UNIVERSIDADE CATÓLICA PORTUGUESA

THE EFFECT OF MEDIA LITERACY ON PORTUGUESE PEOPLE'S USE AND TRUST OF SOCIAL MEDIA AS A NEWS SOURCE AND SUSCEPTIBILITY TO MISINFORMATION

Dissertation submitted to Universidade Católica Portuguesa to obtain a Master's Degree in Communication Studies: Communication, Marketing and Advertising

By

Sara Barateiro Marques

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Resumo

Este estudo teve como objetivo analisar o contexto português avaliando o impacto da literacia dos media na utilização e confiança nas redes sociais como fonte de notícias e na suscetibilidade à desinformação. Esta investigação procurou também preencher uma lacuna na literatura sobre a literacia dos media e desinformação, uma vez que esta se limita maioritariamente a analisar a população mais jovem.

Através de um inquérito online a 259 participantes, este estudo revelou que os elevados níveis de literacia dos media estão associados a uma maior confiança nas redes sociais como fonte de notícias, a uma maior probabilidade de utilizar as redes sociais como principal fonte de notícias e a uma maior capacidade em distinguir notícias falsas de notícias reais. Os resultados deste estudo também demonstraram que os níveis de literacia dos media dos portugueses e da capacidade de discernir notícias falsas são moderadamente elevados. Embora a população portuguesa continue a depender fortemente dos meios de comunicação tradicionais, as redes sociais também desempenham um papel significante no consumo de notícias da população. No entanto, os níveis de confiança nas notícias nas redes sociais e na utilização das redes sociais como principal fonte de notícias continuam baixos.

Notavelmente, a idade surgiu como uma preocupação crucial, com participantes com idade superior a 34 anos apresentaram pior desempenho na maior parte das análises deste estudo. Isto salienta a importância da investigação contínua sobre a literacia dos media para todas as faixas etárias.

Palavras-chave: redes sociais, literacia dos media, desinformação, fonte de notícias, suscetibilidade à desinformação

Abstract

This study aimed to look at the Portuguese context to assess the impact of media literacy on the use and trust of social media as a news source, and on susceptibility to misinformation. This investigation also aimed to fill a gap in media literacy and misinformation research, as it is mainly confined to younger population.

By employing a quantitative cross-sectional survey of 259 participants, this study revealed that high levels of media literacy are associated with increased trust in social media as news source, greater likelihood of using social media as a main news source and a greater ability to distinguish false from real news. Results also demonstrated that Portuguese people's media literacy levels and ability to discern false from real news are moderately high. Although the Portuguese population continues to rely heavily on traditional media, social media also plays a part in the population's news consumption. However, trust levels in news on social media and using social media as a main news source remains low.

Notably, age emerged as a crucial concern, with individuals older than 34 years old performing worst in most of this study's analyses. This draws attention to the importance of continued research on media literacy across all age groups.

Keywords: social media, media literacy, news source, misinformation, susceptibility to misinformation

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First and foremost, to my mom. For always being there. This would never be possible without your understanding, constant support, and encouragement.

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Lastly, I would like to dedicate this thesis to my beloved grandfather, whose wisdom, love and inspiration have been a huge support during this challenging times. I love you, I miss you and I know you're proud of me.

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Introduction

According to data from the 2023 Digital News Report (Newman, 2023), critical events such as the conflict in Ukraine and the Covid-19 outbreak have accelerated the transformation towards media landscapes that rely on social media platforms. Silva et al. (2017) revealed that while traditional media sources continue to play a significant role in news consumption of the Portuguese population, social media platforms are beginning to be considered a source for news for many people.

The impact of social media extends beyond just changing the ways news is disseminated, it has also disrupted our traditional understanding of what news should be (Mitchell et al., 2015). On social media, news content coexists with everyday social interaction and entertainment content shared among friends, family or other users. In essence, the environment of news consumption on social media is significantly different from the professionally edited content offered by traditional media (Flintham et al., 2018). Social media for news consumption provides a quick and cost-efficient option when compared to traditional news, offering news on a regular basis, updated in real-time and with generally free access.

