis in Bulgaria to 33% in Greece.[16]

[14] Bergstrom, A. (2020). Exploring digital divides in older adults' news consumption. *Sciendo*.

[15] Media Logic. (2020). Senior Media Preferences. Albany: Media Logic.

[16] Eurostat. (2021, May 17). *How popular is Internet use among older people?*

Differences may exist also within the senior group itself. Generally speaking, we define seniors already from the 55th year of age: for the purpose of FI.DO project, the target group is above 65. The difference is not meaningless, according to the most recent research on trends and media consumption. In fact, according to Deloitte, seniors in the age group between 66 and 70 year olds are four times more likely to retrieve news on social media compared to older seniors (the age group of 81–85-year-olds).[17] It is thus important to constantly monitor the evolution of trends as they tend to shift even within the same age group.



Source: Media Logic

Another important element in the media consumption analysis is the role of education in media consumption. According to the findings of research on fake news, education is indeed the second most important topic after age, when it comes to discerning news on social media platforms.[18]

Education is interpreted in its broader sense, referring not only to the school system (although in general it plays an important role) but also to digital knowledge development. According to the American Library Association Office for Information Technology, which established a Digital Literacy task force, nowadays more than ever, it is crucial 'possess the variety of skills, cognitive and technical, required to find, understand, evaluate, create and communicate digital information' and to be able to 'interpret search results and judge the quality of the information retrieved'.[19]

[17] Deloitte, *op cit*.

[18] Bergstrom, *op cit*.

[19] Rosanne Marie, C. (2013). *Information Literacy and Digital Literacy: Competing or Complementary? Communications in Information Literacy*.

It is clear now to what extent, the trend of online media consumption requires the knowledge of digital competences, which span from knowing how to access the content to the specific competences in interpreting the online news as well as understanding different offers in terms of pay-to-watch fees and other challenges faced by consumers.

Cognitive biases

In this part of the manual two specific types of cognitive biases will be discussed: confirmation bias and implicit bias. Starting from the scientific definition of cognitive bias, we will investigate the factors and mechanisms behind the psychological processes of implicit bias and cognitive bias.

Cognitive bias refers to a systematic (that is, non-random and, thus, predictable) deviation from rationality in judgement or decision-making. Most traditional views on human cognition suggest that people tend to optimality when making choices and judgments. In line with this perspective, people behave like rational, close-to-optimal agents, capable of solving simple as well as complex cognitive problems to maximize the rewards they can obtain from their interactions with the environment. Normally, a rational agent would weigh potential costs and benefits of their actions, eventually choosing the option that is overall more favorable. In this way, a selection takes place, which means that all information relevant to the solution of the problem is considered, leaving out irrelevant information that could contaminate the decision. While whole research areas in social sciences have been built on the assumption of rationality, it has been challenged in recent decades in light of evidence from Experimental Psychology and related areas suggesting that people's judgments and decisions are often far from rational: they are influenced by seemingly irrelevant factors or disregard important information.

Moreover, these departures from the rational norm are usually systematic: people fall back into the same type of problem, making the same mistake. In other words, people seem to be irrational in a predictable way. Therefore, a theory that aims to model human judgement and decision-making must be able to explain these instances of consistent irrationality or cognitive biases. To make sure to understand what all the different types of bias have in common and how they originate, some of the approaches that have attempted to explain cognitive bias are mentioned: limited cognitive resources, influence of motivation and emotion, social influence and heuristics.

The first obvious explanation for cognitive bias is the limited processing capacity of the human mind. Concretely, since memory does not possess infinite capacity, we cannot consider big amounts of information when making decisions, even if all this information is relevant to the problem. For this reason, we are forced to focus on a subset of the available information, which cannot be processed in detail either. Therefore, in most complex problems, the optimal, truly rational solution is out of reach and we can only aim at ‘bounded rationality’.

Another potential cause for some cognitive biases is emotion. The reason for this is that emotions are biologically relevant because they affect behavior and can drive some systematic

deviations from the rational norm. A related potential source of bias is motivation. In fact, research has shown that people's inferences can be biased by their prior beliefs and attitudes. It means that they can engage in motivated reasoning: when solving a task, they choose the beliefs and strategies that are most likely to lead to the conclusions they want to reach.

Some cognitive biases might be produced, or at least modulated, by social cues. This is the case with bandwagon bias, which describes the tendency of people to conform to the opinions expressed by others and has a strong influence in collective behaviors, such as voting in elections.

Heuristics and mental shortcuts are adopted when making rational choices is not always feasible, or even desirable, for several reasons:

(a) it takes time to effortfully collect and weight all the evidence to solve a problem:
(b) it also needs the investment of lots of cognitive resources that could be used for other purposes;
(c) quite often a rough approximation to the best solution of a problem is 'good enough,' whereas continuing work to obtain the optimal solution is so expensive that it does not pay off. Therefore, the mind uses heuristics, or mental shortcuts, to arrive at a conclusion in a fast-and-frugal way.
A heuristic is a simple rule that does not seek to capture the problem in all its complexity to arrive at the optimal solution, but produces a 'good enough' solution while simultaneously minimizing the effort. Cognitive biases appeared in first place in the evolution course, produced by heuristics or by any other mechanism, and were repeatedly selected because they offered advantage for survival. For instance, in ancestral environments, there was a pressure to make important, life-or-death decisions quickly (e.g., it was better to run away upon sighting a potential predator than to wait until it is clearly visible, but perhaps too close to escape).

These conditions foster the development of decision mechanisms that (a) work fast and (b) produce the so-called 'least costly mistake'. In the example, it is better to mistakenly conclude that a predator is in the surroundings, than the alternative, i.e., mistakenly conclude that there is no predator. Overall, many cognitive biases seem to systematically favor the conclusion that aligns with the least-costly mistake.

Additionally, exhibiting certain cognitive biases can produce other types of benefits, particularly in emotional terms. For example, a well-known cognitive bias is the illusion of control, which is the mistaken belief that one can exercise control over outcomes that are actually uncontrollable. The emotional consequences of this bias are remarkable: a person who thinks that nothing can be done to achieve an outcome might feel despair; contrary to those who develop the illusion of control, incorrectly attributing to themselves any positive outcome.[20].

[20]FERNANDO BLANCO, "Cognitive bias" in "*J. Vonk, T.K. Shackelford (eds.), Encyclopedia of Animal Cognition and Behavior"*, 2017, https://www.researchgate.net/publication/317344882_Cognitive_bias.

Confirmation bias is a psychological mechanism that leads us to look for and then to accept more easily any news that confirms what we already believed. Thus, we have a tendency to avoid news that contradicts our beliefs. In this way, even though our idea is disproven, we show the tendency to remember the news that confirms it[21]. Confirmation bias is one example of how humans sometimes process information in an illogical, biased manner. This biased approach to decision making is largely unintentional and often results in ignoring inconsistent information. Existing beliefs may include one's expectations in a given situation and predictions about a particular outcome. People are especially likely to process information to support their own beliefs when the issue is vitally important or self-relevant. By doing so, many factors of which people are unaware can influence information processing. Humans have difficulty processing information in a rational, unbiased manner once they have developed an opinion about an issue. This happens because they are better able to rationally process information, giving equal weight to multiple viewpoints, if they are emotionally distant from the issue (although a low level of confirmation bias can still occur when an individual has no vested interests).

One explanation for why humans are susceptible to confirmation bias is that it is an efficient way to process information. Being constantly bombarded with information in the social world, they cannot possibly take the time to carefully process each piece of information to form an objective conclusion. Human decision-making and information processing are often distorted because people are limited by interpreting information from their own point of view. It should be kept in mind that people need to process information quickly to protect themselves from harm. This behavior is adaptive because relying on instinctive and automatic reflexes keep humans away from danger. Another reason people show confirmation bias is to protect their self-esteem. People like to feel good about themselves, and finding out that a belief they care deeply about is incorrect makes them feel bad about themselves. Therefore, they will seek information that supports their beliefs. Another reason is accuracy as people want to feel that they are smart and the information that suggests that one has an inaccurate belief or has made a wrong decision suggests a lack of intelligence[22].

Implicit bias involves associations outside conscious awareness, and it is the tendency to consider people that we trust and with whom we have common features like gender, ethnicity,

---

[21]LAURA FASANO, *"Psicologia delle fake news: i meccanismi che ci portano a credere alle notizie false"*in "*Cultura Digitale"*, "*Le Macchine Volanti"*, 2021

[22] BETTINA J. CASAD, *"Confirmation bias"* in *"Psychology & Mental Health, Encyclopaedia Britannica"*, 2016, https://www.britannica.com/science/confirmation-bias.
For a further exploration of the concept of "Confirmation bias", see: FRANCESCA AMENDUNI, *"Come elaboriamo l'informazione che riceviamo e gli errori della nostra mente"* in "*Valigia Blu"*, 2018,https://www.valigiablu.it/notizie-cervello-pregiudizi/; SANDEEP SUNTWAL, SUSAN A. BROWN, MARK W. PATTON *"How does Information Spread? A Study of True and Fake News"*in "*HAWAII INTERNATIONAL CONFERENCE ON SYSTEM SCIENCES* 2020 *(HICSS-53)*", pages 5893-5902, 2020, https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1737&context=hicss-53; WALTER R. SCHUMM, "*Confirmation bias and methodology in social science: an editorial"* in *"Marriage & Family Review"*, pages 285-293, 2021, https://www.tandfonline.com/doi/full/10.1080/01494929.2021.1872859;

age, as more reliable[23]. Studies reveal that students, nurses, doctors, police officers, employment recruiters, and many others exhibit implicit biases with respect to race, ethnicity, nationality, gender, social status, and other distinctions. For instance, research shows that the majority of people have an implicit bias that associates science and technology with gender, so from a very young age, girls are not encouraged to pursue these careers[24].

Implicit biases are also defined as the attitudes or stereotypes that affect our understanding, actions, and decisions in an unconscious manner. Operating outside of our conscious awareness, implicit biases are pervasive, and they can challenge even the most well-intentioned and egalitarian-minded individuals, resulting in actions and outcomes that do not necessarily align with explicit intentions. Because the implicit associations we hold arise outside of conscious awareness, implicit biases are not necessarily in line with our explicit beliefs and stated intentions. This means that even individuals who profess egalitarian intentions and try to treat all individuals fairly can still unknowingly act in ways that reflect their implicit—rather than their explicit—biases. Thus, even well-intentioned individuals may act in ways that produce inequitable outcomes for different groups. Everyone has implicit biases, regardless of race, ethnicity, gender, or age; no one seems to be immune. Consequently, the range of implicit bias implications for individuals in a wide range of professions is vast. For example, researchers have documented implicit biases in healthcare professionals, law enforcement officers, and even individuals whose careers require avowed commitments to impartiality, such as judges.

Research on implicit biases has identified several conditions in which individuals are most likely to rely on their unconscious cognition. These include situations that involve ambiguous or incomplete information; the presence of time constraints; and circumstances in which our cognitive control may be compromised, such as due to fatigue or many things to think about. Accumulated research evidence indicates that implicit bias powerfully explains the persistence of many societal inequities, for example, in criminal justice, healthcare, and employment.[25] In

---

[23]LAURA FASANO, *"Psicologia delle fake news: i meccanismi che ci portano a credere alle notizie false"* in *"Cultura Digitale"*, "*Le Macchine Volanti"*, 2021, https://www.lemacchinevolanti.it/approfondimenti/psicologia-delle-fake-news-i-meccanismi-che-ci-portano-a-credere-alle-notizie false?fbclid=IwAR3BHYO7uSDYwX0c00tMYMWYdYQn5MQydTLTukLQHXK3VoeHkG5kpqJt47Q.

[24]J. T. JOST et al., CLAIRE CAIN MILLER in *"Implicit Bias"*, in "*Merriam-Webster Dictionary"*,https://www.merriam-webster.com/dictionary/implicit%20bias.

[25] CHERYL STAATS, *"Understanding Implicit Bias: What Educators Should Know "*in *"American Educator"*, 2015-2016, https://files.eric.ed.gov/fulltext/EJ1086492.pdf.
For a further exploration of the concept of "Implicit bias", see: CHLOË FITZGERALD AND SAMIA HURST, *"Implicit bias in healthcare professionals: a systematic review"*, in *"BMC MEDICAL ETHICS"*, 2019, HTTPS://BMCMEDETHICS.BIOMEDCENTRAL.COM/ARTICLES/10.1186/S12910-017-0179-8; HOLROYD J., SCAIFE R., STAFFORD T., *"Responsibility for implicit bias"*, in *"Philosophy Compass"*, 2017, https://philpapers.org/archive/HOLRFI-3.pdf; SHANNON R. WAITE, *"Towards a Theory of Critical Consciousness: A New Direction for the Development of Instructional and Supervisory Leaders"* in *"Journal of Educational Supervision"*, 2021, https://digitalcommons.library.umaine.edu/cgi/viewcontent.cgi?article=1088&context=jes; MICHAEL

social networks this phenomenon is further amplified by the functioning of the algorithms that show us more often the people with whom we interact the most, favouring interactions with individuals who have ideas similar to ours, which may not be truthful.

Vulnerable social groups

According to the definition by the European Institute for Gender Equality, vulnerable groups are defined as 'women, children and persons belonging, or perceived to belong, to groups that are in a disadvantaged position or marginalized.' This definition could be expanded to include also other groups that do not have all the knowledge or competences necessary to recognize fake news.[26]

It is important to keep in mind that fake news have deeply evolved over the last decades, particularly during the critical expansion of social media. Now, the technological component of this misleading news is not marginal, as the mere media support. On the contrary, nowadays, technology is one of the main, if not the core, components defining the consumption of (fake) news. In this sense, highly efficient algorithms powered by the machine learning technology can track users' activities on social media or on the Internet in general, apprehend patterns of behavior and tailor the content proposed on the platform, powered by such algorithms.[27]

These machines are not perfect or 100% accurate when tailoring the information or entertainment content. For this reason, it is more appropriate to talk of vulnerable groups rather than individuals. Although machines strive to provide the most suitable content to each one of the end users, most of the categorization takes place at a group level. Some of them will be explored further in this section.

At the same time, vulnerable groups are not simply a passive target of the actions of artificial intelligence. As introduced in previous sections, individual preferences of the users as for social media do matter. If seniors are more comfortable with traditional media outlets, it is clear how the efficiency of algorithms is limited.

Overall, it is possible to say that to certain extents, all groups are targeted by algorithms, although some may not be affected. This is because passive actions on the Internet are pieces of information that algorithms analyze and build on them the suggestion of interesting content, be it fake or not.

BROWNSTEIN, *"Implicit bias"* in *"The Stanford Encyclopedia of Philosophy",* 2019, https://plato.stanford.edu/entries/implicit-bias/.

[26] European Institute for Gender Equality, vulnerable groups. Accessible at: https://eige.europa.eu/thesaurus/terms/1429#:~:text=Women%2C%20children%20and%20persons%20belonging,a%20disadvantaged%20position%20or%20marginalised.

[27] Deeptrace. (2019). The State of deepfakes: landscape, threats, and impact.

For example, in the context of information that is true, chronological records of research on social media may and are used for the promotion of content in line with what has been searched for on the Internet earlier. Very common both in Western Europe and the United States is advertised content for medical care plans. Among those seniors who use the Web, 60% of them are likely to search online for such plans.[28] This percentage is doubtlessly tracked not only through intelligent algorithms, but most probably also for their research chronology. This can be true also for adults or younger groups that have health-related problems.[29] The issue arises when health-sensitive groups are targeted with campaigns that advocate for incorrect or completely false information, regarding treatments. This can be true for both younger and senior groups.

There are also other elements describing the vulnerability of certain groups. For this reason, all these groups can be targeted in a transversal way by fake news, regardless of age; one of these elements is digital literacy.

In fact, specific social groups can be considered 'disadvantaged' or 'vulnerable' because of the lack of opportunities offered for the development of necessary digital skills to access and navigate the Web. This is particularly true in the larger context of education and educational opportunities for certain groups. As mentioned in the section regarding media consumption and habit trends, digital literacy appears to be the necessary competence for the fully conscious consumption of digital content, be it news or entertainment online. Research has proved that the education level of consumers influences the approach to comparing purchases and deals online: a connection has been highlighted between higher education and the capability to analyze prices and deals across different portals and websites. This is true for consumers with already a middle level of education.

This pattern is even more visible, when the level of education is applied to certain groups, for example, research reveals that men are less likely to have problems with online comparisons of deals vis-à-vis women. This is true both in terms of time employed for the operation as well as for the efficiency of the research. Clearly, this is not directly related to the discernment of news, be them fake or real, thanks to the comparison of different sources: however, the process of finding other options and possibilities online for source verification can be considered somewhat similar.[30]

Other elements defining the capability of verifying fake news are related to the level of income at the disposal of the end user, for example in case of certain communities marginalized in the United States like communities of African American people.[31] Research has found that African

---

[28] MediaLogic, *op cit*.

[29] Bold, N., Strycharz, J., van de Velde, B., & H de Vreese, C. (2020). Vulnerability in a tracked society: Combining tracking and survey data to understand who gets targeted with what content. new media and society.

[30] Seo, H., Blomberg, M., Altschwager, D., & Tien Vu, H. (2020). Vulnerable populations and misinformation: A mixed-methods approach to underserved older adults' online information assessment. new media & society.

[31] Seo, H. et al., *op cit.*.

American older adults are among the groups with the least developed digital skills in the country, given their sociodemographic background of marginalization, both educational and economical, if compared to other demographic groups. This turns into the limited capability to access the Internet and social media in a conscious and critical way.

In general, media literacy across adults, especially seniors, is considerably lower compared to other social groups, making them vulnerable to campaigns of disinformation and misinformation. This is also due to the fact that, even when freely available, most of the educational material regarding digital competences and the relative upskilling, is only available online. Thus, the digital divide itself becomes a further reason for marginalization of this group.

The access or use of digital resources can be an important factor of exclusion from most of the educational resources for seniors. In fact, this statistic proves to be challenging or at least something to take into consideration when developing materials related to seniors in Europe. According to Eurostat, seniors are in fact most likely to access the Internet only in central-European countries, while to a much lesser extent this takes place in south-eastern Europe, in countries such as Greece or Bulgaria (see the section on media consumption and habit trends).[32]

Political context

Fake news can erode trust not only in dubious but also in trustworthy media (spillover effect) and cause misallocations of resources. Fake news spread fast because of emotional reactions such as anxiety or fear[33]. The false information is frequently circulated to trigger socio-political differences and is associated with radical political opinions and positions, such as alt-right and left and populist activists[34].

Recently, the term 'fake news' has been used by politicians and pundits around the world to discount news reports and organizations they find disagreeable in order to control political news and shape public opinion.

During the 2016 U.S. election, the conspiracy theory 'Pizzagate' went viral: people at the highest levels of the Democratic Party were accused of operating a paedophilia ring in Washington, D.C.[35]. *Pizzagate,* a conspiracy theory, which was later debunked suggested a cabal of Democratic Party leaders, including Hillary Clinton and campaign manager John Podesta, were involved in ritual Satanic abuse of children at a pizza parlour in Washington,

[32] Eurostat, *op. cit.*
[33] Vosoughi, S., Roy, D., Aral, S. (2018): The Spread of True and False News Online. Science 359(6380): 1146-1151.
[34] Bennett, W. L., & Livingston, S. (2018). The disinformation order: Disruptive communication and the decline of democratic institutions. European Journal of Communication, 33(2), 122–139.
[35] Persily, N. (2017): The 2016 U.S. Election: Can Democracy Survive the Internet? Journal of Democracy 28(2): 63-76.

DC. Beginning as just another fringe theory peddled on the Internet by the alt-right, Pizzagate has proven particularly resistant to being debunked.[36] The consequences include a man opening the fire to pursue bogus claims and death threats to the owner of the restaurant.

The allegations spread online several days before the US presidential elections after users on Reddit[37] posted 'Pizzagate evidence' document. The post was later removed, but already picked up by other fake news websites like Infowars, Planet Free Will, and Vigilant Citizen, and promoted by many alt-right social media influencers and activists such as Mike Cernovich, Brittany Pettibone and Jack Posobiec; spread additionally by TikTok users, videos tagged #Pizzagate reached over 80 million views.

However, broadcasters were not coming only from the States. In 2016 BBC reported[38] that in the North Macedonian city, Veles, teenagers were creating fake news websites that sprang excessively during the US election campaign. Group of youngsters were creating fake platforms pumping out sensational stories to earn cash from advertising.

Fake news might have also played a role in the decision of the U.S. to withdraw from the 2015 Paris Agreement on climate change mitigation because the former U.S. president was very skeptical about human-made climate change. However, it should be noted that it has been a challenge to identify the causal influence of fake news on the aggregate level in the absence of an experiment (or quasi-experimental research), because observational data often suffer from selection bias and unobservable dimensions.