First, the reduced costs of publishing on social media mean a huge amount of information is easily available, most of which has no journalistic origin. Furthermore, the digital appearance and format of social media platforms have made it challenging to determine the truthfulness or credibility of news articles (Tully et al., 2020; Pearson, 2021). The dizzying rapidity with which information can be propagated to an increasingly larger group of people with almost no cost, makes social media the perfect "home" for the spread of misinformation (Moravec et al., 2018; Wu et al., 2019). Finally, there is a price to pay when getting news from the same place where we get entertainment content.

Additionally, when in unforeseen circumstances like a health pandemic or a war, with individuals desperately seeking information to make informed decisions, misinformation in times of crisis has a greater capacity to worsen the already existing crisis within society, amplifying their impact (Muhammed & Mathew, 2022).

In the 21st century, media literacy skills and knowledge are essential to effectively navigate and analyze media in all its forms (Thoman & Jolls, 2004; Silva et al., 2017). Research has demonstrated that individuals with high levels of media literacy tend to

approach information in a more analytical and critical way, helping to diminish the consequences of being susceptible to misinformation (Jones-Jang et al., 2021).

The study of media literacy remains limited, and it has been mainly focused on student populations and generally administered for educational purposes (Roozenbeek et al., 2023). Because the use of social media is increasing among all age groups (Newman, 2023), it is important to consider adults' social media news consumption and assess media literacy levels among older populations.

The present dissertation thus focused on assessing whether and how media literacy affects the trust of social media as a news source, the use of social media as a main news source, and susceptibility to misinformation among the Portuguese population. Based on the literature review, I developed an online survey. The first objective was to determine the frequency with which people use social media and other forms of media for news consumption. Then, to determine the extent to which they trust social media as a news source and additionally if social media is considered a main source for news. The second objective was to assess individuals' media literacy levels. The third goal was to determine susceptibility to misinformation levels. For Maertens et al. (2023), the research to assess an individuals' susceptibility to misinformation depends on their ability to accurately discern false from real news headlines, and I adopted this approach. Finally, I aimed to discover if age would be an influential factor on each of these variables and correlate the variables to test hypotheses and therefore answer the research questions.

Part I – Theoretical Framework

Chapter 1. Social Media and Misinformation

1.1 Social Media Definition

The term "social media" was coined in 1994 in Tokyo on an online media environment called Matisse. This was during the initial stages of the commercial internet, and people were looking for ways to connect with one another and share information. This led to the creation and release of the first social media platforms, which included Six Degrees, Friendster, and Myspace. These platforms enabled users to create profiles, connect with friends, and share various types of content, including photos, videos, and text updates. Subsequently, the number of social media platforms and users skyrocketed, rendering it one of the most important applications of the internet in today's world (Aichner et al., 2021).

There tends to be a general consensus of what communicative tools may be considered as social media, but there is no agreement on what defines these tools as social media (Carr & Hayes, 2015). Many definitions of social media converge around the notion of social media as digital technologies that emphasizes interaction or user-generated content. Nevertheless, there remains a lack of a concise and mutually agreed-upon definition, notably across disciplines (Carr & Hayes, 2015). When there is no common definition of a concept, it can lead to confusion and multiple interpretations, which makes it challenging to establish a shared understanding among researchers (Hempel, 1966 as cited in Carr & Hayes, 2015). The definitions of social media currently used in academic circles are notably diverse in terms of complexity, focus, and their relevance beyond their respective disciplines (Carr & Hayes, 2015).

According to Carr and Hayes (2015), the definition of social media has often been centered around technology itself, focusing on the tools and features of specific devices. Social media is often conflated with the related concepts of Web 2.0 or collaborative web and User Generated Content (Kaplan & Haenlein, 2010). Web 2.0 is a term that describes a new approach to using the World Wide Web, in which end users collaborate and share content in a continuous and evolving manner. This involves more than just retrieving information, as users are now actively creating and consuming content, adding value to the websites they use. This stands in contrast to the era of Web 1.0, which was

characterized by personal web pages and content publishing, as well as online resources such as Encyclopedia Britannica (Kaplan & Haenlein, 2010). As such, Web 2.0 has evolved from a mere form of information retrieval to one that emphasizes interactivity, interoperability, and collaboration among users (Campbell et al., 2011). If Web 2.0 refers to the foundation of ideas and technology, User Generated Content (UGC), on the other hand, encompasses all the ways in which individuals use social media. This term became widely popular in 2005 and is typically used to describe the various forms of media content that are created and made public by end-users (Kaplan & Haenlein, 2010).