Following the election of Donald Trump as president of the United States in 2016, also Australian politicians were using the terms 'fake news', 'alternative facts' and 'post-truth', as popularized by Trump, to discredit opponents. In Australia[39] during the 2019 election, a news story about the Labour Party supporting a 'death tax'– which turned out to be fake, gained attention on social media. An US effect of discrediting media affected Australian politicians who had 'weaponized' fake news language to attack their opponents, much in the way that Trump had, when he first accused a CNN reporter of 'fake news'.

Certain groups have developed techniques of 'attention hacking' to increase the visibility of their ideas through the strategic use of social media, memes, and bots, as well as by targeting journalists, bloggers and influencers, to help spread content.

Recently, over 80 fact-checking organizations[40] operating across more than 60 countries signed an open letter to YouTube CEO, Susan Wojcicki, calling on the company to take stronger measures to fight misinformation on the platform. The letter urges YouTube, owned

[36] Bleakley, P. (2021) Panic, pizza and mainstreaming the alt-right: A social media analysis of Pizzagate and the rise of the QAnon conspiracy.

[37] Reddit - Dive into anything

[38] The city getting rich from fake news - BBC News

[39] The real news on 'fake news': politicians use it to discredit media, and journalists need to fight back (theconversation.com)

[40] Check Your Fact Signs Open Letter To YouTube | Check Your Fact

by Google, to make four changes to its operations: a commitment to funding independent research into disinformation campaigns on the platform, providing links to rebuttals inside videos distributing disinformation and misinformation; stopping its algorithms from promoting repeat offenders; and doing more to tackle falsehoods in non-English-language videos.

Commercial context

With the development of the Internet and widespread availability of immense amount of information, web users' attention has become a precious commodity. Each click is a potential source of profits, direct or indirect, for the person or organization who had generated the content. With the increased traffic, calculated through the number of impressions, likes, comments and shares, a fan page, news portal, YouTube channel, Instagram page or a blog becomes an interesting target for advertisers. Alternatively, one may be encouraged to give consent to use their data, use the services or buy products from those who lure the users with promising free content. Finally, in the world of politics, celebrities but also business, popularity is the currency as it may be indirectly influencing the number of votes, sold concert tickets, roles in movies or fees that can be charged to clients.

The attention of Internet users is in most cases attracted by clickbait, which is a combination sensationalized headline and an image or a video. This type of headlines often appeals to emotions and curiosity but once clicked, the actual content usually appears to be disappointing. It is either unrelated to the title or is of mediocre quality.

Sensational headlines and content which date back to as long as the 19th century, are widespread in the digital world and they still seem to work, serving one purpose: to get readers' attention, click, time or follow-up actions. In the best-case scenario, the users waste time reading content of a questionable quality, in the worst case, they may lose money to fraudsters e.g., buying something from a fake supplier.

This most common way to attract attention is called click baiting. One can usually identify clickbait through an outrageous headline or image, but it is not always obvious. Sometimes it may be difficult to tell the difference between a misleading and a standard headline, as also mainstream media may attempt to attract the attention of readers through sensational or manipulative titles of articles.

There are a few common elements used in commercial clickbait, such as vague headlines and emotional or curiosity-provoking images. Clickbait also uses shock and outrage to attract attention, as well as numbered lists offering solutions to common problems; many links use a combination of all these elements to persuade users to click.

Examples

- *What This Elephant Pulled Out After Digging For 11 Hours Might Shock You!*

- *30 Heart Disease Warning Signs That You Shouldn't Ignore*
- *Houses For Sale In Toronto Might Be Cheaper Than You Think!*
  Don't Throw Away Your Teabags Yet, This is Genius!
- *She Adopted a Boy Nobody Wanted. 12 Years Later She Finds Out Why*
- *The Shape of Your Thumb Can Reveal a Lot About Your Personality*
- *7 Astounding Facts About Arthritis that Most People Don't Know!!!*
- *15 Makeup Tips for Women Going Gray*
- *10 Uses for Honey Your Doctor Doesn't Want You to Know*
- *Place A Bag on Your Car Mirror When Traveling*

In summary, one should be cautious when clicking and browsing through that kind of content as it may lead users to false information, risky webpages or fraudulent links.

Other aspects of fake news distribution

Another category that is relevant to include among those who create fake news or, rather, inadvertently end up sharing and fueling the process of fake news creation are also the first victims of this process, seniors themselves.

According to what has already been discussed, but also to research carried out in the field, it has been proven that seniors, in particular those above the age of 65, are more likely to share unconfirmed news or those that, later down the road, have been demonstrated as fakes. According to recent studies, the percentage of engagement of this target group with fake news increases even further when they end up scrolling content related to ideology and partisanship. This is particularly true for Facebook.[41]

The challenge for this group, as it has been highlighted in other sections, is the amount of information that is constantly produced and shared on social media every day. Nowadays, it has become challenging even for more educated groups to discern all the information in a way that is coherent and valid, against the propagation of fake news. For this reason, the end user finds himself or herself in the position to be making the final decision, whether the information is reliable or not. There are some indicators or elements that can guide, or rather mislead, the content consumer as for the reliability of the information. If we take into consideration social media, research has found some truth in the following aspects.

Social media are all about the interaction with other users. The interactions, however, can also be extremely passive, that is, when end users do not interact directly with the content but are simply influenced by what they see on their screens. One example of this process is the number of 'likes', in the case of Facebook, or other signs of approval from the community. The higher the positive score in this sense, the stronger the psychological influence it can have on the end user, in the absence of other elements supporting the validity of what is posted online. This form of 'passive peer pressure' is now much more diversified, with not only the availability

[41] Seo, H. et al., *op. cit.*

of 'likes' but also other reactions, expressed e.g., with 'anger' or 'surprise' emoticons. If this aspect is also considered, it is possible to imagine how end users can be affected, not only in terms of reliability of the information, but also in terms of feelings or mood toward the content. Anger does not appear to be external to the paradigm of fake news, at all.[42]

There are other elements that are important in this equation, too. The validation coming from external sources must also be part of the process of analysis when surfing the Internet and social media. These competences have become more and more necessary due to the exponential increase in information found online, as also mentioned above. In fact, this was proved by the American Library Association Office for Information Technology (see the section media consumption and habit trends).

Overall, it is possible to say that seniors themselves do not represent a primary source of fake news. However, it is important to take into consideration that as the 'victims' of disinformation and misinformation they may not be aware of the need to properly check the information with other sources, preferably external, which represents the ideal solution when it comes to news on social media.

Distribution of false news

As noted before, fake news is not a contemporary issue: the diffusion of untrue facts has been around for centuries in various forms. In this chapter, however, we will focus specifically on its spread over the Internet, given the pervasiveness of digital platforms in our lives and the necessity to understand and use them properly. The spread of fake news has been deeply studied in the last years, starting from a new level of awareness of the problem during the USA presidential campaign of 2016[43,44]: it is demonstrated that 'falsehood propagates significantly farther, faster, deeper, and broader than truth news in many categories of information'[45].

In the road of fake news diffusion, the first step is the publication of the story itself: it may happen directly on a social media platform or more frequently on a separate website. Fake news websites are built in such a way as to emulate legitimate information websites, like digital newspapers, both through graphic design and sound-alike names, or they may present themselves as oracles of untold truth.

This kind of Web mimicry can be very powerful, especially towards people less used to online navigation and therefore more prone to trust unauthentic content. However, this sensitivity not

[42] Seo, H. et al., *op. cit.*

[43] Albright, J. (2016). *The #Election2016 Micro-Propaganda Machine.* https://d1gi.medium.com/the-election2016-micro-propaganda-machine-383449cc1fba

[44] Allcott, H. & Gentzkow, M. (2017). *Social Media and Fake News in the 2016 Election*. Journal of Economic Perspectives, 31 (2): 211-36. https://doi.org/10.1257/jep.31.2.211

[45] Soroush, V., Deb, R. & Sinan, A. (2018). *The spread of true and false news online.* Science, Vol 359, Issue 6380.
https://doi.org/10.1126/science.aap9559

limited to elderly people: in fact, it has been demonstrated that the young audience can be as gullible as the mature public[46].

The origin of fake news websites can be usually tracked down to political influencing (e.g., being paid to discredit another party or candidate), malicious counter-advertising (such as spreading false rumors about competitors' products) or just financial benefits: fake news websites contain plenty of commercial banners, managed automatically by advertising platforms that pay a small amount for every view of the page. Since the goal is to reach as many viewers as possible, fake news creators aim to spread the links to their website as fast as possible.

Once published, it is time to distribute the link to fake news on social media platforms, both by real influencers and by bot farms; this happens especially in contexts where the content is somehow awaited, e.g., in specific groups of people that share a political view, who want to believe in the news attacking the opposite party and that are willing to distribute them. This is in fact one of the main issues with fake news: readers are likely to think they are true if the message fits into their view of the world. As suggested by Moravec et al (2018)[47], 'users exhibit greater cognitive activity when news headlines align with their political opinions, and they are more likely to believe them'. The psychological aspects involved here are at least three: ego network reinforcement, engagement vulnerability and echo chambers.

We tend to build links with other profiles via online social media platforms, seeking similarities and consensus. This could lead to two types of connections: the so-called strong tie, where the relationship between two users is tight and mutual, and one person tends to share links directly to the other person (e.g., via direct message); and weak ties, where one person shares just some common points with other profiles but is still able to relate to them and spread information in the form of links. The latter type of tie is equally and sometimes even more important: 'all in all, a strong tie carries a higher flow of information than a weak tie [...] However, the rate of diffusion per unit of tie strength is higher for weak ties' (Arnaboldi et al, 2017). This means that in the distribution of fake news, quantity is more important than quality.

Another fundamental aspect in the spontaneous spread of a fake article is the idea that if some content is liked and shared by many people, it increases its value: it is demonstrated that 'high levels of social engagement result in lower fact-checking and higher liking or sharing, especially for low-credibility content' (Avram et al. 2020)[48]. Media consumers tend to evaluate the information in the social network context, and being social creatures, unconsciously agree

---

[46] Wineburg, S., McGrew, S., Breakstone, J. & Ortega, T. (2016). *Evaluating Information: The Cornerstone of Civic Online Reasoning*. Stanford Digital Repository. http://purl.stanford.edu/fv751yt5934

[47] Moravec, P., Minas, R., & Dennis, A. R. (2018). *Fake News on Social Media: People Believe What They Want to Believe When it Makes No Sense at All*. Kelley School of Business Research Paper No. 18-87. http://dx.doi.org/10.2139/ssrn.3269541

[48] Avram, M., Micallef, N., Patil, S. & Menczer, F. (2020). *Exposure to Social Engagement Metrics Increases Vulnerability to Misinformation*. HKS Misinformation Review Vol. 1,No. 5. https://doi.org/10.37016/mr-2020-033

to a form of collective intelligence, where one's judgment is heavily influenced by other people's opinions on the same content. In other words, if 'everyone' likes it, then it must be true or at least valuable.

In general, the idea of collective intelligence is considered a good model of decision making enabling positive results, when it involves different points of view. However, in the case of social networks, the problem is that algorithms confront ourselves with people that share our view of the world and therefore the same ability of judgment. The result is the so-called echo chamber effect: if no one is challenging our opinion it seems to confirm that it is indeed correct. This is so effective that 'if we think of the viral spread of misinformation in a social network as akin to a wildfire, an echo chamber has the same effect as a dry pile of tinder in the forest'[49].

This is not new: we tend to read from sources that we think are reliable and in line with our vision. The new factor here is the presence of specific algorithms that collect user data and provide them new information based on what they already liked and shared. The perceived mix of plural sources in our social media feeds is narrowed down by our usage of the social platform itself: every action we make online is a hint of the type of profile that we correspond to, and that can be then used by algorithms to further refine future content to bring into our feed, in a loop of self-bias confirmation. In fact, as demonstrated by Flaxman et al. (2016)[50], online users choose to click and to share what already fits their opinions, further filtering out exogenous sources that could bring them to different conclusions. And this is true both for real news and fake news.

When comparing the diffusion of fake and real news, several studies focus on speed of spread and on depth of sharing (intended as 'the number of retweet hops from the origin tweet over time, where a hop is a retweet by a new unique user'). According to Soroush et al (2018) there is a significant difference between a fake and a real article: the former is likely to be spread faster and deeper than the latter, with differences of magnitude in both aspects. Another study (Zhao et al, 2020)[51] confirmed the same result, noting that fake news are shared more than official news.

What is interesting, however, is the existence of 'super spreaders', such as well-known politicians and celebrities who are able to diffuse misinformation from top to down. For example, according to Reuters Research Institute, 'top-down misinformation [...] made up just 20% of the claims in our sample but accounted for 69% of total social media engagement'[52]. Another research from the Centre for Countering Digital Hate proved that twelve specific

[49] Törnberg P. (2018). *Echo chambers and viral misinformation: Modelling fake news as complex contagion*. PloS one, 13(9), e0203958. https://doi.org/10.1371/journal.pone.0203958

[50] Flaxman, S., Goel, S. & Rao, J. M. (2016). *Filter bubbles, echo chambers, and online news consumption*. Public Opinion Quarterly, Vol. 80, Special Issue. https://doi.org/10.1093/poq/nfw006

[51] Zhao, Z., Zhao, J., Sano, Y. et al. (2020). *Fake news propagates differently from real news even at early stages of spreading*. EPJ Data Sci. 9, 7. https://doi.org/10.1140/epjds/s13688-020-00224-z

[52] Brennen, J. S., Simon, F., Howard, P. N. & Nielsen, R. K. (2020). *Types, sources, and claims of COVID-19 misinformation.* https://reutersinstitute.politics.ox.ac.uk/types-sources-and-claims-covid-19-misinformation

individuals were responsible for 65% of anti-vaccine content over Facebook and Twitter, going to the conclusion that 'while many people might spread anti-vaccine content on social media platforms, the content they share often comes from a much more limited range of source'[53].

The role of bots, intended as software that helps diffuse content by algorithms, is not fundamental in the spread of fake news: as noted by Soroush et al (2018), 'robots accelerated the spread of true and false news at the same rate, implying that false news spreads more than the truth because humans, not robots, are more likely to spread it". In fact, as noted by Tandoc et al (2018), 'while news is constructed by journalists, it seems that fake news is co-constructed by the audience, for its fakeness depends a lot on whether the audience perceives the fake as real'[54]: in the spread of fake news the biggest role is played by the audience, because diffusion alone cannot convince anyone of the content of the news itself.

Policies and legal solutions

Legal and regulatory reforms have not been able to keep up with technological advancement and the expansion in social media and other apps that enable widespread distribution of information. Governments have been reluctant to regulate social media because they were afraid that they would be accused of restricting free speech. European Union is just one of many political bodies that is trying to stop the flow of fake news, as it creates confusion, undermines trust in democracy and discredits civil society. Reuters Institute claims that social media is the source of 88% of all false information. This is the reason why many countries decided to invest in cyber security media literacy programs in cooperation with social media organisations[55].These efforts are prompting questions about infringement on free speech guarantees and are frequently victims of uncertainty. Because the definition and relative reach of fake news is still not completely identified, governments have problems with adjusting to the new reality. Since they all arise from the area of fake news, many governments are facing different, yet similar problems. The difference is in what the most alarming aspect of the phenomenon is; actions are taken against online misinformation but in different ways – with legislation, investigation, court ruling, Internet shutdowns, media literacy initiatives and others. With diverse actions, comes different focus on the themes: propaganda, media regulations, campaigns, media literacy, election misinformation etc.[56]

---

[53] AA.VV. (2021). *The Disinformation Dozen*. Center for Countering Digital Hate.

[54] Tandoc, E. C. Jr., Wei Lim, Z. & Ling, R. (2018). *Defining "Fake News"*. Digital Journalism, 6:2, 137-153. https://doi.org/10.1080/21670811.2017.1360143

[55] International center for non-for-profit law. (2021). *Legal responses to disinformation.* Retrieved from: https://www.icnl.org/wp-content/uploads/2021.03-Disinformation-Policy-Prospectus-final.pdf

[56] Poynter. (2021). *A guide to anti-misinformation actions around the world*. Retrieved from: https://www.poynter.org/ifcn/anti-misinformation-actions/

Fake news publishers are often sued by individuals, groups or organizations to receive monetary damages or injunctive relief. There are many civil legal options and associated defenses against fake news, out of which defamation is most the preferred option. It is the communication of a false statement harmful to another person's reputation or character. In the US, when sharing fake information about a famous person or a government official in public, you can sue a person only if he had acted with knowledge that the statement was false or reckless disregard for its falsity. But if you say something bad, for example, about your neighbor, you do not need to prove the actual malice, but rather just prove that those statements were made or published with negligence. Another example is that if a false statement is found in works of parody and satire, you may only be sued if it could be understood as a description of actual facts about a certain event or person[57]

Another aspect is intentional infliction of emotional distress. When a person intentionally or recklessly engages in extreme or outrageous behavior, it can cause severe emotional distress to another person. But these statements must be so outrageous, extreme and beyond decent behavior, that it should be perceived as intolerable. Individuals who publish and share fake news should also be aware of risks connected with the unauthorized use of third-party intellectual property, which is yet another reason for civil legal claim.

An example is when someone uses the name or logos of another organization, which can confuse buyers by leading them to believe that the product they buy may be an original. This is also relevant for fake news publishers that use other brands for their own purposes without knowledge of the use of that person or organization. These rights are associated with copyright law to reproduce, distribute, display and create non-original works from such content.[58] In order to use a material, one needs to get the consent from the author of the work. It has happened that organizations used names and logos of other organizations without their consent and they were sued for this, because they deceptively promoted their products (weight-loss products, beauty products, etc.).

As mentioned before, promoting and false advertising falls into the category of fake news as well. Many organizations promote their own services and products with the help of Google Ad Words, similar websites and different programs that offer those services. Ads are now found everywhere including social media and almost all the websites, requiring increased awareness while browsing.

Fake news is also associated with cyberbullying, as fake photos, videos and information about a person are shared online. Many suicides, especially by teenagers, are related to this problem

[57] Klein, D. O., Wueller, J. R., et al. (2017). Fake news: A legal perspective. *Journal of internet law.* Vol. 20, no. 10. Retrieved from: http://governance40.com/wp-content/uploads/2018/12/Fake-News-A-Legal-Perspective.pdf

[58] Klein, D. O., Wueller, J. R., et al. (2017). Fake news: A legal perspective. *Journal of internet law.* Vol. 20, no. 10. Retrieved from: http://governance40.com/wp-content/uploads/2018/12/Fake-News-A-Legal-Perspective.pdf

and so many countries decided to solve it legally.[59] The problem with the government in some countries and their solutions associated with fake news is that they often make laws and campaigns using overly broad and vague language. However, Covid-19 has brought governments to enact emergency rules that often included penalties and jail sentences for spreading false news about Covid-19 in social media at the same time forgetting about effective protection of freedom of speech. The laws associated with the fight against fake news were proven not inadequate, yet legal reform seems a necessary part of the solution. It should, however, be consistent with international standards of freedom of speech. The existing laws may be used in the fight against digital disinformation; although they do not include the digital disinformation they can be used as a base for new reforms and laws for the area.[60]

Fact-checking organizations and portals

The process of fact-checking investigates claims made in public to arrive at a verdict supported by evidence and logical reasoning. It has long been a significant form of journalism to combat misinformation, disinformation and fake news in the news ecosystem. Most of the fact-checks share common structured information (called factors) such as claim, claimant, and verdict.

Due to the increased salience of political misinformation and the rise of fact-checking organizations, people often encounter warnings regarding misinformation, but the quality and veracity of these warnings can vary considerably. Invalid warnings of misinformation can lead people to distrust the information source, cause people to discard accurate information and ultimately impede memory.

For example, American FactCheck.org, PolitiFact, and the Washington Post's Fact Checker are all organizations that investigate the veracity of claims made by political figures and news organizations, operate year-round, and view themselves as a distinct professional cohort within journalism guided by rules and norms. American FactCheck.org[61] is a project of the Annenberg Public Policy Centre of the University of Pennsylvania. The FactCheck.org was established by the publisher and philanthropist Walter Annenberg to create a community of scholars within the University of Pennsylvania that would address public policy issues at the local, state and federal levels.
FactCheck.org considers itself as a nonpartisan, non-profit 'consumer advocate' for voters, which aims to reduce the level of deception and confusion in U.S. politics. They monitor the

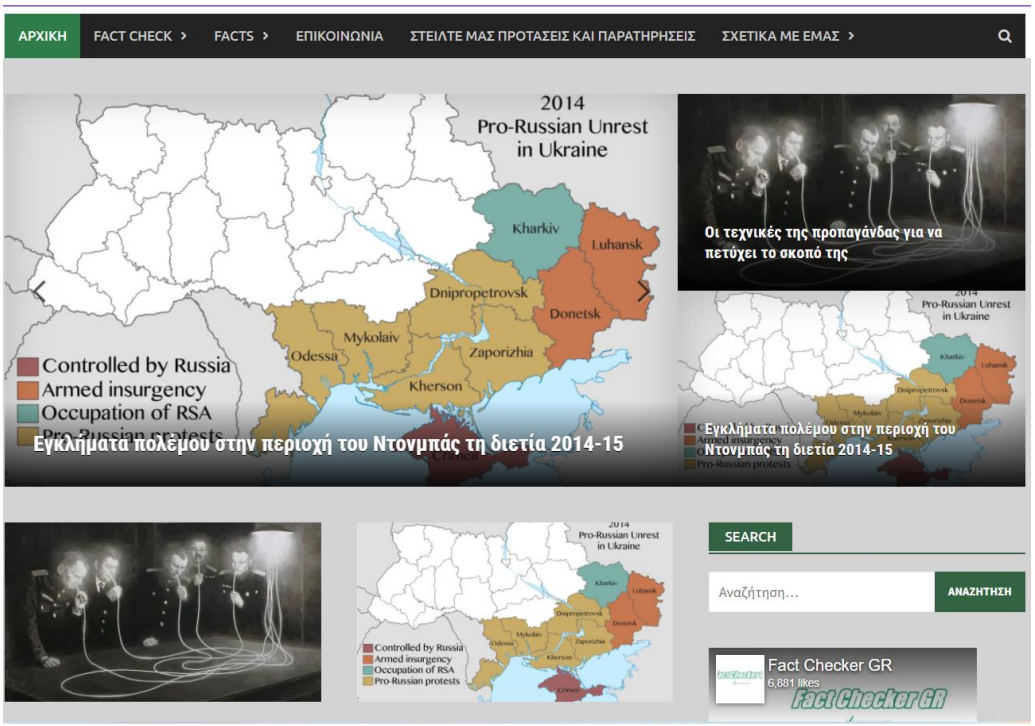
[59] Klein, D. O., Wueller, J. R., et al. (2017). Fake news: A legal perspective. *Journal of internet law.* Vol. 20, no. 10. Retrieved from: http://governance40.com/wp-content/uploads/2018/12/Fake-News-A-Legal-Perspective.pdf
[60] International center for non-for-profit law. (2021). *Legal responses to disinformation.* Retrieved from: https://www.icnl.org/wp-content/uploads/2021.03-Disinformation-Policy-Prospectus-final.pdf

[61]FactCheck.org - A Project of The Annenberg Public Policy Centre

factual accuracy of what is said by major U.S. political players in TV ads, debates, speeches, interviews and news releases. Their goal is to apply 'the best practices of both journalism and scholarship, and to increase public knowledge and understanding'.

Third-party fact-checking websites have been seen as one of the ways to stop fake news from fooling readers. However, these efforts appear to be failing to reach the public. According to the study, when people consume false news, they hardly ever read the corresponding fact-check debunking the fake claims. For example, in Greece there are at least two fact-checking websites; one of them, Ellinika Hoaxes[62] was launched in 2013. The platform debunks hoaxes, urban legends, fake news, Internet scams and other stories of questionable origin.

Another, the Fact Checker[63] is an independent Greek fact-checking website launched in February 2017 and it specializes in pseudoscience and medical fraud. Apart from verifying the original source of an allegation, cross-checking of news is done by verifying the sequence of events, evaluating the evidence provided (e.g., images, allegations, etc.), contacting eyewitnesses and local authorities such as the Police, District, Municipality, etc.



Source: [www.factchecker.gr – Fact or Fiction?](www.factchecker.gr)

Fact Checker operates with the use of news cross-referencing tools available on the Internet. For example, image search is done through the capabilities offered by search engines such as Google and Yandex, as well as related applications such as TinEye. Other tools include Fotoforensics an image authentication an editing tool. WolframAlpha a 'computational knowledge engine' that allows, among other things, to ascertain weather conditions at a

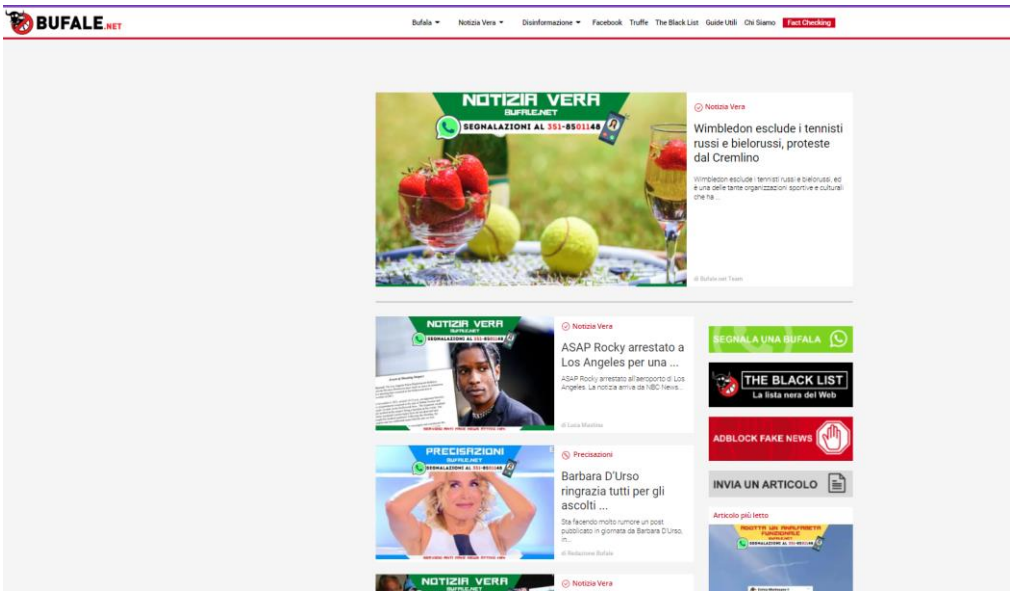
[62] Αρχική - ELLINIKA HOAXES

[63] www.factchecker.gr – *Fact or Fiction?*

specific location, date and time, Jeffrey's Exif Viewer that allows, among other things, to find metadata in images, DataViewer that can discern whether an old video has been re-uploaded in YouTube, and the use of data from other news cross-posting sites such as Snopes, fake news search engines, or authoritative and credible news organizations. They also use link archiving engines such as the Wayback Machine, which has billions of links stored that may no longer be available on the Web. To check disputed claims that require the provision of numerical data they make use of recognized sources such as the European Statistical Office (Eurostat), UNICEF, UNHCR, etc.

The fact-checking platform in Slovenia is run by the investigative journalist team, Ostro, who developed a fact-check project called Razkrinkavanje[64] on which they have debunked numerous claims by politicians, media and different opinion makers. They use methodology developed by the non-profit organisation EAVI (European Association for Viewers Interests), which deals with media literacy. Similar projects were developed in the Balkan region.

In Italy the fact-checking mission is run by Bufale.net[65], a free fact-checking and debunking service. The project focuses on hoaxes, misinformation and news analysis. The site has been online since 2014 and its mission is to 'Read responsibly'. Bufale.net 'stimulates the critical spirit and returns the objective data to the reader'. Readers can send reports via WhatsApp, by email, Facebook page and the Instagram channel.
Another Italian fact-checking server, Pagella Politica[66], monitors the statements of leading Italian politicians, in order to 'evaluate their veracity through numbers and facts'. The site has been online since October 3, 2012.



Source: [Bufale.net | Anti fake news - debunking bufale facebook e bufale whatsapp]

[64] Center za preiskovalno novinarstvo v jadranski regiji - Oštro (ostro.si)
[65] Bufale.net | Anti fakenews - debunking bufale facebook e bufale whatsapp
[66] The | Project Political Report Card (pagellapolitica.it)

In Poland, the website Demagog[67] was the first fact-checking organization in the country. Their main objective is to improve the quality of public debate by providing citizens with impartial and reliable information. Since April 2014, Demagog's team has been verifying the statements and election promises of politicians on the demagog.org.pl portal. They also disseminate the idea of fact-checking in Poland. As part of the fight against fake news, they also conduct workshops and carry out educational projects addressed to young people, e.g., the Fact-Checking Academy. Since May 2019, Demagog Association has been a part of the International Fact-Checking Network (IFCN).

Source: Wróć i sprawdź fakty! (demagog.org.pl)

The Polish Pravda[68], acts as fact-checking association with the mission to focus not only on verifying information but also on educating the public in the field of identifying false or suspicious information. Pravda's mission is to control of transparency and integrity of the media and public debate; countering disinformation and manipulation of public opinion, with the focus on fake content published online; analytical, research or scientific activities; information, education, training, opinion-giving or advisory activities; developing and disseminating technologies for the exercise of civic control; creating or running electronic portals or websites, forums, mailing lists, social media profiles; organizing or conducting programmes, information campaigns, public debates; strengthening cooperation for statutory

[67] *Wróć i sprawdź fakty!* (demagog.org.pl)

[68] Pravda – We see. Verify. We explain.

purposes with other entities (non-governmental organizations, universities, cultural institutions) operating in the Republic of Poland and abroad.

England has a long history of fact-checking; British public broadcaster, BBC runs 'Reality Check'[69] on its website. Independent fact-checking organization, Full Fact[70], 'fights for the right information to reach the people who need it most, whether that is individuals making decisions about their health or who to vote for; or politicians debating the future of our country'. Full Fact is developing scalable, robust and automated fact checking tools to be used by any newsroom and by fact checkers internationally.

The German Correctiv[71], it's an investigative fact-checking website, where reporters conduct long-term research in the public interest with diligence and perseverance to uncover systematic abuses, corruption and unethical behaviour. Their research in tax scandal, the uncovering of the AfD (far-right German political party) donations affair and research on rising rents in the housing market had gained great notoriety. At Correctiv they believe in 'the basis of informed decisions of democracy'. Targeted disinformation is used to divide the society and spread hatred. With an independent fact-checking editorial team, at the Correctiv they claim to 'stand up against misinformation, uncover half-truths, rumours, and provide context'.

Automated analyses and algorithms

In the fight against disinformation, the international community is struggling to find effective solutions, given the amount of data related to fake news. Right now, there are three main approaches to news classification: expert-oriented, crowdsourcing-oriented, and computational-oriented.[72.] An example of the expert-oriented category is the American PolitiFacts: statements made by politicians are collected and fact-checked individually by a team of journalists and then published on the platform and on Twitter, along with the rate of accuracy.

Crowdsourcing tries to overcome two inherent problems of expert-oriented approach, the massive amount of fake news to tackle and the risk of politically-oriented or biased evaluations, by 'leveraging the wisdom of crowds to identify misinformation at scale using politically-balanced groups of laypeople'[73], forming a user panel to vote over the quality and accuracy of every article.
The third approach lies in the development of automatic tools that could prevent the diffusion of misinformation or at least flag fake articles when shared. In this area, the effort is usually

[69] Reality Check - BBC News
[70] www.fullfact.org
[71] CORRECTIV – Recherchen für die Gesellschaft
[72] Stahl, K. (2018). *Fake news detection in social media*.
[73] Allen, J. N. L., Arechar, A. A., Pennycook, G., & Rand, D. G. (2020). *Scaling Up Fact-Checking Using the Wisdom of Crowds*. https://doi.org/10.31234/osf.io/9qdza

divided into content-based learning and social context learning[74], where the former deals with the text of the article itself, while the latter focuses on the publishing dynamics.

Social networks are at the same time the greatest concern and the most useful source of data regarding how a false article can spread, because the majority of automated analyses and algorithms need a vast collection of real articles to refer to. One of the techniques used is called pattern recognition: it consists of the application of common and specific algorithms able to detect subtle differences and similarities in a huge amount of information, and therefore categorize it into several clusters. It is called supervised learning, when the model is run first on a defined set of data (e.g., a certain number of posts manually tagged as 'fake news' or 'real news') and then refined via subsequent passages against bigger databases.

The resulting well-trained model can differentiate between fake and real news, based on text patterns (for example the number of hyperboles, the presence of keywords), graphical details (caps lock, exaggerated punctuation), or the post metadata (time of publication, referred sources, number of concurrent shares). Even if it starts from a classification given by human researchers, it differs from human-based detection because it can infer and combine different rules to decide the result, with a certain degree of certainty. Among the tools available, FakeNewsTracker[75] can discriminate between a piece of fake news and a real one, analyzing both the social network context and the content of the article itself. It uses Politifact as a source for automatic fact-checking and RNN (Recurrent Neural Networks) to frame the user action inside the social network, combining these techniques to reach a performance of up to 80% of fake news recognition.

Another research tool, FakeDetector[76], uses an advanced technique called Deep Diffusive Neural Networks to detect fake news with interesting results, by assigning information a credibility score based on the article, its subjects and the author.
FakeBERT (Kaliyar et al, 2021) uses BERT technology, a high-performance language model that has been pre-trained and can be refined in specific fields of analysis, to reach up to 98,9% of accuracy in fake news recognition.

The path towards automatic misinformation recognition seems really interesting and very promising; recent research that leverages existing fake news datasets, such as ISOT[77], and

---

[74] Kaliyar, R.K., Goswami, A. & Narang, P. (2021). *FakeBERT: Fake news detection in social media with a BERT-based deep learning approach*. Multimedia Tools Application 80, 11765–11788. https://doi.org/10.1007/s11042-020-10183-2

[75] Shu, K., Mahudeswaran, D. & Liu, H. (2019). *FakeNewsTracker: a tool for fake news collection, detection, and visualization*. Comput Math Organ Theory 25, 60–71. https://doi.org/10.1007/s10588-018-09280-3

[76] Jiawei, Z., Dong, B. & Yu, P. (2020). *FakeDetector: Effective Fake News Detection with Deep Diffusive Neural Network*. https://doi.org/10.1109/ICDE48307.2020.00180

[77] Ahmed, H., Traore, I. & Saad, S. (2018). *Detecting opinion spams and fake news using text classification*. Journal of Security and Privacy, Vol. 1, Issue 1, Wiley. https://www.uvic.ca/ecs/ece/isot/datasets/fake-news

methods of textual representation, like GloVe[78], reached a theoretical performance of 99,88% of accuracy[79] in differentiating fake from real news. Apart from the recognition of false articles, other studies focus on automatic bot detection, considered as one of the primary elements of fake news spread. Overall, banning fake profiles from social media platforms is also easier and less prone to censorship aspects, given the fact that there is not a real person and their right to freedom of speech behind them.

As seen previously (Soroush et al, 2018), the role of bots is not essential to the spread of fake news, but it is a part of the strategy to accelerate their diffusion, especially by inflating shares and likes statistics to gain popularity. Unfortunately, stopping the publication of fake news on social networks is not the final solution, given the amount of direct traffic and alternative routes that direct to fake news websites[80], but it could be a great help in contrasting this problem.

Codes of conduct

European Commission has recently published its guidance to strengthen the code of conduct as regards online fake news. A code of conduct is defined as a practical document of standards governing client relationship. With that code also comes a code of practice that is a technical document that sets standards for the members of a profession. The purpose of code of conduct is to identify the actions to address the challenges associated to disinformation. The Communication Commission members, who undersigned the code, wanted to address the problems and the possible solutions, related to disinformation on the Internet.[81] Another thing they want to do is to increase transparency and effectiveness of the tool and platform's policies to prevent fake news from being shared online, especially in times of crisis.

The code of practice of information is the first globally accepted document by the news sector. The code of practice has 5 main goals: scrutiny of ad placements, political advertising and issue-based advertising, integrity of services, empowering consumers and empowering the research community. In other words, the intention is to include safeguards against disinformation, improve control of advertising placements to reduce sharing of disinformation and to ensure transparency about political advertising in order to enable viewers to know why they have been targeted by some advertisers. In addition, the idea is to demonstrate why it is

[78] Pennington, J., Socher, R. & Manning, C.D. (2014). *Glove: Global vectors for word representation*.
[79] Chauhan, T., Palivela, H. (2021). *Optimization and improvement of fake news detection using deep learning approaches for societal benefit*. International Journal of Information Management Data Insights, Volume 1, Issue 2. https://doi.org/10.1016/j.jjimei.2021.100051
[80] Albright, J. (2016). *"Fake News" Sites: Certified Organic?* https://d1gi.medium.com/why-banning-fake-news-sites-from-ad-networks-wont-work-3995da452e70
[81] Eaca – European association of communications agencies. (2021a). *Code of conduct on online disinformation.* Retrieved from: https://eaca.eu/news/code-of-conduct-on-online-disinformation-how-europe-strengthens-the-fight-against-fake-news/

important to shut down fake profiles and accounts in order to make a clear system and rules that will not be confusing.

Yet another element is the importance of investing in technological tools, in order to ensure a safe online environment, with transparency that includes correct, accurate and authentic information. What also requires improvement is the findability of trustworthy content and empowering users with tools and competences to use them in different environments and to create a more structured monitoring framework and approach.[82]

The European Commission highlights the importance of developing transparency centres and establishing a permanent task force under the EU Commission, which would cooperate with different signatories of the code and with other representative experts of different organizations such as European External Action Service, European Regulators Group and European Digital Media Observatory. The code of practice was signed by different, global online platforms such as Facebook, Twitter, Google, Mozilla and other advertisers in October 2018, Microsoft joined a couple months later and the popular application TikTok joined in June 2020.

The updated code of conduct was meant to be finalized in 2021 as a co-regulatory instrument according to the Digital Service Act. In January 2019 a baseline report was issued showing the current situation related to disinformation worldwide. The European Commission also started monitoring the implementation of the commitments by Facebook, Google, Twitter with pertinence to the integrity of the European Parliament elections beginning of 2019. The report has shown that the situation is still not as it should be and there is still a need to take further steps by individuals and organizations. The report summarizing one year assessment of the code showed that it provided a more structured framework and dialogue between online platforms and ensured greater transparency and responsibility for the policies and fake news. Concrete changes were made in the policies.[83] For example, Google has provided access to its visual deepfake data to enable researchers to make effective tools to detect synthetic videos.[84]

In the years 202o-21 the signatories participated in a special Monitoring program, that ensured an in-depth overview of the actions taken by Google, Microsoft and other platforms related to fake news and disinformation shared online. It proved to be a useful and successful transparency measure to ensure platforms public responsibility. They have used different tools to remove fake news and accounts, to increase the visibility of authoritative sources for easier

[82] Eaca – European association of communications agencies. (2021b). *EU Code of practice on disinformation*. Retrieved from: https://digital-strategy.ec.europa.eu/en/policies/code-practice-disinformation

[83] European Commission. (2021a). *Code of practice on disinformation.* Retrieved from: https://digital-strategy.ec.europa.eu/en/policies/code-practice-disinformation

[84] Gilbert + Tobin. (2020). *Code of practice on disinformation: Stemming the tide of fake news.* Retrieved from: https://www.gtlaw.com.au/insights/code-practice-disinformation-stemming-tide-fake-news

access to reliable information of public interest. They removed the content that could harm individuals or society.

With a few examples it is clear that in one year the number of concrete actions implemented in relation to the measures was high. In 2019 Twitter rejected 11,307 ads for violating its unacceptable business practices policies. In the same year Google labelled more than 185,000 election ads in the European elections and Facebook blocked and erased millions of fake accounts in the first quartet of the year 2019.[85]

In 2021 the Commission presented a guidance to strengthen the code of practice on disinformation with a goal to create a more safe, trustworthy and transparent online environment with a monitoring framework for its implementation. They also made a public call aimed at a wide range of stakeholders including social media service, private messaging services, organizations from the advertising system involved in ad placements and e-payment services.[86]

Those different actions that platforms used in a fight toward disinformation are slower and right now not as effective as expected. However, the example of India that blocked Internet access to all the citizens when fake news appeared on the Web, proves that radical measures are not the solution either. It happened in 2017 in the case of Kashmir. Compared to the European Commission and their efforts to stop disinformation, India tried a very expensive option that adversely affected the economy, caused by the blockage of Internet access, which led to huge amounts of lost money and business competitiveness. Another example of a proposed solution was applying artificial intelligence to detect fake news and information.[87]

When making solutions that involve millions of users online, professionals need to be careful not to make actions that can cause harm to individuals, groups or organizations, infringe the fundamental freedoms of individuals such as freedom of speech, protection of personal data and privacy protection. One can connect that with a goal of empowering individuals and groups, proposed in the code of conduct by the European Commission.