Kaplan and Haenlein (2010) therefore define social media as a collection of internet-based tools that are built on the principles and technology of Web 2.0, that enable users to create and share User Generated Content. Other equally simple definitions focus on the nature of the message construction, such as Russo et al. (2008), who defined social media as a facilitator of online communication, networking, and/or collaboration. Lewis (2009, p. 12) believes social media is simply a "label for digital technologies that allow people to connect, interact, produce and share content". For Carr and Hayes (2015), these definitions can be confusing and problematic in that they could also be easily used to describe other communication tools such as e-mail, which disregards the distinctive technological and social features that make social media unique.

Further definitions across related disciplines have been offered. Kent (2010) a professor of public relations, defined social media as "any interactive communication channel that allows for two-way interaction and feedback," additionally mentioning that modern social media have the potential for "real-time interaction, reduced anonymity, a sense of propinquity, short response times, and the ability to 'time shift', or engage the social network whenever suits particular member" (Kent, 2010, p. 645). Within the scope of medicine, social media has been defined as user-generated content that uses internet technologies but is distinct from traditional media (either print or online) (Terry, 2009).

Another concern is the conflation between "social media" and "social network sites". The phrase "social networking sites" has often been mistakenly used as a broad definition for social media. While social networking sites (SNSs) are typically categorized as social media platforms, not all social media are inherently SNSs (Carr & Hayes, 2015). Paquette (2013) believes social media can be seen as the environment where social networking takes place.

Polanco-Levicán and Salvo-Garrido (2022) believe that social media is distinct from other types of internet platforms because of their widespread use among people. These platforms allow for content creation, and individuals can interact with the information posted actively. Unlike traditional media, social media provides an opportunity for individuals who do not possess formal knowledge about mass media to produce and share information (Polanco-Levicán & Salvo-Garrido, 2022).

The misapplication and misinterpretation of the definition of social media, have resulted in ambiguity in the literature surrounding social media (Carr & Hayes, 2015). It has been clearly challenging to define what social media is but also what technologies fall under the category of "social media" with an extensive amount of literature on the subject but very little agreement. Nevertheless, the definitions of social media in the literature, have some common features. "There appears to be a broad agreement that Web 2.0 technologies played a significant role in the development and adoption of social media" (Wolf et al., 2018, p. 4).

As Kaplan and Haenlein (2010) mention, the term 'social media' encompasses a range of technologies, including wikis, blogs, microblogs, social networking sites, virtual worlds, and video-sharing sites, among others. As such, there are many types of social media, each of them with their unique characteristics (Voorveld et al., 2018). Facebook is considered an app for social networking, Snapchat an instant photo messaging application, Instagram a photo-sharing app, Twitter a microblogging application, LinkedIn a business- and employment-oriented social networking site, Pinterest a photo-sharing site (Voorveld et al., 2018), WhatsApp an instant messaging application and TikTok a video-sharing app. Voorveld et al. (2018) divided social media platforms into four categories: Relationship, Self-media, Creative, and Collaboration. The first categories comprise relationship-based platforms like Facebook and LinkedIn, which focus on profiles and personalized messages to facilitate connections and networking. The second covers self-media platforms, like Twitter, also profile based where users have greater control over what their communication channels. Content-based creative social media platforms, such as YouTube and Instagram, enable users to share their interests and creativity through multimedia content. Lastly, collaboration platforms are also content-based, fostering engagement among users (Voorveld et al., 2018).

Social media can be understood in contrast to traditional media, such as TV, radio, magazines, and newspapers, which are one-way broadcast technologies that distribute content to consumers. In the traditional media paradigm, the publisher is responsible for creating and distributing costly content (Jewitt, 2009). However, new web technologies have transformed this model, making it possible for anyone to create and share their own content (Tandoc et al., 2017). With blogs, posts, "tweets", and videos on social media platforms, content creators can reach millions of viewers at little to no cost. This shift in the media paradigm has given rise to social media as we know it today (Jewitt, 2009). Unlike other news media, like traditional or even news websites, where readers actively choose the sources they follow and what they want to see, social media operates differently. Social media platforms display a mix of news articles, paid advertisements, and posts from friends or family members. Additionally, social media algorithms present users with targeted information based on their past consumption, therefore appealing to their interest and engagement (Rice et al., 2018). Furthermore, when a post receives a lot of engagement, it tends to become more popular (Tandoc et al., 2017). Among all this information, some pieces may be true or false, whether intentionally or unintentionally (Moravec et al., 2018).