To empower individuals is the best done through education. In schools and other educational institutions, we should be improving digital competences and information literacy of users, which enables them to be critical about the type of viewed content – checking the source, author, evidence, interpretation and other. The problem is in Asia where some countries do not have easy methods to verify information since there is not an established media practice

---

[85] Gilbert + Tobin. (2020). *Code of practice on disinformation: Stemming the tide of fake news.* Retrieved from: https://www.gtlaw.com.au/insights/code-practice-disinformation-stemming-tide-fake-news

[86] European Commission. (2021a). *Code of practice on disinformation.* Retrieved from: https://digital-strategy.ec.europa.eu/en/policies/code-practice-disinformation

[87] Boté-Vericad, J. J. (2020). Fake News and Information Professionals' Codes of Ethics. *Telos: revista de Estudios Interdisciplinarios en Ciencias Sociales*, 22 (3), Venezuela. (Pp.567-578). DOI: www.doi.org/10.36390/telos223.07

or enough other solutions.[88] That is why the code of conduct should also invite other countries from different continents into cooperation since Google, Microsoft and others who signed the code are just a part of online platforms if we take the whole world into observation.
The code is not perfect and the report exposed its shortcomings: lack of key indicators to show effectiveness of fight against fake news, small number of organizations that show an interest in joining the program, lack of uniform definitions of key concepts such as misinformation, trustworthiness indicators, incomplete access to data that may be fake news and insufficient scope (there is no micro targeting of political advertising covered in the current version of the code). The problem is that online political advertising can make elections undemocratic because of personal data gathered and psychological profiles made online. Those elements still need more focus and update so that there will be minimum harm for the society.[89]

Other ways to fight disinformation

Even if automated tools and fact-checking organizations can theoretically detect almost every fake news published, the underlying problem is that readers are still able to spread them. This is why there is a process going on in parallel, focused on educating users and preventing them from sharing content without thinking. An interesting study about misinformation in the Covid-19 era calls this idea 'psychological inoculation (or prebunking) as an efficient vehicle for conferring large-scale psychological resistance against fake news'[90], treating them as a disease that needs to be prevented.

The goal with psychological inoculation is to trigger automatic protections in the reader when exposed to the virus of misinformation: a well-educated mindset will then recognize textual patterns and visual exploits used by fake news authors. This kind of approach refers to people who are actually reading articles; unfortunately, a lot of users share and comment them without even opening them. (Gabielkov et al 2016)[91] proved that almost 60% of links shared on Twitter were actually never clicked; this was further demonstrated by a brilliant article on The Science Post that was just filled with lorem-ipsum text and got anyway 127000 interactions[92].Meta and

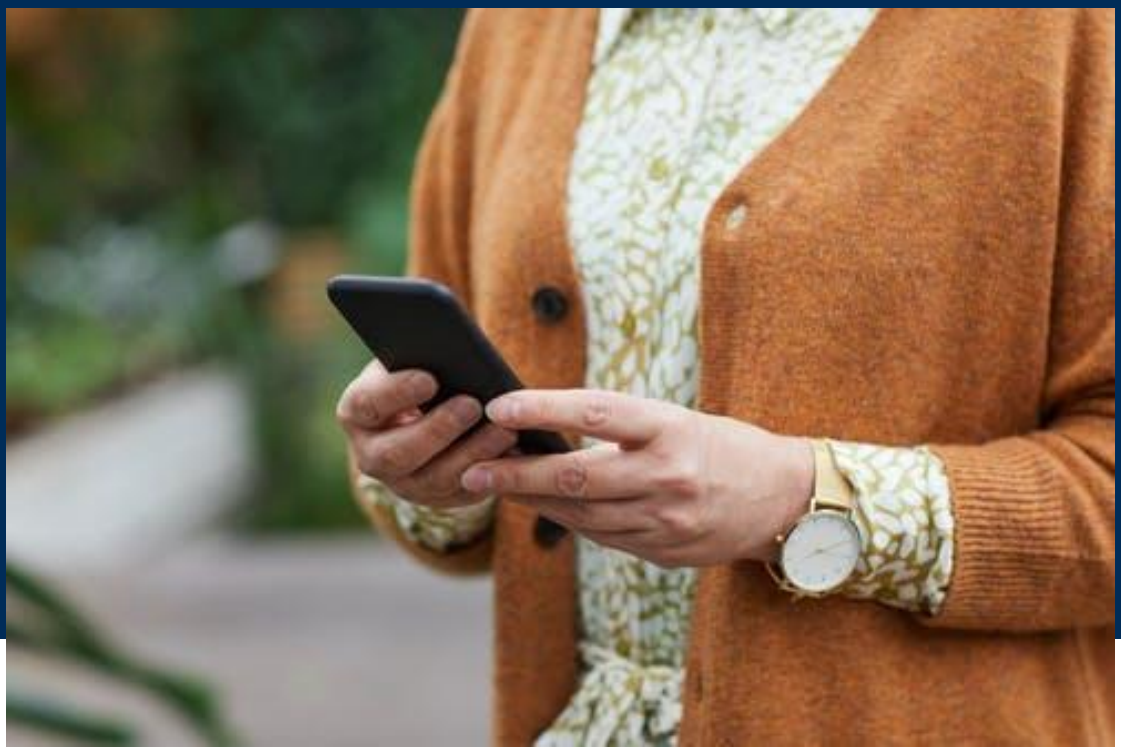
[88] Boté-Vericad, J. J. (2020). Fake News and Information Professionals' Codes of Ethics. *Telos: revista de Estudios Interdisciplinarios en Ciencias Sociales*, 22 (3), Venezuela. (Pp.567-578). DOI: www.doi.org/10.36390/telos223.07
[89] Gilbert + Tobin. (2020). *Code of practice on disinformation: Stemming the tide of fake news.* Retrieved from: https://www.gtlaw.com.au/insights/code-practice-disinformation-stemming-tide-fake-news
[90] van der Linden, S., Roozenbeek, J., & Compton, J. (2020). *Inoculating Against Fake News About COVID-19*. Frontiers in psychology, 11, 566790. https://doi.org/10.3389/fpsyg.2020.566790
[91] Gabielkov, M., Ramachandran, A., Chaintreau, A. & Legout, A. (2016). *Social Clicks: What and Who Gets Read on Twitter?* SIGMETRICS Perform. Eval. Rev. 44, 1. https://doi.org/10.1145/2964791.2901462
[92] The Science Post (2018). http://thesciencepost.com/study-70-of-facebook-commenters-only-read-the-headline/

Twitter are trying to tackle this behaviour: in 2020[93] Twitter introduced a test feature to prevent users from retweeting an article before reading it and Facebook announced the same initiative in 2021[94]. Apart from the test, both platforms are already involved in fact-checking initiatives, flagging dangerous fake news and recommending links to official information beneath every post related to Covid-19.

As noted before, social media platforms are not the only vectors of viral misinformation. This is why Whatsapp is trying to prevent mass forwarding, introducing the icon of 'forwarded many times' and limiting this type of message to one share at a time[95]. Even if not directly relatable only to fake news diffusion, this action reduced the number of shared messages by 25%.

[93] Twitter Support (2020). https://twitter.com/TwitterSupport/status/1270783537667551233
[94] Meta Newsroom (2021). https://twitter.com/MetaNewsroom/status/1391816265891778560
[95] Whatsapp (2021). https://faq.whatsapp.com/general/chats/about-forwarding-limits/

Fake news and disinformation in practice



www.pexels.com

The conscious and intelligent manipulation of the organized habits and opinions of the masses is an important element in democratic society. Those who manipulate this unseen mechanism of society constitute an invisible government which is the true ruling power of our country....We are governed, our minds are molded, our tastes formed, our ideas suggested, largely by men we have never heard of. This is a logical result of the way in which our democratic society is organized. Vast numbers of human beings must cooperate in this manner if they are to live together as a smoothly functioning society....In almost every act of our daily lives, whether in the sphere of politics or business, in our social conduct or our ethical thinking, we are dominated by the relatively small number of persons...who understand the mental processes and social patterns of the masses. It is they who pull the wires which control the public mind.

Edward Bernays, *Propaganda*

Deepfake

The term deep fake is the compound of two words: deep learning and fake (as in fake news). Regarding the first word, deep learning is a concept already introduced in this study and it pertains to the capacity of machines to find patterns and effectively 'learn' certain processes in order to replicate them or to refine other programmed processes.[96]

Deep learning is a technological feature that has gained much attention in recent years thanks to the strengthening of the capacities of AI, and their more common employment across all platforms and software. Even social media now, thanks to highly effective algorithms, are able to analyze patterns of behavior in order to suggest users tailored content.

While social media algorithms tend to gather information that already exists on the Internet, be it fake or not, deep fake results in the process of creating images or videos that resemble something familiar or potentially real but are ultimately fake. It can do so thanks to the capabilities of the machine to work on real, existing content and to rearrange it in order to produce something new but artificial and fake.

Most commonly, deep fakes can be videos or images where the face of one person is replaced by another face. This face-swapping process has become very popular thanks to free-for-use applications widely available for smartphones. This process is powered by an artificial intelligence studying the features of the end users' faces over and over, with constant input i.e., the flux of selfies or videos fed into the app.[97]

However, deep fake became firstly popular in 2017 among a rather small or limited community on the Internet, on a forum-based website called Reddit (reddit.com), in particular under the tag deepfakes (commonly known as subreddit on the platform). There, users started sharing fake pornographic content of popular singers or actresses, clearly fake or tampered with, thanks to artificial intelligence that swapped the faces of two different people - simply put, deep fakes.

Concerningly enough, most of the content found online under the category of deep fakes is still pornographic. These are so common that out of 10 common websites hosting this kind of content, 8 feature videos produced through deepfakes and 9 websites propose exclusively deep fake pornographic content.

Beyond the concerns related to pornography, another aspect of deep fake provokes the following questions. To what extent now it is possible to trust the voices and faces we find online? What are the limits of technology in recreating content – or *persons* – that resemble reality so well that they are beyond human recognition?

These are the doubts and concerns that have been voiced recently over the expansion of deep fake in the Internet and into the fabric of society as a whole. According to Deeptrace, a company based in the Netherlands, expert in monitoring the phenomenon of deep fakes, their

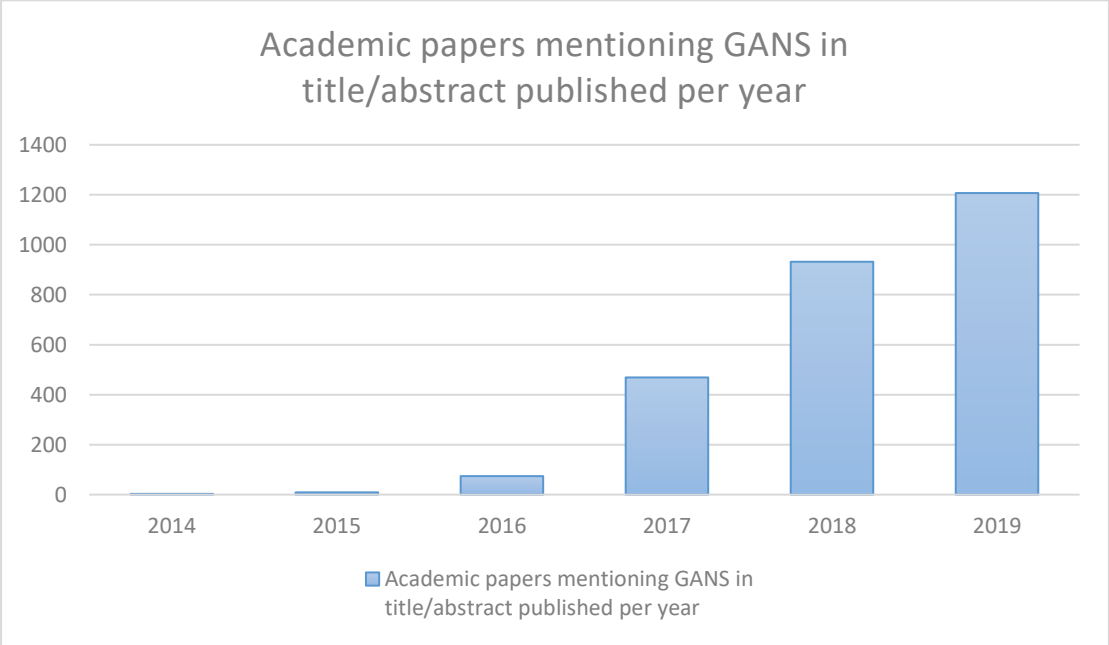
[96] Deeptrace, *op. cit.*

[97] Biggs, T., & Moran, R. (2021). *What is a deep fake?* The Sydney Morning Herald.

number is constantly increasing, with more than 14.000 recorded on the Web. Shockingly, around 90% of them pertain to pornography or other sexually related content, with around 100 million views worldwide.

This number has been considerably growing if we consider that the technology to produce deep fakes has become more and more accessible, even though it only became popular a few years ago. As for technology, the original deep fakes are built upon a process called GAN, or Generative Adversarial Network. The mechanism behind this technology is an artificial intelligence comparing the product of its process (for example a simple image) against the original one and identifying the differences. From those differences, the machine will keep improving and trying over to make the product more and more similar to the original. In other words, this is the process of machine learning. Other techniques are also available for the generation of deep fakes, more or less efficient than GAN.

This process drew the attention of the academic community over a single year, with 469 papers mentioning the GAN process in their titles or abstract in 2017 (with only 74 in 2016 and 9 in 2015). In 2019, the number reached was staggering: 1.207.[98]



Source: Deeptrace

However complicated this process may appear, as of now it has become more and more automatized and friendly even for users who lack considerable skills in artificial intelligence. In fact, according to the findings of Deeptrace, it is expected that the online community will soon

[98] Deeptrace, *op. cit.*

benefit from a much-improved artificial intelligence, and therefore deep fakes will become 'better, cheaper and easier to make over a relatively short period of time'.[99]

Some of these alleged benefits are already available. For example, the face-swapping application that became popular through smartphones has already been accessible to a wider public. Other services require a bit more input from the end user than simply downloading the app, although the quality of the result may be even higher. For example, online portal services are available for users to visit and to use, so as to find businesses and freelancers willing to produce and sell custom deepfakes. The average request for these services in terms of analytical input is around 250 photos and a couple of days to produce the deep fake. The commodification of deep fakes has already begun.[100]

Fairly enough, deep fakes or other techniques have also been used for positive outcomes, such as in movies: Star Wars has featured versions of Carrie Fisher made through artificial intelligence similar to those that appeared in the original movies. This process began in the very beginning of deep fake production. In fact, the first user who worked on the code of the face-swapping application was funded anonymously by the entire online community. It is now open-source and available on the popular repository of online software, GitHub. It is from this original code that all other applications were developed, studied, analyzed and ultimately made available to a larger public. Creation of smaller communities around this original code has nurtured the cooperation process over refined applications.

This very brief overview of the possibilities offered by deep fake can be concerning far beyond the effects on seniors, the direct target group of the FI.DO project. An important and concerning area where deep fakes can and most likely will play a role in the future, if not in the current times, is politics. Lack of trust in politicians and institutions across the whole world is well acknowledged and documented, even beyond the subject of fake news. However, deep fakes may bring the process of distrust toward public authorities even further. For instance, deep fake can be used to create videos dubbing politicians giving speeches over topics they have never mentioned, thanks to their voice synthesized by artificial intelligence. This example is the simplest one, as it can work directly on an existing video while only replacing the voice of the character impersonated: if we keep in mind the 250 photos needed to generate a deep fake requested in the service above, it is easy to understand how simply deep fakes can be produced for public figures such as politicians.[101]

However, the implications of deep fakes in politics may go beyond the simple amusement of the creators. Politicians voicing opinions that do not reflect their real thoughts or intentions may be dangerous for their constituents as well as the international community. This can happen directly by affecting the relationships with voters or international partners, but also indirectly through the tarnished image of politics as something unreliable or not trustworthy.

---

[99] Deeptrace, *op. cit.*

[100] Deeptrace, *op. cit.*

[101] Galloway, A. (2021). *The new world of 'deep fake': How cyber attackers impersonated senior ministers, diplomats*. The Sydney Morning Herald.

Unfortunate episodes have been recorded already, of deep fakes entering the area of politics in certain countries around the world. Less concerningly, two deep fakes have been identified as the culprit of some political manoeuvres in Africa and Asia, respectively in Gabon and Malaysia.[102] In the first case, the absence of the president of the country from the public scene stirred unrest in certain areas of the population, with widespread belief that the government was keeping secret over the wellbeing of the head of the cabinet. A video of the president was released after a while, but the public opinion widely regarded the video as a deep fake. A coup was attempted by the military, and as the reason supporting the activities of the military also the deep fake was listed. In case of Malaysia, one Minister of the cabinet was recorded during homosexual activities, legally punishable in the south-eastern Asian countries. The Minister stepped down, but contested the nature of the video, claiming that it was a deep fake.

On both occasions, the international community had the opportunity to analyze the videos under discussion in Gabon and Malaysia, finding no tampering in either of them. Thus, both appeared to be original under the scrutiny of international experts on the matter. However, it is greatly interesting how in recent years, deep fake has reached the highest levels of discussion in political debates. In these two cases, it did not really affect the political lives of the two people in question; however, the real possibility that deep fake could have been manufactured in order to alter the political stability of a country, is a thought concerning enough to be taken into consideration.

Deep fakes can also impersonate political actors beyond the creation of videos or recording of their own voices. It has been the case in the political scene of Australia[103]. Here, diplomats and government officials were requested to authenticate themselves in order to use common instant messaging applications. It is a rather standard procedure for everyone. However, the hacker somehow found access to the phone of multiple public officials, who inadvertently authenticated themselves through a fake link inserted by the hacker. The phishing act pursued, until other officials started receiving messages from the phone of the victim. These messages were authored by artificial intelligence, asking the colleagues to transfer money to a specific bank account – an action that made the recipients highly suspicious, thus uncovering the fraud.

Such activities can become more and more problematic if deep fakes, powered by machine learning applications, will eventually reach concerning levels of authenticity when impersonating public personalities. It appears that in the future, in order to continue validating our personas online, a constant identification process will be necessary, in order to authenticate ourselves in a way that cannot be tampered with by artificial intelligence and deep fakes. This is a great challenge that transcends the reality of fake news and steps forward in the domain of cybersecurity.

[102] Deeptrace, *op. cit.*

[103] Galloway, A. *op. cit.*

Troll farming

Troll farming or a troll factory is an institutionalized and organized group of Internet trolls that seek to interfere in political opinions and decision-making, employing people to make deliberately offensive or provocative online posts in order to cause conflict or manipulate public opinion. Numerous examples from different countries show that troll factories are deliberately created to harass individuals, groups, political parties, or campaigns in order to mislead, intimidate, target and create inflammatory content.

In Finland[104] in 2018 a man was sentenced to over a year in prison for defaming and harassing investigative journalist Jessikka Aro, who works for Finnish public broadcaster YLE. Additionally, Ilja Janitskin, the founder of the right-wing, pro-Kremlin website MV-Lehti, was sentenced to 22-month prison after being found guilty of 16 charges, including defamation. Johan Backman, a long-time mouthpiece for Moscow in Finland, was also found guilty of defamation and harassment and received a one-year suspended sentence. In its decision, the court said that Backman encouraged users online to target Aro and that the subsequent harassment deeply impacted her quality of life, reported YLE. A female employee at MV-Lehti was also given a three-month suspended sentence.

Aro became the subject of a multiyear organized harassment campaign by pro-Russian trolls after she began reporting in 2014 on Russian propaganda and disinformation that was spread in Finland on social media. In the Philippines[105] in 2016 a group of Catholic schoolgirls came under the attack from online trolls. The girls had been filmed and photographed standing on a street in the capital Manila in their uniforms, chanting: 'Marcos is no hero! Marcos is no hero!' They were angry that former Philippine dictator Ferdinand Marcos had just been buried in a nearby hero's cemetery with military honors. Within hours of the photos being posted on the school's Facebook page, and then widely reshared, comments began to appear defending the Marcos legacy and attacking the girls' actions. Some of them were from genuine accounts, but many were from pro-government trolls using fake accounts. Many of the most ardent trolls are supporters of the president - they call themselves DDS (Diehard Duterte Supporters), a play on the lettering of the Davao Death Squad, an execution squad, which according to the United Nations, killed more than 1,000 people in the city in the southern Philippines while Duterte was its mayor.

In 2021 in Slovenia[106] the investigative group, The Bottom Line, revealed a systematic and orchestrated online campaign against critics of the ruling conservative political party, SDS. Numerous profiles were created On Twitter, with stolen profile pictures that spread the ideas of the largest government party and targeted critics.

---

[104] *Court in Finland finds pro-Kremlin trolls guilty of harassing journalist* | News | DW | 18.10.2018
[105] *Philippines Troll Patrol: The woman taking on trolls on their own turf* - BBC News
[106] Astroturfing (1. del): lažni Twitter profili, ki napadajo kritike stranke SDS • Pod črto (podcrto.si)

In 2019 Rihard Knafl, a doctor, internal medicine specialist, posted his opinion about the ventilator as 'unsuitable for ventilatory support in patients requiring controlled ventilation for Covid-19 infection'. His opinion was different from the one of the government officials. In days that followed, Knafl was bombarded with online harassment. For example, a person named Joca or Jordana Carič was also critical of the doctor Rihard Knafl on Twitter. She wanted to discredit Knafl on the basis of his private Facebook posts, in which he was, among other things, critical of some representatives of the Janša government. A review of Jordana Carič's Twitter profile shows that practically all of her tweets support the views of the SDS party or attack opponents of the SDS party. A closer analysis of the profile photo shows that this is most likely the case of stolen identity. The photo is identical to the one a social media user from Brazil posted on her profile.

Russia[107] was also involved in the creation of troll factories in USA, where the investigation reveals that Russian trolls posing as Americans made payments to genuine activists in the US to help fund protest movements on socially divisive issues. The Russian business portal, RBC in 2017 published a major investigation into the work of a so-called Russian 'troll factory' operating since 2015, including the period of the US election campaign, disclosures that are likely to put further spotlight on alleged Russian meddling in the US elections. RBC said it had identified 118 accounts or groups in Facebook, Instagram and Twitter that were linked to the troll factory, all of which had been blocked in August and September 2017 as part of the US investigation into Russian electoral meddling. Many of the accounts had already been linked to Russian disinformation efforts in western outlets, but RBC said its sources at the troll factory had provided screenshots of the internal group administration pages of some of the groups, as a proof that they were run from Russia. It also contacted former and current employees of the troll factory, all of whom spoke anonymously.

Perhaps the most alarming element of the article was the claim that employees of the troll factory had contacted about 100 real US-based activists to help with the organization of protests and events. RBC claimed the activists were contacted by Facebook group administrators hiding their Russian origin and were offered financial help to pay for transport or printing costs. About $80,000 was spent during the two-year period, according to the report.

In Poland[108] undercover reporter, Katarzyna Pruszkiewicz, spent six months in 2019 working at Cat@Net, which describes itself as an 'ePR agency employing specialists who build a positive image of companies, private individuals and public institutions – mostly in social media.' Through internal communications channels company's employees, each of whom ran a dozen or so social media accounts, would receive guidance and instructions from their managers – what issues to engage with, who to promote, and who to denigrate. The accounts produced both left-wing and right-wing content, attracting attention, credibility and support from other social media users, who could then be rallied in support of the company's clients. One of Pruszkiewicz's responsibilities was to operate anonymous accounts with instructions

[107] *Russian troll factory paid US activists to help fund protests during election* | Russia | The Guardian
[108] *Undercover reporter reveals life in a Polish troll farm* | Poland | The Guardian

to promote the content produced by TVP, Poland's state broadcaster, which is seen by critics as a part of the government propaganda machine.

In Serbia[109] the ruling Serbian Progressive Party of Prime Minister, Aleksandar Vucic, has reportedly financed an army of trolls who tried to appear as normal citizens on Internet forums and social networks. Their job was to praise the Vucic's government and condemn those who think differently. The incident was reported by local media after some ex-employees spoken publicly about their job as trolls. According to a whistle blower, the organization of troll farming was impressive, with employees working across several cities, in hidden offices and on shifts, and there were supervisors who monitored everything.

In 2017 in Germany[110] Spiegel reported on a hateful campaign controlled by right-wing activists seeking to manipulate the German federal election. The misleading messages were repeatedly posted in chat rooms belonging to the right-wing extremist activist group, Reconquista Germanica. The group organized itself along strict military lines and, in addition to its YouTube channel with 33,000 subscribers, also used the chat app Discord. In this command center for anonymous disinformation, the self-proclaimed 'officers,' 'privates' and 'recruits' got their 'daily orders.'

Misinformation and data manipulation

It is a common concept that a picture is worth a thousand words. This also applies to data visualization: it is considered easier to understand and to communicate a dataset in some kind of graphic form instead of a verbose table. This idea of conveying data with images is not new, and precedes the invention of text: we can trace the first visualizations to the prehistoric scenes painted on cavern walls[111].

Moving forward towards current time, one of the most recognized examples of infographics is the Chart of Biography by Joseph Priestley, published in 1765: the goal of the author was to help students to 'trace out distinctly the dependence of events to distribute them into such periods and divisions as shall lay the whole claim of past transactions in a just and orderly manner'[112]. Inspired by his work, the political economist William Playfair refined some of Priestley's graphic ideas and invented several types of diagrams that are widely used nowadays, such as the line, bar and pie charts.

---

[109] Serbian government trolls in the battle for the Internet | Europe | News and current affairs from around the continent | DW | 05.01.2017

[110] Trolls in Germany: Right-Wing Extremists Stir Internet Hate - DER SPIEGEL

[111] Smiciklas, M. (2012). *The Power of Infographics: Using Pictures to Communicate and Connect with your Audiences*. Indianapolis: QUE

[112] Sheps, A (1999). *Joseph Priestley's Time Charts: The Use and Teaching of History by Rational Dissent in late Eighteenth-Century England*. Lumen: Selected Proceedings from the Canadian Society for Eighteenth-Century Studies. https://doi.org/10.7202/1012372ar

This is considered the start of statistical graphics, which allow representing results of statistics or data analysis in some sort of pictorial form. It gained popularity and it is now considered a standard in most popular office software because 'when data are presented in a visual display, we can better apprehend subtleties that would be invisible, were the data in a tabular form'[113].

Journalism applies the same approach in the form commonly called infographic, defined as 'a visualization of data or ideas that tries to convey complex information to an audience in a manner that can be quickly consumed and easily understood' (Smiciklas, 2012). The use of charts in printed and digital media has grown over time, from the representation of simple data to complex, multi-layered plots. It is considered as a way to convey complex messages in an efficient way and to appeal to readers at the same time. As demonstrated by Otten et al. (2015), 'because infographics leverage the brain's most dominant capacity—visual processing—they can be a faster and more effective way of communicating information than a text alone'[114].

Another aspect to consider is that it has been demonstrated that the presence of a graph in a text is read as an index of scientific reliability and truth. For example, in Tal et al (2014) two different groups of volunteers were given the same information about a drug, but one with the addition of a graph: 'a higher percentage believed the medication would truly reduce illness for the graphs group (97%) than for the control group (68%)'[115]. This is also true for advertising and for journalism. However, in the field of fake news, it is fundamental to know that a graph is not right per se: there are a lot of techniques to use a real set of data to convey a false idea. The main aspects to consider are cherry-picking, scale alteration, false causality, sampling bias and wrong graphic visualization.

Cherry-picking refers to deliberately choosing a small subset of data to highlight the desired outcome, filtering out other relevant or contradictory information. This is done by adding artificial time constraints to ignore data that does not fit inside the frame of the narration, by deliberately hiding related data that could put the news in a different light, or by choosing to focus on a small percentage of results instead of representing the whole spectrum. This could bring to visually flawless graphs but that narrate just a part of the story - usually the most controversial one. It is important to find access to the original dataset or to other articles that use the same source to compare the result.

Scale alteration is one of the most common visual tricks, but also one of the easiest ones to detect. In a bar chart, the scale is used to correctly represent comparisons between several data, indicating the starting point of the bars or regular steps over the axis.

---

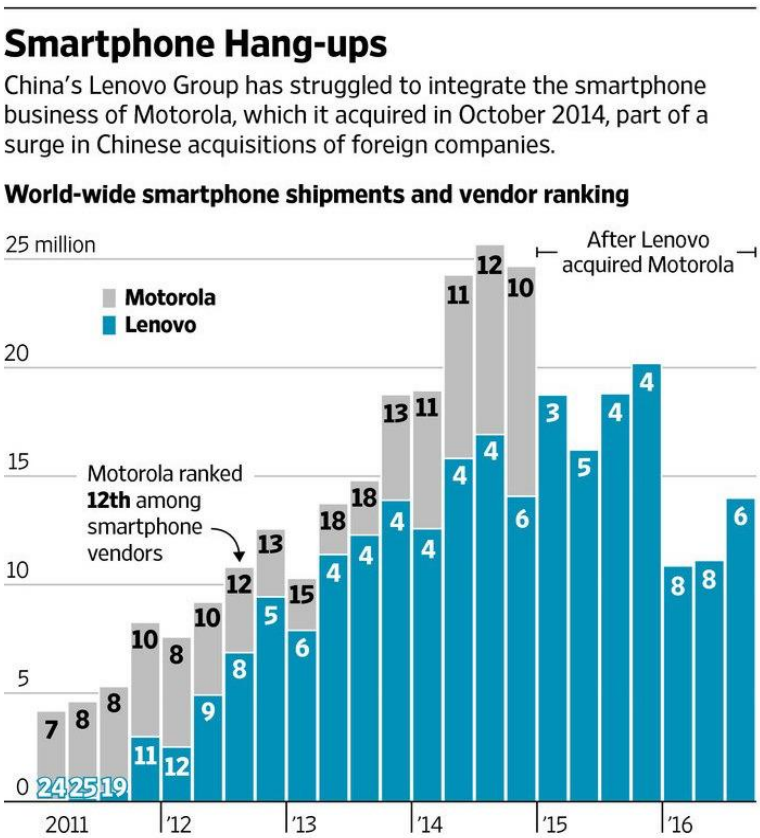
[113] Lewandowsky, S. & Spence, I. (1989). *The Perception of Statistical Graphs*. Sociological Methods & Research, 18(2-3), 200-242. https://doi.org/10.1177/0049124189018002002

[114] Otten, J.J., Cheng, K. & Drewnowski, A (2015). *Infographics And Public Policy: Using Data Visualization To Convey Complex Information*. https://doi.org/10.1377/hlthaff.2015.0642

[115] Tal, A., Wansink, B (2014). *Blinded with science: Trivial graphs and formulas increase ad persuasiveness and belief in product efficacy*. https://doi.org/10.1177/0963662514549688

Source: Degreesearch.org

The perception of a trend could be altered by ignoring proportion between numbers at all; loss or gain could be emphasized by starting a scale not from zero, but from a number closer to the digits represented; in the same way, a scale starting from zero could be used where non-necessary to dilute the difference between two high numbers; a logarithmic scale could be used to visually flatten a curve that is too pronounced; in a bar chart, a broken scale - where one bar is significantly higher than others around and is represented with a small graphic vertical interruption - could be introduced to diminish the differences between data.



Source: The Wall Street Journal

Another aspect to keep in mind is the concept of false causality. Illusions of causality, intended as false correlations between two events or data, 'occur because of the way the human mind has evolved: it extracts causality from coincidences'[116]. This effect could be exploited when making infographics by representing together two datasets that happen to share a similar (or specular) trend.

This bias is effective because 'when two or more lines appear together in a chart, and they look similar to each other, we have the tendency to assume they are related'[117]; but the result could even be comic, as noted by the collection of graphs that, based on real data, could connect 'Apple iPhone sales' with 'People who died by falling down the stairs' with a correlation of 99.5%[118].

While false causality is usually provoked by intentional correlation of two unrelated facts, another fallacy could be the result of a genuine error, such as the sampling bias: research aimed to collect data evenly among the population, but that in fact builds the result on disproportionate samples that do not correctly represent the total. This happens frequently, even in good faith, because of lack of time, or resources, or not well-thought method: a historical example is the Landon-Roosevelt race to 1936 presidential election in the USA, where The Literary Digest ran a poll to predict the winner indicating Landon as the secure leader. Roosevelt won, by far, because the poll was sent only to people with a public address: readers of the newspaper, car drivers, and people who owned a phone. Cars and phones were luxury items, and this brought to an automatic sampling bias towards rich people, traditionally Republicans, and misrepresentation of Democrats that actually won the election[119]. This could lead to misinformation even if the data visualization is technically right, because the underlying data are inherently wrong as they narrate just a part of the story.

Another form of misinformation through data visualization is the deliberate use of the wrong chart design. Not all graphs are suitable to convey a certain type of data, and not every graphical detail is appropriate for the communication of the correct message.

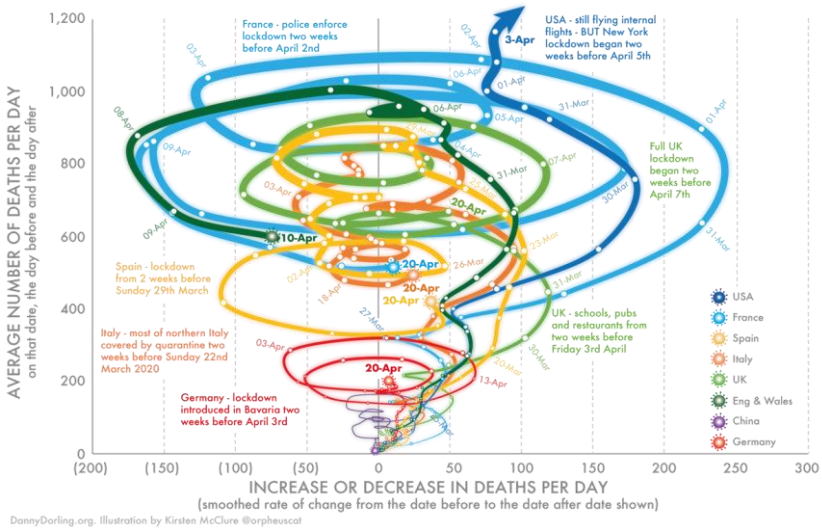
---

[116]Matute, H., Blanco, F., Yarritu, I., Díaz-Lago, M., Vadillo, M. A., & Barberia, I (2015). *Illusions of causality: how they bias our everyday thinking and how they could be reduced*. Frontiers in psychology, 6, 888. https://doi.org/10.3389/fpsyg.2015.00888

[117] Cudmore, B. (2014). *Five Ways to Lie with Charts*. https://nautil.us/issue/19/illusions/five-ways-to-lie-with-charts

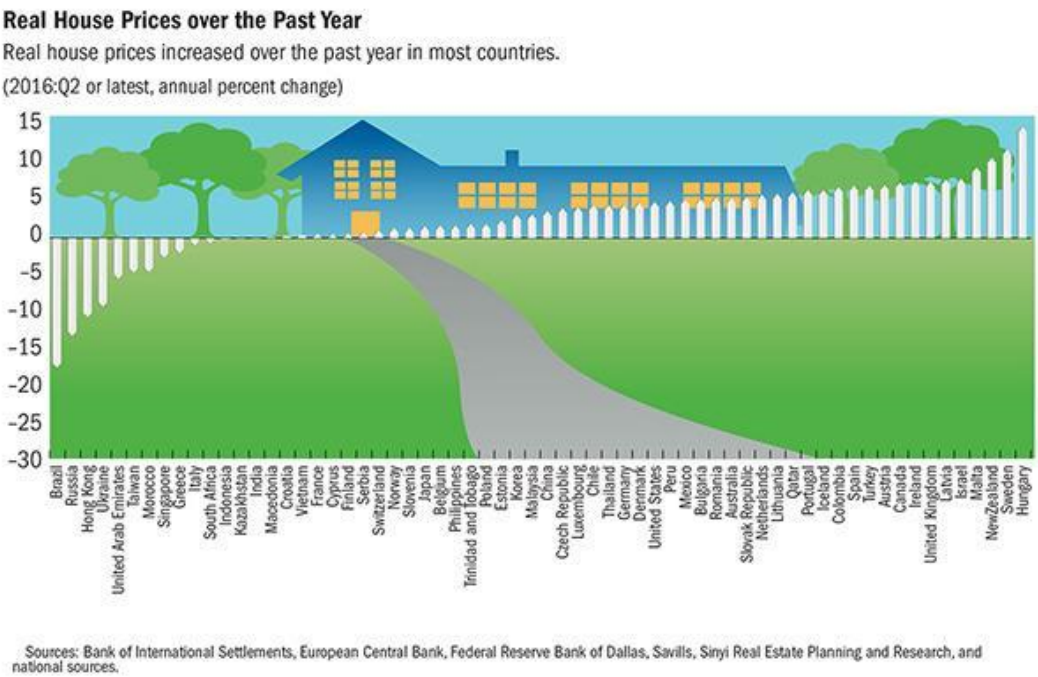
[118] Vigen, T. (2015). *Spurious Correlations*. Hachette Books

[119] Squire, P. (1988). *Why the 1936 Literary Digest Poll Failed*. The Public Opinion Quarterly, 52(1), 125–133. http://www.jstor.org/stable/2749114



Source: Kirsten McClure

In this case, the misinformation is perpetrated via subtle exploits of perceptions, in order to obfuscate unpleasant details or overturn actual data. For example, the usage of bubble charts is controversial because while the reader is usually able to determine which line is longer in a bar chart, it is more prone to wrongly calculate the area of a circle[120]; at the same time, a small difference could be exaggerated using the radius of the circle to represent the datum instead of the area. A pie chart could be put into 3D perspective to highlight and enlarge the section in front of the reader; a graph could consist of several rectangular areas without a clear indication of the unit of measure.



Source: International Monetary Fund

[120] Raidvee, A., Toom, M., Averin, K. et al (2020). *Perception of means, sums, and areas*. Atten Percept Psychophys 82, 865–876. https://doi.org/10.3758/s13414-019-01938-7

To conclude, the best way to deal with this technique of misinformation is to abstract pure data and try to focus on raw numbers, instead of their visual representation, whenever possible.

Pseudoscience and conspiracy theories

Pseudoscience usually has negative connotations and includes beliefs, theories, methods, systems or practices that have been or are considered as scientific but are supported by objective evidence. It means that they were disproved scientifically, cannot be tested in a methodical way or lack evidence to support data, hypotheses or conclusions. In other words, it means a discipline or approach that pretends to be or has a close resemblance to science. The history of pseudoscience began in the 17th century in discussions about the relationship between religion and empirical investigations. The delimitation between science and pseudoscience is hard to find, yet it has much in common with other delineations between accurate and inaccurate journalism, properly and improperly performed criminal investigations, where different methods are applied to reveal facts and data. It involves a sustained effort to promote standpoints, different from the ones that are at the time scientifically proved[121]

The most popular and well-known example is astrology, that is generally viewed as pseudoscience. We must be careful not to use the term astronomy instead, because astronomy is a science.[122] In astrology some individuals or groups believe that the Earth's position around other celestial bodies in space, has an impact on our everyday behavior. We can often hear people saying that they their sleep was not good because of the full moon, that has an impact on them every month. Other examples of pseudoscience that claim to have a basis in science are: ancient aliens, crop circles, face on Mars, flat Earth theory, mythical creatures, Bigfoot, Loch Ness monster, levitation, numerology, subliminal advertising that means receiving data through seeing or hearing, while not being aware of receiving it (Your dictionary, n. d.). Although they are not fully acceptable to science it does not mean they are not acceptable to other cultures. If we think of the Nordic countries, they still have their Nordic mythology, in Iceland exists that is based on mythology from the islandic past. American astronomer Carl Sagan said that belief in pseudoscience 'is the fault of the educational system, because we don't teach how to think. If science were explained to the average person in a way that is accessible and exciting, there would be no room for pseudoscience'.[123]

---

[121] Stanford encyclopedia of philosophy. (2021*). Science and pseudo-science*. Retrieved from: https://plato.stanford.edu/entries/pseudo-science/#SciePseu

[122] *Dictionary.com*. (2021b). Pseudoscience definition. Retrieved from: https://www.dictionary.com/browse/pseudoscience

[123] New scientist. (n. d.) *Pseudoscience.* Retrieved from: https://www.newscientist.com/definition/pseudoscience/

Health pseudoscience seems to be problematic, especially in the times of Covid pandemic - false therapies without scientific proof, energy therapies etc. The way to fight back is to share the accurate information that is easy to digest, engaging, easy to share on mobile and other devices, by writing a tweet, comment, giving public lectures about correct, accurate and scientifically proven information. Correcting misrepresentations should be a professional responsibility, including promotion of trust in science[124]

If someone puts their weight behind a belief, they are invested in it and are likely to fight for it, which is also the reason why people get into pseudoscience. It leads to confirmation and selection bias without looking for the correct, scientific proof. Darwin summarized the Dunning-Kruger effect as 'ignorance begetting confidence' which in other words means, that the less you know, the more you will think of yourself as a scientist and in reverse, the more you know, the more likely you will doubt your own competence. Another thing that confronts science is human hope, that leads us to the point when we hope that something will work, so that we believe that it will work.[125]