As such, although the spread of misinformation is nothing new, social media has deeply contributed to the problem by enabling anyone to spread misinformation easily and at a pace we can no longer keep up with (Wu et al., 2016; Tandoc et al., 2017).

1.2 Conceptualizing misinformation, disinformation and fake news

Misinformation is defined by Nyhan and Reifler (2010) as incorrect information that has no support from scientific evidence and opinion from an expert. For Wu et al. (2019) it is false or inaccurate information that is created to propagate intentionally or unintentionally, while for Chen et al. (2023) it does not have the intend to mislead.

The problem of information credibility and misinformation is nothing new (Tandoc et al., 2017). Looking back in history, the Greek philosopher Socrates was known for the prevalence of lies and exaggeration as a form of deceitfulness for public gain. It has been posited by De Blois et al. (2003) that dissemination of misinformation played a significant role in propelling Roman emperors to power, with messaging on currency

serving as a potent avenue for mass communication. According to Vida (2012), a lithograph represents one of the earliest instances of widespread dissemination of misinformation in the United States. A significant disinformation endeavor can be attributed to the Great Moon Hoax of 1835, which appeared in the periodical entitled The Sun based in New York. The provocative articles in question purported to delineate the existence of lunar life. In 1938, during a time when radio was the primary source of information in the US, there was another case of misinformation when a radio version of H. G. Wells' drama "The War of the Worlds" was broadcasted. The dramatic presentation mimicked a live news report of a Martian invasion and featured actors portraying reporters, residents, experts, and government officials, which caused listeners to believe it was factual news (Cantril, 2005 as cited in Tandoc et al., 2017).

In contemporary times, misinformation campaigns can exploit digital infrastructure that is unparalleled in its scope of influence (Ecker et al., 2022). With the appearance of social media platforms combined with the potential for automation, the novelty now lies in two fundamental aspects: first, the dizzying rapidity with which a lie can be propagated to an increasingly larger group of people, secondly the amount of misinformation that aligned with our natural inability to filter what is true or false, can bring unprecedented consequences (Wu et al., 2019). The common phrase "a lie goes around the world before the truth puts on its shoes" is nothing compared to the distance a lie can travel today before the truth starts its own journey.

Many similar terms are often confused with misinformation which are important to distinguish. Disinformation is the most similar and confusing one (Wu et al., 2019). Although also referring to fake or inaccurate information, it is differentiated by its deliberate intention to mislead involving a purposeful distortion of facts (American Psychological Association, 2023). Misinformation pertains to inaccuracies arising from inadvertent errors, whereas disinformation denotes a conscious fabrication disseminated with a purposeful intent (Fallis, 2014). Disseminating deliberately fabricated information, or disinformation, can arise from intentionally circulating preexisting misinformation. The act of disinformation has been traditionally characterized as a hostile campaign that utilizes various rhetorical techniques and methods of knowledge dissemination, encompassing not only fabrications but also realities, incomplete truths, and assessments imbued with personal biases in order to exploit and intensify identity-based conflicts (Fallis, 2015). Disinformation campaigns are often orchestrated by state actors to gain

political advantages. During the early phase of the Covid-19 pandemic in India, one notable instance involved the spread of false news that falsely linked the virus to a specific religious group. This disinformation occurrence rapidly spread across social media platforms, tragically leading to real-world consequences, including physical violence and discriminatory treatment against members of that religious community in various states of India (Muhammed & Mathew, 2022).