To recognize the difference between pseudoscience and science, at first, we can tell that pseudoscience theories do not advance or evolve over time. An example from astrology is that if you compare the works of Albertus Magnus, the famous astrologer from the Middle Ages, with the work of today's astrologers, you can see that not much has changed. Another symptom is that pseudoscience does not present any testable evidence so there is no proof for the existence of the theories. When new evidence comes out in science, some theories fall apart and they make a new theory based on new evidence. The difference with pseudoscience is that it is often unwilling to accept contrary evidence. It was proven many times that vaccines do not cause autism, and some people still do not believe the scientifically proven facts. In this case it is based on belief itself, as mentioned before – Bigfoot still exists for some people, even though it was proved that he doesn't[126]

There also exist many conspiracy theories, which we usually identify as a secret plot by two or more powerful actors, that usually tried to get political and economic power, violate rights, hide secrets and other things that they did not want the public to know. They are attempts to explain the ultimate causes of important events and circumstances with more powerful actors. Just like believing in pseudoscience, people tend to believe in conspiracy theories because of different reasons that range from personality traits to satisfying social needs that are a complex

[124] Caulfield, T. (2020). *Pseudoscience and COVID-19 – we've had enough already.* Retrieved from: https://www.nature.com/articles/d41586-020-01266-z

[125] Townson, S. (2016). Why people fall for pseudoscience (and how academics can fight back). *The guardian*. Retrieved from: https://www.theguardian.com/higher-education-network/2016/jan/26/why-people-fall-for-pseudoscience-and-how-academics-can-fight-back

[126] Walter, J. (2021). How to spot pseudoscience online and IRL. *Discover magazine*. Retrieved from: https://www.discovermagazine.com/the-sciences/how-to-spot-pseudoscience-online-and-irl

concept on their own.[127] Some factors that contribute to people believing and sharing these kinds of theories are feeling of powerlessness, explaining unlikely events, disputing mainstream politics and coping with threats.[128]

The most well-known conspiracy theories are 9/11 terror attacks that accuse the Bush administration and Jews. Another well-known conspiracy theory that is about climate change, accuses scientists, communists and the oil industry as the causes of conspiracy theories. The difference between the conspiracy itself is that it relies on a true causal chain of events and conspiracy theory refers to the events that may be or may not be true. Despite conspiracy theories, true conspiracies exist as well. The public found out about them through internal industry documents, inspections, outside controls or investigations. Examples of those real conspiracies are when Volkswagen conspired to cheat emissions tests for their diesel engines, when the tobacco industry lied to the public about all the harmful health effects of smoking and others.[129]

Recognizing conspiracy theories is quite similar to recognizing pseudoscience – they tend to persist for a long time, even when there is no true evidence for them and are based on different patterns that are known to be unreliable tools for tracking realty. They have a bad influence on the society just like pseudoscience or other fake news. Exposure to conspiracy theories decreases people's intentions to engage in politics or for example reduce their carbon footprint. Some individuals believe in the conspiracy theories so firmly, that they are willing to defend it with violence, like Stalin's Russia or Nazi's in Germany. Those theories can also affect the effectiveness in the workplace and can cause stress or lower the profit of the business organization.[130]

There are seven traits of conspiratorial thinking; contradictory beliefs when people believe in ideas that are mutually contradictory, for example, Princess Diana was murdered but at the same time she has faked her own death. Others are overriding suspicion, nefarious intent, something must be wrong, which is changed in science when new evidence comes along, but not in pseudoscience and conspiracy theories. The fifth trait is the persecuted victim, then immunity to evidence as mentioned previously and the last trait is re-interpreting randomness.[131]

---

[127] Douglas, K. M., Uscinski, J. E., et al. (2019). Understanding conspiracy theories. *Advances in political psychology*, Vol. 40, no. 1. Retrieved from: https://onlinelibrary.wiley.com/doi/pdf/10.1111/pops.12568

[128] Lewandowsky, S., Cook, J. (2020). *The conspiracy theory handbook.* Retrieved from: https://www.climatechangecommunication.org/wp-content/uploads/2020/03/ConspiracyTheoryHandbook.pdf

[129] Douglas, K. M., Uscinski, J. E., et al. (2019). Understanding conspiracy theories. *Advances in political psychology*, Vol. 40, no. 1. Retrieved from: https://onlinelibrary.wiley.com/doi/pdf/10.1111/pops.12568

[130] Douglas, K. M., Uscinski, J. E., et al. (2019). Understanding conspiracy theories. *Advances in political psychology*, Vol. 40, no. 1. Retrieved from: https://onlinelibrary.wiley.com/doi/pdf/10.1111/pops.12568

[131] Lewandowsky, S., Cook, J. (2020). *The conspiracy theory handbook.* Retrieved from:

Source: Lewandowsky and Cook, 2020

Before sharing information and to convince ourselves that something we read is not a conspiracy theory, pseudoscience or some kind of other fake news, we can make a quick check through the text. It may be likely to be a conspiracy theory is if the author is self-proclaimed expert and not attached to a reputable organization, if they claim to have competences but they do not withstand scrutiny, if the source of information is not clear, the independent websites do not support the source and the information is shared only by self-proclaimed experts.

Other tips that lead us to the recognition of conspiracy theories are if the author presents their information as the only valid truth, does not provide answers, the tone is subjective and charged with emotions.[132]

Biased information

According to the Cambridge Dictionary, the adjective 'biased' means:

- 'Showing an unreasonable like or dislike for a person based on personal opinions' Example: 'I think she's beautiful but then I'm biased since she's my daughter';
- 'Preferring or disliking someone or something more than someone or something else, in a way that means that they are treated unfairly'. Examples:
  - biased against somebody or something: 'He believes the American justice system is biased against blacks';
  - biased in favour of somebody or something: 'They claimed that the settlement was biased in favour of corporate clients';
- 'Showing an unreasonable preference or dislike based on personal opinion'. Example: 'The newspapers gave a biased report of the meeting';

https://www.climatechangecommunication.org/wp-content/uploads/2020/03/ConspiracyTheoryHandbook.pdf

[132] European Commission. (2021b). *Identifying conspiracy theories.* Retrieved from: https://ec.europa.eu/info/live-work-travel-eu/coronavirus-response/fighting-disinformation/identifying-conspiracy-theories_en#is-this-a-conspiracy-theory-check-before-sharing

- ‘Giving results that are not accurate because information has not been collected correctly’. Example: ‘A biased sample of interviewees has a set of characteristics that are different from those of the population as a whole’[133].

Source: Sara Porta (AFORISMA) based on CAMBRIDGE DICTIONARY, *“Meaning of biased in English”*, https://dictionary.cambridge.org/dictionary/english/biased.

The Merriam-Webster Dictionary helps us to clarify even more the meaning of the word ‘biased’: ‘In recent years, we have seen more evidence of the adjectival bias in constructions like ‘a bias news program’ instead of the more usual ‘a biased news program.’ The reason is likely because of aural confusion: the -ed of biased may be filtered out by hearers, which means that bias and biased can sound similar in the context of normal speech. They are not interchangeable, however. The adjective that means ‘exhibited or characterized by an unreasoned judgement’ is biased (‘a biased news story’).

What do we mean, then, when we talk about ‘biased information’? Biased information is ‘any systematic difference from the truth that arises in the collection, recall, recording and handling of information in a study, including how missing data is dealt with. […] It is a probable bias within observational studies, particularly in those with retrospective designs, but can also affect experimental studies”. […] All types of study can be subject to information bias. Observational studies may be at greater risk, particularly those relying on self-reports and retrospective data

[133]CAMBRIDGE DICTIONARY, *“Meaning of biased in English”*, https://dictionary.cambridge.org/dictionary/english/biased.

collection. Although randomization in intervention studies reduces the risk of bias and confounding, it cannot entirely eradicate these […]'.[134]

When we come to artificial intelligence and modern media, online news, advertising and the Internet, biased information has become the profession of 'manipulators' who specialize in spinning anything negative into something positive and vice-versa. 'Artificial Intelligence is a uniquely human technology. No technology knows more about us. On the flip side, this means it is excellent at manipulating humans. Nowhere is this more evident than on social media platforms, which are powered by a sophisticated Artificial Intelligence that knows more about our emotions than we do. […] The professionals engaged in the digital information world, understand that generally speaking, higher emotional responses result in greater engagement. By ingesting a decade's worth of user data, the algorithms behind Artificial Intelligence have become experts at predicting the emotional response an individual piece of content will elicit. To maintain engagement, increasingly emotive content is served. These algorithms have computerized something fundamental about the human brain—the understanding of emotion—and used it to make a product more compelling. Not only does this show our susceptibility to AI, but it also highlights the scale of the threat. While other disruptive technologies took time to achieve mass adoption, an algorithm can impact hundreds of millions of people in seconds. And when an algorithm is based on biased, incomplete, or otherwise affected data sets, the resulting decisions could be catastrophic'.[135]

Biased information, especially on social media platforms, thus occurs when the writer or the speaker 'uses a selection of facts, choice of words, and the quality and tone of description, to convey a particular feeling or attitude. Its purpose is to convey a certain attitude or point of view toward the subject' […] Being aware of bias and knowing how to identify, analyse, and assimilate biased information properly is a skill to be treasured'.[136] Are there any indicators that we can use to spot biased information on a web page or on a social media platform? Firstly, we must be aware that the Internet is a system of networks and a communication tool, and that the quality of information available on the Web can vary significantly. If it is essential to analyse any source for content, validity, and appropriateness, this is even more true for Internet resources. Unlike newspapers or books, webpages frequently lack editors or publishers who could filter out biased information. We are thus called to develop a critical approach to on-line information. The following questions must be kept in mind as we seek indicators of biased information:

- What is the author's political point of view?
- What does the author stand to gain?

---

[134] CATALOGUE OF BIAS, *"Information bias",*https://catalogofbias.org/biases/information-bias/.
[135]STEVE RITTER, "*The U.S. urgently needs an A.I. Bill of Rights"*, in *"Fortune"*, 12 November 2021, https://fortune.com/2021/11/12/ai-bill-of-rights-biden-artificial-intelligence-steve-ritter-mitek-systems/.
[136] NJIT, New Jersey Institute of Technology, *"How to Evaluate Information Sources: Identify Bias. Viewers will learn which criteria to use to evaluate resources"*, 5 August 2021, https://researchguides.njit.edu/evaluate/bias.

- Who is paying for the website?
- Does the author present alternate points of view?
- If so, are those views presented objectively?
- What are the sources of information?[137]

There are few essential indicators of biased information on a webpage:

- The language of the document is often extreme; statements have 'all or nothing' connotations;
- The argument appeals more to the emotions than to logic;
- Things are worded with the intent to oversimplify or overgeneralize;
- The author wishes to present a limited view of the topic.[138]

Last but not least, there is an easy-to-use tool for evaluating information sources helpful in understanding if we read objective and authentic information: the CRAAP test.[139]

Source: https://libapps.s3.amazonaws.com/accounts/130313/images/Evaluate-Craap.jpg

[137] LIBNCSU, "*Evaluating sources for credibility*", 2015, https://youtu.be/PLTOVoHbH5c.
[138] NJIT, New Jersey Institute of Technology, *"How to Evaluate Information Sources: Identify Bias. Viewers will learn which criteria to use to evaluate resources"*, 5 August 2021, https://researchguides.njit.edu/evaluate/bias.
[139] NJIT, New Jersey Institute of Technology, *"How to Evaluate Information Sources: CRAAP TEST* https://researchguides.njit.edu/evaluate/CRAAP.

Critical analysis of media content

The method of media content analysis discussed below is based on the model proposed by the Polish researcher Grzegorz Ptaszek. In his approach, critical thinking principles are applied, followed by the review of different layers of news and a 3-stage analysis of the content. Each layer is analyzed, assessed and interpreted, by asking a set of questions to prompt verification of the author article, its content, distribution etc.

The table below lists elements to use in critical analysis of media content:

Layer	Description	Attention points	Questions
Metacontents	The 'look and feel 'of the article	Photographs evoking emotions of the readers	*Does the headline sound sensational?* *Is the photography accompanying the article emotional?* *Do the title and the text contain a high amount of punctuation? (e.g., exclamation and question marks)*
Contents	Text analysis	Mixing opinions with facts Links to click or a telephone number to call	*Is the content credible?* *Does it contain facts or opinions?* *Is there any call-to action?*
Author	Identification and verification of the author	No information about the author	*Who is the author?* *Whom does he or she represent?* *What is the author's expertise in the subject or domain?*
Source	Sources of information	No possibility to track the source	*What is the source of information (e.g., webpage, social media account, blog, etc.)?* *Is the source professional or private?* *How is it financed or sponsored?*
Media	Credibility and impartiality of media	Blogs or articles sponsored by groups of interest	*Is the medium credible?* *How can it be verified?*

			Does it represent the interests of any political party, social group or business?
Context	Social and political context and the timing of contents distribution.	News discrediting political candidates during elections	*Is the article, video or photography up to date?* *Does it refer to any current campaigning (e.g., social, political or other?)* *What values does it stand for?*
Distribution	Ways in which the news were shared and/or promoted	Sponsored content in social media	*How did the contents reach the receiver?* *Is it transparent if the article or post distribution was paid for?* *Who and how distributes the news?*

Source: own elaboration based on Ptaszek, 2019 pp.286-296)

It is important to note that the above components of critical media analysis may be used selectively and in the sequence that the media consumer finds most comfortable. Its value lies primarily in reflection and doubt or skepticism as for what is offered in online and traditional media.

Hoaxes, satirical and humorous content

What is a hoax? Apparently, many things can fall under the definition, from comedy news shows, to satires and parodies, news stories that mix true and false to stories that are pure fiction. The definitions and criteria to discern fake news from journalism vary and may include numerous elements, such factitious communication blends, satire and parody, etc.

The invention of the Gutenberg printing press in 1493 dramatically amplified the dissemination of disinformation and misinformation and it ultimately delivered the first-large scale news hoax – 'The Great Moon Hoax' of 1835. The New York Sun published six articles about the discovery of life on the moon, complete with illustrations of humanoid bat-creatures and bearded blue unicorns.[140]

Satire is the use of humor or exaggeration to critique or mock a person, organization or policy, while false context is misinformation that takes an image, quote or other piece of content and puts it into a new, false context to change its meaning, resulting in an engagement bait. On the

[140]Posetti & Matthews, 2018

other hand, imposter content uses a well-known name, brand or logo to fool people into believing that it is authentic. Manipulated content is a type of misinformation in which something is altered from the original, such as images that have had content added or removed, using photo editing tools. Finally, it is useful to understand the very concept of fabricated content, that is misinformation entirely made up and designed to deceive readers into thinking that it is real.[141]

Professional journalism itself has been the victim of, and accomplice to numerous fake news items. In the past, it was primarily governments that manipulated the news media to print government-produced 'fake news,' some of the most egregious justified wars; the sinking of the Lusitania and the Gulf of Tonkin incident are perhaps the most famous historical examples. However, today professional journalism's recirculation of government or corporate hoaxes or lies is nearly routine.

More routinely, organizations like the New York Times are forced to issue retractions and corrections after posting stories deriving from hoax Tweets, such as one from North Korea's government news agency: 'because of an editing error, an earlier version of this article attributed incorrectly a Twitter statement to the North Korean government,' The Times said. 'The North Korean government did not belittle a joint American-South Korean military exercise as demonstrating near total ignorance of ballistic science,' that statement was from the DPRK News Service, a parody Twitter account.[142]

In the last decades, new communication genres have emerged that can be seen as a blend of several classical genres, a phenomenon known as 'discursive integration'. Satirical news is a good example of such a hybrid genre with discursive integration, as it typically blends (a) entertainment, (b) information, and (c) opinionative elements. Traditionally, these three communicative goals were each explored in their own communicative genre: humor in entertainment genres like sitcoms, political reporting in hard news, and political persuasion in opinionated news. However, in satirical news, a genre has emerged that can potentially achieve these three disparate goals at the same time.

Some people argue that soft-news formats like satirical news may appeal to news consumers who are less attentive to more traditional ('hard') forms of news. From this perspective, learning and persuasion can be established by comparing satirical news to a control condition without news information because the audience of satirical news would otherwise not consume news content in another format. By contrast, others suggest that many news consumers are exposed to both satirical and regular forms of news. From this perspective, effects can be established by comparing satirical news to regular news content with similar factual information.[143]

It is important to annotate that satirical use does not aim at misinforming the public, which may be challenging for older generations by whom satire and news may be seen as separate. The key objective is to inform media consumers on the premise of satirical news casting and

[141]"Checkology | The News Literacy Project", 2022
[142] https://doi.org/10.3917/pouv.164.0099
[143] https://doi.org/10.1177/00936502211032100

critically separate the entertaining component from the information surrounding it. One explanation for these diverging perspectives may stem from satire studied from two distinct perspectives: one that sees satire reaching out to audiences who do not tune in to regular news, and one that treats it as an alternative to regular news consumption.

In order to work on the ability to differentiate the truth from hoax or satirical news, it is important for the society and individuals to:

- Make ethical use of information
- Understand the role and functions of media in democratic societies
- Understand the conditions under which media can fulfil their functions
- Critically evaluate media content in the light of media functions
- Engage with media for self-expression and democratic participation
- Review skills (including ICTs) needed to produce user-generated content[144]

An interesting program available to the public, called Hoaxy[145], shows how any meme spreads through Twitter. In this visualization, nodes represent actual Twitter accounts, and links depict how retweets, quotes, mentions and replies propagate the meme from account to account. Each node has a color representing its score, which allows users to see the scale at which bots amplify misinformation. These tools have been used by investigative journalists to uncover the roots of misinformation campaigns and they can also be used by individual media users.

Social media attention points

While fake news, propaganda, misinformation, disinformation, and related concepts are not new to communication and politics, there is still much to learn about their recent wave found globally. What qualifies as fake news? The answer to this question is not straightforward as there are multiple reasons why fake news, hoaxes, and satirical content are created.

While fake news increasingly refers to deceitful, if not completely false or invented, content, the problem is millions of social media users (and occasionally politicians) misrecognize it as professional journalism.[146]

Another missing piece in the puzzle of fake news research is placing the concept in its social and technical context. In particular, we need to consider how the role of social media, with their vast reach, has introduced new twists to the old story of fake news – specifically, how easy-to-consume and attention-grabbing content published in digital formats (e.g. time-limited user stories, short user-generated videos), innovative methods of news delivery (e.g. through

[144]Wilson et al., 2011
[145]"Hoaxy: How claims spread online", 2022
[146] https://doi.org/10.3917/pouv.164.0099

chat apps), and the emergence of novel media platforms (e.g. social journalism platforms such as Medium) have fundamentally transformed how media content is consumed.

In the light of the recent attention to the role of social media in the dissemination of fake news about current political and social affairs, it is important to understand the way the audience interacts with disinformation on social networks. Fake news about current social or political issues is circulated on social media with tremendous speed to– deliberately or not – misinform or deceive audiences. Usually, these stories are created to either influence people's views, push a political agenda or cause confusion and can often be a profitable business for online publishers.

Combating fake news on social media comes down to understanding the goals of fellow users and of the platform owners. Social media platforms make money by selling user data to ad companies, which is why one often sees ads tailored to users' interests or search history. This is important to know for context. As an individual, being aware that the news one sees on the feed is filtered based on previously collected data can help one be more conscious of your own inherent bias. If one represents a business using social media as a marketing platform, it is important to keep posts consistent with the brand, and share things that build customer relationships, line up with customers' values, or showcase original content.

Fake news on social media may be unavoidable, but their distribution may be limited by critical thinking. Maintaining a healthy level of curiosity, understanding how social media platforms curate what one sees, and using investigative practices will be examples of the approach to adopt. Social media are powerful tools, for both businesses and individuals, when approached with appropriate intent and consideration.

Let us see an example of how fake news may spread through social media through this article by Filippo Menczer Luddy, professor of Informatics and Computer Science, Indiana University and Thomas Hills, professor of psychology and Director of the Behavioral and Data Science master's program at the University of Warwick in England:

'Consider Andy, who is worried about contracting COVID-19. Unable to read all the articles, he relies on trusted friends for tips. When he opens Facebook where pandemic fears are overblown, Andy dismisses the idea at first. But then the hotel where he works closes its doors, and with his job at risk, Andy starts wondering how serious the threat from the new virus really is. No one he knows has died, after all. A colleague posts an article about the COVID 'scare' created by Big Pharma in collusion with corrupt politicians, which jibes with Andy's distrust of government. His Web search quickly takes him to articles claiming that COVID-19 is no worse than the flu. Andy joins an online group of people who have been or fear being laid off and soon finds himself asking, like many of them, 'What pandemic?' When he learns that several of his new friends are planning to attend a rally demanding an end to lockdowns, he decides to join them. Almost no one at the massive protest, including him, wears a mask. When his sister asks about the rally, Andy shares the conviction that has now become part of his identity: COVID is a hoax'.

This example illustrates a minefield of biases. We prefer information from people we trust, our in-group. We pay attention to and are more likely to share information about risks—for Andy, the risk of losing his job. We search for and remember things that fit well with what we already know and understand. These biases are products of our evolutionary past, and for tens of thousands of years, they served us well. People who behaved in accordance with them—for example, by staying away from the overgrown pond bank where someone said there was a viper—were more likely to survive than those who did not. Modern technologies are amplifying these biases in harmful ways, however. Search engines direct Andy to sites that inflame his suspicions, and social media connects him with like-minded people, feeding his fears. To make matters worse, bots—automated social media accounts that impersonate humans—enable misguided or malevolent actors to take advantage of his vulnerabilities.

Another problem is the proliferation of online information. Viewing and producing blogs, videos, tweets and other units of information called memes has become so cheap and easy that the information marketplace is inundated. Unable to process all this material, we let our cognitive biases decide what we should pay attention to. These mental shortcuts influence which information we search for, comprehend, remember and repeat to a harmful extent…'[147]

Social network organizations like Google and Facebook have announced new measures to tackle fake news with the introduction of reporting and flagging tools. Media organizations like the BBC and Channel 4 have also established fact-checking sites. While these are positive developments, digital media literacy and developing skills to critically evaluate information are essential skills for anyone navigating the Internet. The vast amount of information available online and the rise of fake political news highlights the need for critical thinking. Therefore, it is crucial to examine the users' acts of verification on spotting and curbing fake news on social media. The tools and methods they use to identify a fake story, as well as the way they interact with it, can be used to obtain useful information about how users could potentially behave online to counter fake news on social media.

Training tools and methods

Media and other information providers such as libraries, archives and the Internet are widely recognized as essential tools for helping citizens to make informed decisions. They are also the means by which societies learn, maintain public discourses, and build a sense of community. Media and information channels can have a major impact on lifelong learning, and therefore citizens need basic knowledge of the functions of media and other information providers and how to assess them. The purpose of media and information literacy is to impart this knowledge to the users. Media and information literacy embodies essential knowledge about (a) the functions of media, libraries, archives and other information providers in democratic societies, (b) the conditions under which news media and information providers can effectively perform those functions, and (c) how to evaluate the performances of these

[147]Menczer & Hills, 2020

functions by assessing the content and services they offer.[148] The website Mind Tools[149] has constructed a fine set of easy-to-use tools to determine how aware every one of us are concerning fake news!

Below we present several tips on checking one's stand against fake news.

1) Critically Appraising Information
When Alice scrolls through her social media feed, she is stopped in her tracks by the news that her company is about to be bought out by its biggest rival. She quickly posts a response, shares the story with her contacts, and emails it to her team so that they can discuss it later. But then Alice has a troubling thought. What if the story wasn't true? What if she just shared a 'fake news' story? After all, she didn't check the source. If she has been a victim of fake news, and then added to the rumor mill herself, how will people ever trust her again? Fortunately, there is lots one can do to avoid making the same mistake as Alice.
Below some advice on how fake news can be separated from the truth.

2) Six Ways to Spot Fake News[150]

Separating fact from fiction accurately can seem daunting. But getting to the truth is always worth the effort – even if it's not what you want to hear! Use these six steps to weed out the truth from the lies:

1. Develop a Critical Mindset

One of the main reasons fake news is such a big issue is that it is often believable, so it is easy to get caught out. Much fake news is also written to create 'shock value,' that is, a strong instinctive reaction such as fear or anger. This means it is essential that you keep your emotional response to such stories in check. Instead, approach what you see and hear rationally and critically. Ask yourself, 'Why has this story been written? Is it to persuade me of a certain viewpoint? Is it selling me a particular product? Or is it trying to get me to click through to another website? Am I being triggered?'

2. Check the Source

If you come across a story from a source that you have never heard of before, do some digging! Check the web address for the page you're reading. Spelling errors in company names, or strange-sounding extensions like '. infonet' and '. offer,' rather than '.com' or '. co.uk,' may mean that the source is suspicious. Whether or not the author or publisher is familiar, stop to consider their reputation and professional experience. Are they known for their expertise on the matter? Or do they tend to exaggerate?

[148] Wilson et al., 2011
[149]"How to Spot Real and Fake News: Critically Appraising Information", n.d.
[150]"How to Spot Real and Fake News: Critically Appraising Information", n.d. - https://youtu.be/vPAW5j_L4-c

Be aware that people who spread fake news and ‘alternative facts’ sometimes create web pages, newspaper mock-ups, or ‘doctored’ images that look official, but are not. So, if you see a suspicious post that looks like it's from the World Health Organization (WHO), for example, check the WHO's own site to verify that it's really there. Remember, even if you got the story from your best friend, this gives it no extra authority – they likely did not follow these steps themselves before forwarding! Trusted online fact-checking sites like Snopes can help you to verify stories that sound too good to be true.

3. See Who Else Is Reporting the Story

Has anyone else picked up on the story? What do other sources say about it? Avoid leaping to the conclusion that all mainstream media (MSM) output is fake. This can be as unwise as following every rumor or conspiracy theory. Professional global news agencies such as Reuters, CNN and the BBC have rigorous editorial guidelines and extensive networks of highly trained reporters, so are a good place to start. But no one is unbiased, and anyone can make a mistake, so keep looking.

4. Examine the Evidence

A credible news story will include plenty of facts – quotes from experts, survey data and official statistics, for example. Or detailed, consistent and corroborated eye-witness accounts from people on the scene. If these are missing, question it! Does the evidence prove that something definitely happened? Or, have the facts been selected or ‘twisted’ to back up a particular viewpoint?

5. Don't Take Images at Face Value

Modern editing software has made it easy for people to create fake images that look real. In fact, research shows that only half of us can tell when images are fake. However, there are some warning signs you can look out for. Strange shadows on the image, for example, or jagged edges around a figure. Images can also be 100 percent accurate but used in the wrong context. For example, photos of litter covering a beach could be from a different beach or from 10 years ago, not the recent alleged event. You can use tools such as Google Reverse Image Search to check where an image originated and whether it has been altered.

6. Check That it ‘Sounds Right’

Finally, use your common sense! Bear in mind that fake news is designed to ‘feed’ your biases, hopes or fears. For example, it is unlikely that your favorite designer brand is giving away a million free dresses to people who turn up to its stores. Equally, just because your colleague believes that two married co-workers are having an affair, does not mean it's true.

Glossary of Terms

You are free to be a drunkard, an idler, a coward, a backbiter, a fornicator; but you are not free to think for yourself.

George Orwell

Anchoring is a cognitive bias where subsequent decisions are heavily influenced by the first piece of information available to the reader[151].

Authority *bias* is the tendency to give greater weight and assign greater accuracy to the opinions of a person in a position of authority, regardless of the context. It is classified as a social cognitive bias since the authority figure influences an individual's perceptions, beliefs and opinions on a given matter. At the same time, it can be seen as the result of both social and cultural conditioning, which teaches us that a person in authority has earned or deserves their position. An example of this is the military, where orders from a rising chain of command are followed and expected to be followed without question, regardless of the ethical or moral issues[152]. Authority bias is also known as the *Dr Fox effect*, debunking a human brain's tendency to trust charismatic speakers regardless of how empty their speeches may be[153].

Availability heuristics describes our tendency to use information that is easily available or comes to mind quickly, when making decisions.[154]

Backfire effect is the tendency to resist accepting evidence that conflicts with their beliefs. The effect is demonstrated when people presented with that conflicting information become even more convinced of their original beliefs rather than question them.[155]

Bandwagon effect is the tendency for people in social and sometimes political situations to align themselves with the opinion of the majority and do or believe things because many other people appear to be doing or believing the same.[156]

Belief bias *is* the tendency to be influenced by one's knowledge about the world in evaluating conclusions and to accept them as true because they are believable rather than because they are logically valid. Belief bias is most often assessed with syllogistic reasoning tasks in which the believability of the conclusion conflicts with logical validity.[157]

Belief echo happens when 'exposure to a piece of negative political information persists in shaping attitudes even after the information has been successfully discredited'[158].

Blind spot bias (BBS) is the tendency of people to see themselves as less susceptible to non-conscious predispositions and cognitive influences than others. For example, people often

---

[151]Furnham, A., & Boo, H. C. (2011). *A literature review of the anchoring effect*. The Journal of Socio-Economics, 40(1), 35–42. https://doi.org/10.1016/j.socec.2010.10.008

[152]STAFFORD GLOBAL, *"5 Common Cognitive biases"*, 17 June 2021, https://www.staffordglobal.org/articles-and-blogs/psychology-and-healthcare-blogs/5-common-cognitive-bias/

[153] LESLEY VOS, *"These five Cognitive biases are affecting your career and life right now"* in *"Forbes"*, 8 February 2021, https://www.forbes.com/sites/ellevate/2021/02/08/these-five-cognitive-biases-are-affecting-your-career-and-life-right-now/.

[154] https://thedecisionlab.com/biases/availability-heuristic/

[155] https://whatis.techtarget.com/definition/backfire-effect

[156] https://dictionary.apa.org/bandwagon-effect

[157] https://dictionary.apa.org/belief-bias

[158] Thorson, E. (2016). *Belief Echoes: The Persistent Effects of Corrected Misinformation*. Political Communication, 33:3, 460-480. https://doi.org/10.1080/10584609.2015.1102187

consider their own political views to be objective and purely fact-based, whereas they believe those who hold opposing political views are influenced by prejudice and party opinion. This bias stems from the fact that a person generally relies on introspection when assessing his or her own biases but relies on overt behavior when assessing bias in others[159]. Blind spot has been theorized to be a result of the three possible sources: introspection illusion, naïve realism, and self-enhancement motives. Biases are commonly perceived as sub-optimal, often referred to as being 'irrational', and so to maintain a positive self-image of being rational and objective, people would need to view themselves as being less biased[160].

Bot is 'a software program that can execute commands, reply to messages, or perform routine tasks, such as online searches, either automatically or with minimal human intervention'.[161]

Cherry *picking* is the tendency to pick only the best people or things from a group, so that only people or things that are less good remain.[162] In media consumption it is demonstrated by selective attention paid to information.

Clickbait is e.g. a headline designed to make readers want to click on a hyperlink especially when the link leads to content of dubious value or interest'.[163]According to the Cambridge Dictionary, the word clickbait refers to 'articles, photographs, etc. on the Internet that are intended to attract attention and encourage people to click on links to particular websites'[164].

Clustering illusion is the tendency to assume the existence of clusters or patterns in random distributions; they are the 'product of the human mind's ceaseless quest to find order and meaning in the world'.[165]

Cognitive bias is a systematic error in thinking that occurs when people are processing and interpreting information in the world around them and affects the decisions and judgments that they make.[166]

Confirmation bias is the tendency to process information by looking for, or interpreting, information that is consistent with one's existing beliefs. This biased approach to decision making is largely unintentional and often results in ignoring inconsistent information.[167]

---

[159]APA DICTIONARY OF PSYCHOLOGY, *"Bias Blind Spot"*,https://dictionary.apa.org/bias-blind-spot.
[160]SUBRAMANYA PRASAD CHANDRASHEKAR et al., *"Agency and self-other asymmetries in perceived bias and shortcomings: Replications of the Bias Blind Spot and link to free will beliefs"*, in *"Judgment and Decision Making"*, Vol. 16, No. 6, November 2021, pp. 1392-1412, http://journal.sjdm.org/20/201018/jdm201018.pdf.
[161] https://www.dictionary.com/browse/bot
[162] https://dictionary.cambridge.org/dictionary/english/cherry-pick
[163]MERRIAM – WEBSTER DICTIONARY, *"Clickbait"* https://www.merriam-webster.com/dictionary/clickbait.
[164]CAMBRIDGE DICTIONARY, *"Clickbait"*https://dictionary.cambridge.org/dictionary/english/clickbait.
[165]Gilovich, T. D. (1991). *The "Hot Hand" and Other Illusions of Everyday Life*. The Wilson Quarterly (1976-), 15(2), 52–59. http://www.jstor.org/stable/40258607
[166] https://www.verywellmind.com/what-is-a-cognitive-bias-2794963
[167] https://www.britannica.com/science/confirmation-bias

Deepfake is the term typically used to refer to a video that has been edited, using an algorithm to replace the person in the original video with someone else (especially a public figure) in a way that makes the video look authentic.[168]

Disinformation is 'verifiably false or misleading information, created, presented and disseminated for economic gain or to intentionally deceive the public'[169]. 'Disinformation happens when false information is knowingly shared to cause harm'[170].

Factoid is an invented fact believed to be true because it appears in print. A briefly stated and usually trivial fact. Norman Mailer coined the term in 1973 in his book about Marilyn Monroe. Mailer explains that factoids are 'facts which have no existence before appearing in a magazine or newspaper, creations which are not so much lies as a product to manipulate emotion in the Silent Majority.' As current evidence demonstrates, it now most often refers to things that decidedly are facts, just not ones we tend to pay much attention to'[171].

Filter bubble is the intellectual isolation that can occur when websites make use of algorithms to selectively assume the information a user would want to see, and then give information to the reader according to this assumption. Websites make them based on the information related to the user, such as former click behavior, browsing history, search history and location.[172]

Framing effect is the process of defining the context or issues surrounding a question, problem, or event in a way that serves to influence how the context or issues are perceived and evaluated[173]. The framing effect can be described as a cognitive bias wherein an individual's choice from a set of options is influenced more by the presentation than the substance of the pertinent information. For instance, while looking for a disinfectant, you choose a product which claims to kill 95% of all the germs, over one which claims that 5% of the germs will survive[174].

Groupthink is a mode of thinking in which individual members of small cohesive groups tend to accept a viewpoint or conclusion that represents a perceived group consensus, whether or not the group members believe it to be valid, correct, or optimal. Groupthink reduces the efficiency of collective problem solving within such groups.[175]

---

[168] https://www.merriam-webster.com/words-at-play/deepfake-slang-definition-examples

[169] EUROPEAN COMMISSION, *"Tackling online disinformation"*, 02 December 2021, https://digital-strategy.ec.europa.eu/en/policies/online-disinformation.

[170]RONAN Ó FATHAIGH,NATALI HELBERGER, NAOMI APPELMAN, "*The perils of legally defining disinformation"*, in *"Internet Policy Review"*, 04 November 2021, https://policyreview.info/articles/analysis/perils-legally-defining-disinformation.

[171]MERRIAM – WEBSTER DICTIONARY, *"Factoid"*, https://www.merriam-webster.com/dictionary/factoid.

[172] https://www.techopedia.com/definition/28556/filter-bubble

[173]APA DICTIONARY OF PSYCHOLOGY, *"Framing"*, https://dictionary.apa.org/framing.

[174] AYESH PERERA, *"Framing effect"*, in "*Inattentional blindness,Simply Psychology*", 10 June 2021, https://www.simplypsychology.org/framing-effect.html.

[175] https://www.britannica.com/science/groupthink

Gutter press refers to a kind of journalism particularly interested in sensational stories, preferably involving sex, crime, and/or public figures.

Halo effect, also called the *halo error*, is the tendency for positive impressions of a person, company, brand or product in one area to positively influence one's opinion or feelings in other areas. The halo effect which is a cognitive bias can possibly prevent someone from accepting a person, a product or a brand based on the idea of an unfounded belief on what is good or bad.[176]

Hoax is false information deliberately diffused as true[177], intended to deceive or lie to the audience.

Infotainment is a portmanteau representing the drift of media from pure information towards entertainment, combining news with narrative techniques, flashy graphics, satire and dramatic moments[178].

In-group favoritism, sometimes known as in-group bias, is favoring members of one's in-group over out-group members. This can be expressed in evaluation of others, in allocation of resources, and in many other ways. In-group favoritism arises as a result of the formation of cultural groups. These cultural groups can be divided based on seemingly trivial observable traits, but with time, populations grow to associate certain traits with certain behavior, increasing covariation.[179]

Malinformation 'happens when genuine information is shared to cause harm, often by moving information designed to stay private into the public sphere'[180].'Malinformation – like true information that violates a person's privacy without public interest justification - goes against the standards and ethics of journalism'[181].

---

[176] https://en.wikipedia.org/wiki/Halo_effect

[177] https://en.wikipedia.org/wiki/Hoax

[178] Reinemann, C., Stanyer, J., Scherr, S., & Legnante, G. (2012). *Hard and soft news: A review of concepts, operationalizations and key findings*. Journalism, 13, 221 - 239. https://doi.org/10.1177/1464884911427803/

[179] https://en.wikipedia.org/wiki/In-group_favoritism

[180]RONAN Ó FATHAIGH,NATALI HELBERGER, NAOMI APPELMAN, "*The perils of legally defining disinformation"*, in *"Internet Policy Review"*, 04 November 2021, https://policyreview.info/articles/analysis/perils-legally-defining-disinformation.

[181]CLAIRE WARDLE, HOSSEIN DERAKHSHAN, in UNESCO, *"Journalism, 'Fake News' & Disinformation"*, 2018, https://en.unesco.org/sites/default/files/f._jfnd_handbook_module_2.pdf. For a further exploration of the concept of "malinformation", see: BETH STAATS, "*Misinformation, Disinformation, Malinformation: What's the difference?"*, in *"Minitex, Elibrary Minnesota News"*, 11 February 2021, https://minitex.umn.edu/news/elibrary-minnesota/2021-02/misinformation-disinformation-malinformation-whats-difference.

Manipulation is intended as the usage of 'real images or videos to create a false narrative'[182]. It usually refers to visual content, elaborated to convey a fake message or to grab the attention of the reader.

Media literacy consists of the knowledge, the attitudes, and the sum of the skills needed to know when and what information is needed; where and how to obtain that information; how to evaluate it critically and organize it once it is found; and how to use it in an ethical way.[183]

Meme is a cultural item in the form of an image, video, phrase, etc., that is spread via the internet and often altered in a creative or humorous way[184].

Misinformation: 'Misinformation is verifiably false information that is spread without the intention to mislead, and often shared because the user believes it to be true'.[185] 'Mis-information is when false information is shared, but no harm is meant'[186].

Post-truth defines or denotes circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and a personal belief. Post-truth has gone from being a peripheral term to being a mainstay in political commentary, now often being used by major publications without the need for clarification or definition in their headlines. For instance, in the context of the EU referendum in the United Kingdom and the presidential election in the United States, it has also become associated with a particular noun, post truth politics. Post-truth extends that notion from an isolated quality of particular assertions to a general characteristic of our age[187].

Primary source is an immediate, first-hand account of a topic, from people who had a direct connection with it.[188]

Propaganda is the more or less systematic effort to manipulate other people's beliefs, attitudes, or actions by means of symbols (words, gestures, banners, monuments, music, clothing, insignia, hairstyles, designs on coins and postage stamps, and so forth).[189]

Status quo bias: Status quo bias is evident when people prefer things to stay the same by doing nothing or by sticking with a decision made previously. This may happen even when only small transition costs are involved, and the importance of the decision is great.[190]

---

[182] Tandoc, E. C., Lim, Z. W. & Ling, R. (2018). *Defining "Fake News"*. Digital Journalism, 6:2, 137-153. https://doi.org/10.1080/21670811.2017.1360143

[183] https://library.redlands.edu/iml

[184] https://www.dictionary.com/browse/meme

[185]EUROPEAN COMMISSION, *"Tackling online disinformation"*, 02 December 2021, https://digital-strategy.ec.europa.eu/en/policies/online-disinformation.

[186]RONAN Ó FATHAIGH,NATALI HELBERGER, NAOMI APPELMAN, "*The perils of legally defining disinformation"*, in *"Internet Policy Review"*, 04 November 2021, https://policyreview.info/articles/analysis/perils-legally-defining-disinformation.

[187]OXFORD LANGUAGES, *"Word of the year 2016"*, https://languages.oup.com/word-of-the-year/2016/.

[188] https://umb.libguides.com/PrimarySources/secondary

[189] https://www.britannica.com/topic/propaganda

[190] https://www.behavioraleconomics.com/resources/mini-encyclopedia-of-be/status-quo-bias/

Transparency is the capacity of outsiders to obtain valid and timely information about the activities of government or private organizations. Transparency is widely seen as integral to a variety of political goals, including corruption control, fair financing of election campaigns, enhancing democracy in existing institutions such as the European Union, consolidating democracy in transitional societies, and limiting international conflict.[191]

Troll is *s*omeone who leaves an intentionally annoying or offensive message or comment on the Internet, in order to upset someone or to get attention or cause trouble. A well-constructed troll will provoke irate or confused responses from people.[192]

Urban legend is a fictional story circulated as true. As traditional folklore, it could spring from a real fact or person, but it is exaggerated over time to become untrue[193].

[191] https://www.britannica.com/topic/transparency-government
[192] https://dictionary.cambridge.org/dictionary/english/troll
[193] https://literaryterms.net/urban-legend/

Quotation Bank

The quotations below may be a source of inspiration for preparing materials and triggering discussion on the subject of fake news.