Like disinformation, other related terms are often confused with misinformation. The lexeme "fake news" is not new (Tandoc et al., 2017). But recently has become a prominent topic not only in academic discussions but also in everyday conversations. It is used not only to identify false information but also at times to criticize and discredit established news organizations (Tandoc et al., 2017). The term fake news stirred up during and after the 2016 U.S. presidential election, when various untrue narratives spread like wildfire on social media platforms, bringing a lot of "public attention to the role of social media in structuring and presenting information in such a way that may limit an individual's ability to assess the quality and usefulness of information, and to distinguish between fact and fiction" (Scheufele & Krause, 2018, p. 7664). Stories claiming that the Catholic Pope had expressed support for Donald Trump's candidacy, or that Hillary Clinton had given approval for selling weapons to a terrorist were just a few of the many fake news stories that gained significant traction on social media during that time (Tandoc et al., 2021). Pizzagate was another example of a conspiracy theory about a pizza restaurant being a facade for child-trafficking. Because of the number of stories spread on social media, a man entered the restaurant carrying a rifle to allegedly "investigate" the issue (Tandoc et al., 2017; Wu et al., 2017). Tandoc et al. (2017) stress the importance of comprehending the concept because of the numerous definitions across many scholarly studies. Wu et al. (2019) describe fake news as being intentionally-spread misinformation, just like urban legend, unverified information, rumors, crowdturfing, spam, troll, hate speech, and cyberbullying. For Tandoc et al. (2017), fake news refer to viral posts created by fictitious accounts to make people believe it is a real news story. While Shu et al. (2017) mentions to be intentionally produced false news articles with a specific purpose.

Tandoc et al.'s (2017) study reviewed the different ways fake news has been used and defined across previous literature: news satire, news parody, news fabrication, photo manipulation, advertising and propaganda. These definitions share a common as aspect:

fake news mimics the appearance and characteristics of real news from website design and writing style to providing attributions to photos. They also stress the importance of the audience, since the degree of fakeness depends heavily on how the audience interprets and believes the falsified information to be real. The researchers highlight the potential of fake news to threaten the legitimacy of journalism, especially in the context of social media (Tandoc et al., 2017).

Since the true purpose of information can be difficult to understand, to make this complex phenomenon easier to grasp, in this study I adopt the approach taken by Chen et al. (2023), Wu et al. (2019) and numerous previous researchers, refraining from making a clear separation between misinformation and other associated ideas, but rather broadly referring to misinformation as any information that ultimately proves to be false. I opted for this approach because in an environment where every user has the ability to post content, it becomes challenging for researchers, practitioners, or even administrators of social media platforms to ascertain whether a piece of false information is intentionally fabricated or not (Wu et al., 2019).

The various concepts of disinformation, spam, rumors, and fake news, all possess a common feature: the dissemination of inaccurate messages can lead to distress and various harmful consequences when spread on social media, particularly in the absence of timely intervention (Wu et al., 2019). The Covid-19 epidemic demonstrates the dangerous impact of this "new" information environment, where the spread of information can strongly influence the behavioral response of the population well as potentially alter the efficacy of the countermeasures deployed by governments (Cinelli, et al., 2020). Similarly, the ongoing systemic manipulation and false and misleading information spread by the Russian Government as an operational tool in the assault on Ukraine has helped shed light on the significant danger posed by false information. While its use as a tool of warfare is not new, the prevalence of social media platforms has greatly expanded its influence and ability to spread widely (OECD, 2022).

According to data from the Council of Europe (2023), a considerable proportion of the European Union's populace, specifically two-thirds, claims it encountered fabricated news items weekly. More than 80% of European Union citizens have expressed concerns about the prevalence of fabricated information. Such apprehensions extend to the implications of fake news for their respective nations' well-being as well as the overall

health of democratic structures. Additionally, approximately 50 percent of European Union citizens between the ages of 15 and 30 have indicated a need for advanced critical thinking and information-based competencies to counter the rise of disinformation and extremist ideologies within society (Council of Europe, 2023).

1.3 Misinformation on social media

1.3.1 What makes people susceptible

According to Moravec et al. (2018), there are three contextual factors that contribute to the susceptibility to misinformation: "a hedonic mindset, a lack of cognizance of the source, and the volume of fake news" (p. 5) across social media. A hedonic mindset while consuming news on social media signifies that the user's primary objective is not to discern between truth and falsehood. Instead, their focus is on seeking enjoyment and pleasure from the content. In this state of mind, users tend to avoid activities that require significant effort, such as critically processing information, as it may feel burdensome or laborious. Similarly, they are less inclined to engage in activities that don't bring immediate enjoyment. On the contrary, users are drawn to articles that evoke positive emotions, being more likely to engage with content that aligns with their existing beliefs and perspectives. Social media being a place where news articles, paid advertisements and posts from friends get mixed up, it is a space prone to present information that may be false (Moravec et al., 2018). Additionally social media depends on a sophisticated machine-learning algorithm trained to assign priority to content that has exhibited higher levels of prior engagement (Meserole, 2018). As such, users with a hedonic mindset, when exposed to targeted information presented by the algorithms, don't usually care about its truthfulness (Moravec et. al., 2018).

Another concerning problem is the source of information being unclear. When it comes to Internet news and traditional media, we typically proactively choose which news website to visit or open our local newspaper (Rice et al., 2018). However, social media operates differently as it does not allow users to choose the sources of the articles they see, instead, the algorithms take charge of this task. Although users may follow specific sources on social media, many other pieces of information appear on their newsfeed through advertisements, shares by followers, and algorithmic decisions. This mixing

obscure the true source of the story, and users in a more relaxed and pleasure-seeking mindset lack the motivation to put effort into seeking and comprehending the original source (Zielinski, 2021).

Finally, the sheer quantity of false news and the dizzying rapidity with which a lie can be propagated to an increasingly larger group of people with almost no cost because of social media, presents a significant obstacle in distinguishing what is true from what is fabricated (Moravec et al., 2018; Wu et al., 2019).

Chen et al.'s (2023) systematic literature review gathers factors that make some individuals more susceptible to misinformation than others. These factors can be broken down into demographic features, personality traits, worldviews, motivations, cognition, and emotional state. Demographic differences include educational level, as for example less educated individuals are more likely to believe misinformation, and age, as older people are less skeptical and therefore tend to accept misinformation easier. Worldviews like political ideologies or religious beliefs also demonstrated to play a part in people's response to misinformation on social media. Motivations like altruism and self-promotion, individual's low level of knowledge and cognitive ability also affects people's susceptibility to misinformation. Literature also suggests that emotional state like being angry or anxious can lead individuals to believe in misinformation. Furthermore, literacy skills like media literacy and digital literacy have shown to have an impact on individuals' susceptibility to misinformation.

Scheufele and Krause's (2019) research investigated the impact of demographic factors such educational level and income on the propensity of individuals to encounter misinformation on social media. Scheufele and Krause (2019) and Jones-Jang et al. (2021) mention that higher levels of education and income were protective factors in guarding against false information beliefs. Furthermore, Scheufele and Krause's (2019) posit that media literacy has surfaced as a pivotal factor, given that individuals with limited knowledge and skills in media literacy are highly susceptible to the effects of misinformation.

According to Van Der Linden (2022) and Pan et al. (2021), age is a noteworthy influential variable, with advanced age leading to increased vulnerability to misinformation, owing to factors such as cognitive deterioration and reduced utilization

of digital media. Insufficient aptitude in digital literacy is a contributing factor to susceptibility among individuals who encounter challenges in navigating digital platforms. Such individuals may encounter difficulty in discriminating between reliable information and falsified or deceptive content, thereby increasing their susceptibility to misinformation (Van Der Linden, 2022). Moreover, individuals possessing lower educational and income status are more susceptible to misinformation owing to their restricted access to resources and information verification tools.

The issue of mitigating the harm caused by misinformation has emerged as a crucial concern also for governments and technology companies worldwide (Meserole, 2018). In situations where President Trump disseminated false information via Twitter, his corresponding posts demonstrated a propensity to attain widespread social media visibility and engagement (Meserole, 2018). The virality of certain "tweets" and information are linked to the widespread popularity of Trump's social media profile. As such, the susceptibility to being exposed to misinformation is also linked with the political sensitivity that characterizes false news (associated with influential political figures) (Meserole, 2018).

1.3.1.1 The Misinformation Susceptibility Test (MIST)

A significant variety of assessment tools have been developed to measure misinformation susceptibility (Maertens et al., 2023). This includes investigating why people fall for misinformation and assert interventions efficiency. To do so, scholars have used scales to assess reliability, trustworthiness, credibility, and accuracy skills, generally of news headlines or social media posts (Roozenbeek et al., 2022).