- → *Alternative facts and fake news are just other names for propaganda.* Johnny Corn
- → *Although we often hear that speak for themselves, their voices can be soft and sly.*[194]
- → *Anyone who stops learning is old, whether they are 20 or 80. Anyone who keeps learning will stay young. The greatest thing in life is to keep your mind young.* Henry Ford
- → *As I noted at the beginning of this chapter, one reason the Russian misinformation campaign was successful was that our country's natural defenses had been worn down over several years of powerful interests that sought to make it harder for Americans to distinguish between truth and lies. If you feel like it's gotten tougher to separate out fringe voices from credible journalists, especially online, or you find yourself arguing more and more with people over what should be knowable facts, you're not going crazy.* Hillary Clinton
- → *Information is only as reliable as the people who receive it. If readers do not change or improve their ability to seek out and identify reliable information sources, the information environment will not improve.*[195]
- → *It is a capital mistake to theorize before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts.*[196] Arthur Conan Doyle
- → *It was a bright cold day in April, and the clocks were striking thirteen.* George Orwell
- → *Most of us lived through the years when spam threatened to destroy e-mail. Today, democracy is being weakened by lies that come in waves and pound our senses the way a beach is assaulted by the surf.* Madeleine Albright
- → *Studying is the best retirement provision.* Aristotle
- → *The crisis we face about 'truth' and reliable facts is predicated less on the ability to get people to believe the wrong thing as it is on the ability to get people to doubt the right thing.*[197]
- → *The human brain has not evolved to perceive reality, it has evolved to create an illusion of reality. That's why an exciting lie gains more attention than a boring truth.* Abhijit Naskar

---

[194] Frederick Monsteller, Stephen E. Fienberg, and Robert E. K. Rourke, Beginning statistics with Data Analysis (Reading, Massachusetts, 1983)

[195] Koller, J. (2017). A learning solutions lead developer. Pew research center. https://www.pewresearch.org/internet/2017/10/19/shareable-quotes-from-experts-on-the-future-of-truth-and-misinformation-online/

[196] Conan Doyle, A. Sherlock Holmes. Goodreads. https://www.goodreads.com/quotes/tag/information

[197] Cascio, J. Distinguished fellow at the institute for the future. Pew research center. https://www.pewresearch.org/internet/2017/10/19/shareable-quotes-from-experts-on-the-future-of-truth-and-misinformation-online/

→ *The only difference between being uninformed and misinformed is that one is your choice and the other is theirs*[198]*.*

→ *The point of modern propaganda isn't only to misinform or push an agenda. It is to exhaust your critical thinking, to annihilate truth.* Garry Kasparov

→ *The purpose of learning is growth, and our mind, unlike our body, can continue to grow as long as we live.* Mortimer J. Adler

→ *There are right ways and wrong ways to show data; there are displays that reveal the truth and displays that do not.* Edward Tufte

→ *To your request of my opinion of the manner in which a newspaper should be conducted, so as to be most useful, I should answer, 'by restraining it to true facts & sound principles only.' Yet I fear such a paper would find few subscribers.* Thomas Jeffferson

[198] Frank Sonnenberg, *Listen to Your Conscience: That's Why You Have One*

Bibliography

English

Bounegru, L., Gray, J., Venturini, T. & Mauri, M. (2018) *A Field Guide to "Fake News" and Other Information Disorders: A Collection of Recipes for Those Who Love to Cook with Digital Methods*, Public Data Lab. https://ssrn.com/abstract=3097666 or http://dx.doi.org/10.2139/ssrn.3097666

Cairo, A. (2019) *How Charts Lie: Getting Smarter about Visual Information*. W. W. Norton & Company.

Carson, J. (2019). Fake news: What exactly is it – and how can you spot it? The Telegraph. Accessible: Fake news: What exactly is it – and how can you spot it? (telegraph.co.uk)

Caulfield. T. (2020). Pseudoscience and COVID-19 — we've had enough already. https://www.nature.com/articles/d41586-020-01266-z

Cosentin0, G. (2020). Social Media and the post-truth world order. The Global dynamics of Disinformation. Palgrave Pivot.

Cudmore, B. (2014) *Five Ways to Lie with Charts.* https://nautil.us/issue/19/illusions/five-ways-to-lie-with-charts

European Commission. (2018) Tackling online disinformation: Commission proposes an EU-wide Code of Practice. Tackling online disinformation: Commission proposes an EU-wide Code of Practice (europa.eu)

Few, S. (2014) *Examples*. Perceptual Edge http://perceptualedge.com/examples.php

Gadek (G.), Guélorget (P.) (2020). An interpretable model to measure fakeness and emotion in news, *Procedia Computer Science*, Volume 176, 2020.

Genoux, C. (2019) *How to prevent misinformation in data visualization?* https://towardsdatascience.com/how-to-prevent-misinformation-in-data-visualization-1521a96e6431

Harsin, J. (2018). A Critical Guide to Fake News: From Comedy to Tragedy. Pouvoirs, 164, 99-119. https://doi.org/10.3917/pouv.164.0099

International Center for Journalists (2018). *A short guide to the history of 'fake news' and disinformation,* ICFJ https://www.icfj.org/sites/default/files/2018-07/A%20Short%20Guide%20to%20History%20of%20Fake%20News%20and%20Disinformation_ICFJ%20Final.pdf

Krok, E. (2021) *Visualization on charts – manipulations and distortions*. doi: https://doi.org/10.1016/j.procs.2021.09.168

Lamprou, Evangelos, Nikos Antonopoulos, Iouliani Anomeritou, and Chrysoula Apostolou. 2021. Characteristics of Fake News and Misinformation in Greece: The Rise of New

Crowdsourcing-Based Journalistic Fact-Checking Models. Journalism and Media 2: 417–439. https://doi.org/ 10.3390/journalmedia2030025

Lewandowsky, S. and Cook, J. (2020). The Conspiracy Theory Handbook. https://www.climatechangecommunication.org/wpcontent/uploads/2020/03/ConspiracyTheoryHandbook.pdf

Lilleker, D. G. (2017) (Evidence to the Culture, Media and Sport Committee 'Fake news' inquiry presented by members of the Centre for Politics & Media Research, Faculty for Media & Communication, Bournemouth University, UK. http://eprints.bournemouth.ac.uk/28610/3/Evidence%20Submission%20%20Fake%20News%20FINAL.pdf

Leo, S. (2019) *Mistakes, we've drawn a few. Learning from our errors in data visualisation.* The Economist, https://medium.economist.com/mistakes-weve-drawn-a-few-8cdd8a42d368

Managing the COVID-19 infodemic: Promoting healthy behaviours and mitigating the harm from misinformation and disinformation. (2020). World Health Organization. https://www.who.int/news/item/23-09-2020-managing-the-covid-19-infodemic-promoting-healthy-behaviours-and-mitigating-the-harm-from-misinformation-and-disinformation

Manoilo, Andrei. (2021). The effectiveness of fake news as an information war tool in the Perception by generation. Bulletin of the Moscow State Regional University. 10.18384/2224-0209-2021-3-1084

Mitchell, A., Gottfried, J., Stocking, G., Walker, M., &Fedeli, S. (2019, December 31). *1. Americans see made-up news as a bigger problem than other key issues in the country*. Pew Research Center's Journalism Project. https://www.pewresearch.org/journalism/2019/06/05/americans-see-made-up-news-as-a-bigger-problem-than-other-key-issues-in-the-country/.

Mavridis, G. (2018). Fake news and Social Media: How Greek users identify and curb misinformation online

Molina, M. D., Sundar, S. S., Le, T., & Lee, D. (2021). "Fake News" Is Not Simply False Information: A Concept Explication and Taxonomy of Online Content. American Behavioral Scientist, 65(2), 180–212. https://doi.org/10.1177/0002764219878224

Paschalides D., Christodoulou C., Orphanou K., Andreou R., Kornilakis A., Pallis G., Dikaiakos M., Markatos E. (2021). Check-It: A plugin for detecting fake news on the web, *Online Social Networks and Media*, Volume 25.

Preidt, R. (2021). How Trust in Science Can Make You Vulnerable to 'Pseudoscience.' https://www.usnews.com/news/health-news/articles/2021-07-28/how-trust-in-science-can-make-you-vulnerable-to-pseudoscience

Rampersad, G., Turki A. (2019). Fake news: Acceptance by demographics and culture on social media. Journal of Information Technology & Politics. 17. 1-11. 10.1080/19331681.2019.1686676

Roozenbeek, J., & van der Linden, S. (2018). The fake news game: Actively inoculating against the risk of misinformation. Journal of Risk Research, 22(5), 570–580. https://doi.org/10.1080/13669877.2018.1443491

Shu, K., Wang, S., Lee, D., Liu, H. (2020). Disinformation, Misinformation and Fake News in Social Media. Springer. Doi: DOI: 10.1007/978-3-030-42699-6

Silverman, C. (ed.). Verification Handbook for Disinformation and Media Manipulation. European Journalism Centre.

Sindermann C., Schmitt H., Rozgonjuk D., Elhai J., Montag C. (2021). The evaluation of fake and true news: on the role of intelligence, personality, interpersonal trust, ideological attitudes, and news consumption, *Heliyon*, Volume 7, Issue 3.

Sun, H. LAW 806C. Fall 2017. Stanford Graduate School of Education. (2017). The Role of Open Source Technology in the Battle Against Fake News. https://pacscenter.stanford.edu/wpcontent/uploads/2018/06/HilarySun_LAW806C.pf

Suntwal, S., Brown, S.A., & Patton, M.W. (2019). How does Information Spread? A Study of True and Fake Newshttps://aisel.aisnet.org/cgi/viewcontent.cgi?article=1737&context=hicss-53

Tandoc, E.C., Lim, Z.W., Ling, R. (2017) Defining “Fake News.” Digital journalism, 6(2), 137-153.

Theodosiadou, S., Spyridou, P. (L., Nikos, P., Milioni, D. L., & Venetia, P. (2021). Journalism education in the post-truth era: An exploration of the voices of journalism students in Greece and cyprus. Media Practice and Education, 1–15. https://doi.org/10.1080/25741136.2021.1919833

Townson, S. (2016). Why people fall for pseudoscience (and how academics can fight back). The Guardian. https://www.theguardian.com/higher-education network/2016/jan/26/why-people-fall-for-pseudoscience-and-how-academics-can-fight-back

Tsekeris, C., Demertzis, N., Linardis, A., Iliou, K., Kondyli, D., Frangiskou, A., & Papaliou, O. (2020). Investigating the Internet in Greece: Findings from the World Internet Project (Hellenic Observatory Discussion Papers on Greece and Southeast Europe No. 153). London: European Institute, London School of Economics and Political Science.

Tufte, E. (2001) *The Visual Display of Quantitative Information - 2nd Edition*. Graphics Press.

UNESCO. (2018). Journalism, 'Fake News' and Disinformation: A Handbook for Journalism Education and Training. Published by the United Nations Educational, Scientific and Cultural Organization

Wardle, C. (2017). Fake News. It’s complicated. Accessible: Fake news. It's complicated. (firstdraftnews.org)

Wardle C, Derakhshan H, (2017) Information disorder: Toward an interdisciplinary framework for research and policy making [Council of Europe policy report DGI(2017)09, Council of

Europe, 2017]; https://firstdraftnews.com/wp-content/uploads/2017/11/PREMS-162317-GBR-2018-Report-de%CC%81sinformation-1.pdf?x29719

Weeks, B. E., & Gil de Zúñiga, H. (2021). What's Next? Six Observations for the Future of Political Misinformation Research. American Behavioral Scientist, 65(2), 277–289. https://doi.org/10.1177/0002764219878236

Woolley, S. (2020). *The Reality Game. How the Next Wave of Technology Will Break the Truth*. PublicAffairs.

Vasileiou, M. (2021). Fake news detection: a brief quantitative text analysis. *Open Schools Journal for Open Science*, Τομ. 4, Αρ. 3.

Vogiatzis, A. (2020). Misinformation & Democracy https://repository.ihu.edu.gr/xmlui/bitstream/handle/11544/29623/Thesis%20Antonis%20Vogiatzis%20-%20April%202020-converted.pdf?sequence=1

Zhang, L. (2019). Government responses to disinformation on social media platforms: China. Library of Congress Law. Accessible: About this Collection | Legal Reports (Publications of the Law Library of Congress) | Digital Collections | Library of Congress (loc.gov)

Greek

Katsadas, I. (2019). *Ανάλυση της διάχυσης της πληροφορίας των ψευδών ειδήσεων σε Κοινωνικά Δίκτυα*. Αριστοτέλειο Πανεπιστήμιο Θεσσαλονίκης.

Koulouri, A. (2020). *Fake News- Ρητορική και ερμηνείες. Πολιτική και πολιτικοί μέσω Twitter*. Εκδόσεις Ι. Σιδέρης.

Kostopoulou, I. (2018). *Κίνητρα χρήσης και κοινωνικές ομάδες στο Facebook: Κατανάλωση ειδησεογραφικού περιεχομένου και ψευδείς ειδήσεις*. Αριστοτέλειο Πανεπιστήμιο Θεσσαλονίκης.

Lemontzi, A. (2018*). Διασπορά ψευδών ειδήσεων στο διαδίκτυο*. Αριστοτέλειο Πανεπιστήμιο Θεσσαλονίκης.

Mantziari, D. (2019). *Ψευδείς Ειδήσεις (Fake News): Επισκόπηση πεδίου, χαρακτηριστικά και στάσεις*. Αριστοτέλειο Πανεπιστήμιο Θεσσαλονίκης, Σχολή Οικονομικών και Πολιτικών Επιστημών.

Spiropoulos, F. (2020). Διασπορά ψευδών ειδήσεων – Αναλυτική προσέγγιση του ά. 191 ΠΚ μετά τον ν. 4619/2020. Επιθεωρηση Δικαιου Πληροφορικης, Τόμ. 1, Αρ.2.

Spiropoulos, F., Karagiannis, N., Androulaki, E., Karagiannopoulos, V., Brizidis, L., Sardelianou, A. (2019). Τα fake news στο διαδίκτυο. Ο νομικός, πολιτικός και κοινωνικός τους αντίκτυπος μέθοδοί και τεχνικές πρόληψης.

Italian

Giambertone, F. (2020) *L'epidemia delle bufale: storia della disinformazione sul coronavirus in Italia*. Facta.

VV.AA. (2014) *Scrittura e immagini nel dominio della scienza/Text and Image in the Scientific Realm. Progetto grafico n. 25*, AIAP.

Polish

Kujawiak A. (2018) *Hiperbolizacja jako narzędzie politycznej manipulacji (na przykładzie nagłówków prasowych w tygodnikach „Do Rzeczy" i „W Sieci") w:* Acta Universitatis Lodziensis Folia Linguistica, 52, 155–162. https://doi.org/10.18778/0208-6077.52.11.

Ogdowski M. (2018) *Dezinformacja*, Warbook.

Opracowanie zbiorowe (2020) *Rzeczy dzieją się w Warszawie*. *Nowe legendy miejskie*, Muzeum Warszawy.

Ptaszek, G. (2019) *Edukacja medialna 3.0. Krytyczne rozumienie mediów cyfrowych w dobie Big Data i algorytmizacji.* Wydawnictwo Uniwersytetu Jagiellońskiego.

Rosińska K. (2021) *Fake News Geneza, istota, przeciwdziałanie*, Wydawnictwo Naukowe PWN.

Slovenian

Felc, M. (2021). Janša sledil Olaju, ki je objavil neresnično fotografijo. DELO. https://www.delo.si/novice/slovenija/jansa-sledil-olaju-ki-je-objavil-neresnicno-fotografijo/

Gantar, M. (2020). Požara pri Grosuplju niso zanetili migranti. Ostro. Požara pri Grosuplju niso zanetili migranti — Oštro (ostro.si)

Godnič, M. (2018). Slovenska platforma za prepoznavanje lažnih novice. Enaa. Slovenska platforma za prepoznavanje lažnih novic (enaa.com)

Huš, M. (2020). Kako lažne novice postanejo argument? Monitor. https://www.monitor.si/clanek/kako-lazne-novice-postanejo-argument/195483/

Huš, M. (2021). Lažna znanost. Alternator. Misliti znanost, 20. https://www.alternator.science/sl/daljse/lazna-znanost/

Medijska pismenost 01 - Kaj so lažne novice/fake news in kako jih prepoznati? ePosavje. https://www.eposavje.com/eposavje/medijska-pismenost-01-kaj-so-lazne-novice

Tertinek, T. M. (2020). Lažne novice in njihovo omejevanje. Diplomsko delo. https://dk.um.si/Dokument.php?id=146165

Turk, T. (2021). Komuniciranje znanosti v boju z družabnimi mehurčki v času pandemije. Alternator. Misliti znanost, 40. https://www.alternator.science/sl/daljse/komuniciranje-

znanosti-v-boju-z-druzabnimi-mehurcki-v-casu pandemije/?fbclid=IwAR1xJ1ReLjsvWPjWulOAvjXEBEZ7G2fuAS2VuFQd-6Ghw3pWwfvwXDZux7U

Perš, L. (2020). V bližini Grosupljega gorel gozd. Domačin tri, da so ga zanetili migrant. Nova24TV. V bližini Grosupljega gorel gozd: Domačin trdi, da so ga zanetili migranti | Nova24TV (archive.org)

Pirc, H. (2020). Lažne novice: Ali še lahko komu zaupamo? MMC RTV SLO, Televizija Slovenija. https://www.rtvslo.si/kultura/film-in-tv/lazne-novice-ali-se-lahko-komu-zaupamo/511179

Online resources

Ali znate prepoznati lažne novice med vsakodnevno poplavo informacij? Znajo to vaši otroci? | ESET (SL)

Fake informacije na spletu? Tukaj je, kar morate vedeti (eyewated.com) (SL)

http://mitologiawspolczesna.pl/niebieski-wieloryb-krotko-o-nowej-niebezpiecznej-legendzie/ (PL)

https://anchor.fm/valigiablu/episodes/Come-difendersi-dalla-disinformazione-e12jk2a/a-a5onvhg (IT)

https://depotuw.ceon.pl/bitstream/handle/item/3623/tekst_dr_ca%C5%82o%C5%9B%C4%87_final_druk.pdf?sequence=3 (PL)

https://facta.news/storie/2020/06/04/lepidemia-delle-bufale-storia-della-disinformazione-sul-coronavirus-in-italia/ (IT)

https://fakenews.pl/ (PL)

https://get.checkology.org/lesson/misinformation/ (EN)

https://sdp.pl/o-sdp/dokumenty/kodeks-etyki-sdp/(PL)

https://unesdoc.unesco.org/ark:/48223/pf0000192971/PDF/192971eng.pdf.multi (EN)

https://view.genial.ly/5fb4de7057d4140d0094fb3b/dossier-finalmedia-literacy-flipbook (EN)

https://www.auser.it/attiva-mente/r-i-e-s-c-o-marche-anche-noi-in-rete-campagna-di-alfabetizzazione-digitale-della-terza-eta/ (IT)

https://www.kathimerini.gr/society/561448705/anochyroti-sta-fake-news-i-ellada/ (GR)

https://www.przewodnik-katolicki.pl/Archiwum/2018/Przewodnik-Katolicki-8-2018/Historia/Fake-newsy-ktore-zmienily-historie (PL)

https://www.researchgate.net/profile/ThorstenQuandt/publication/332749986_Fake_News/links/5ce64720a6fdccc9ddc70bd2/Fake-News.pdf (EN)

https://www.researchgate.net/publication/346084787_Fake_news_jako_nowe_stare_wyzwanie_dla_swiata_mediow_-_portal_YouTube_w_walce_z_nieprawdziwymi_informacjami (PL)

https://www.science.org/doi/10.1126/science.aao2998 (EN)

https://www.terzaetaonline.it/in-tutta-italia/ (IT)

https://www.valigiablu.it/fakenews-disinformazione/ (IT)

https://www.valigiablu.it/notizie-cervello-pregiudizi/ (IT)

https://www.wired.it/attualita/media/2017/01/13/basta-fake-news/ (IT)

https://youtu.be/6dzb7HnYzG8 (IT)

https://youtu.be/85tg1aqSRcg (IT)

https://youtu.be/BVBwKwePnyU (IT)

https://youtu.be/d0He0PSIa0E (IT)

Informacija na spletni strani Nova 24TV o posilstvu na OŠ Ribnica je LAŽNA – Ribnica24 (SL)

Kaj so lažne novice in druge dezinformacije in kaj pomeni biti medijsko pismen? – Časoris (casoris.si) (SL)

Zavajajoče vsebine, polresnice in neresnice | safe.si (SL)

Ag Number: 2020-1-IT02-KA227-ADU-095441

Erasmus+

F!DO!