Roozenbeek and van der Linden (2019) were the pioneers in developing a novel psychological intervention to address the spread of misinformation in a more entertaining but educative way. In the form of an online browser game called "Bad News", players would take the role of a fake news creator and had approximately 15 minutes to gradually go from anonymous to running a fictional fake news empire. During playtime, players would earn six badges by successfully applying six misinformation strategies: impersonating people's accounts, producing emotional content, amplifying existing tensions between different groups, creating or amplifying conspiracy theories,

discrediting opponents by denying or deflecting attentions from accusations, and trolling people. Results showed that playing the game reduces significantly perceived reliability of "tweets" and that it not only makes people more cautious but also helps them recognize particular strategies used to deceive. Furthermore, elderly people are more susceptible to fake news, and there weren't meaningful differences across genders or educational levels (Roozenbeek & van der Linden, 2019).

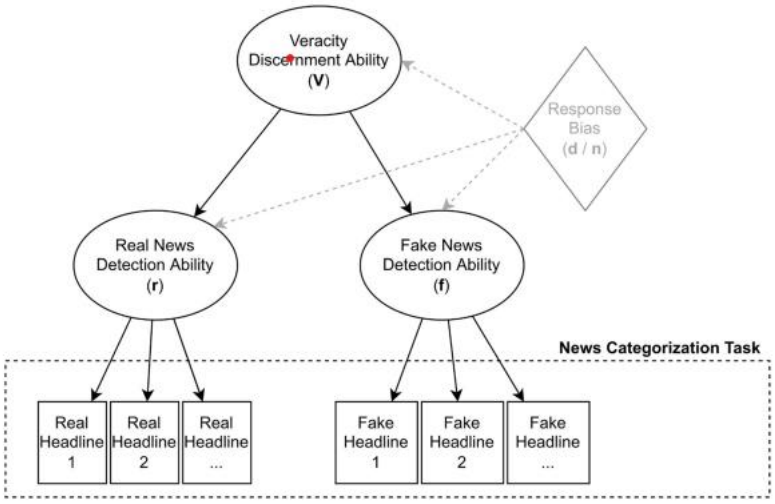


Fig. 1: Verification Done Model (Maertens et al., 2022)

Because of the lack of a validated and unified theoretical framework to measure susceptibility to misinformation, Maertens et al. (2022) conducted a series of three studies involving more than 8000 participants over two years, to develop the first psychometrically validated misinformation susceptibility test (MIST), through the verification done model, as illustrated in fig. 1. According to these scholars, the Bad News Game employed by Roozenbeek and van der Linden (2019) focused too heavily on fake news items, instead only looked at a small portion of real ones. They further notice that the Bad News game results does not differentiates as whether it decreases susceptibility to misinformation or it increases the ability to accurately discern real from false news.

For Maertens et al. (2022), the comprehensive understanding of susceptibility to misinformation, hinges on capturing news discernment veracity ("V") or the capacity to accurately differentiate between real and fake news. This overarching factor can be broken down into distinct elements: the ability to correctly identify real news ("r") and

the ability to correctly identify fake news ("f"). Additionally, this assessment includes two judgement biases: positive and negative ("n" and "d" respectively), with positive being naïve and negative involving excessive skepticism or distrust (Maertens et al., 2022). In a few words, the MIST differentiates from other interventions to measure the susceptibility to misinformation by employing "an equal emphasis on discernment, real news detection, fake news detection, and judgement bias" (Maertens et al., 2022, p. 3). This study involved presenting 20 headlines to adult citizens in the United States. Out of these, 10 headlines were authentic, and 10 were false. Survey participants were asked to determine the authenticity of each headline, indicating whether they believed it to be true or false. To develop the fake news headlines, they used an early version of ChatGPT, the GPT-2, and for the real news headlines, the scholars used the Media Bias/Fact Check database to select news sources identified as least biased and with high scores for factual reporting, such as outlets like the Pew Research Center and Reuters. For both real and fake news headlines, the researchers employed multiple techniques to narrow 400 possible headlines, down to 20 (Maertens et al., 2022).

Using this framework, YouGov developed a survey with a set of 20 headlines – 50% false, 50% real - to more than 1,500 U.S. citizens to test their susceptibility to misinformation. The study revealed that, on average, respondents were unsuccessful in accurately categorizing approximately one-third of the headlines as real or fake. Moreover, specific segments of the population displayed increased susceptibility to misinformation and struggles in differentiating between fake and real headlines. Younger adults, for example, exhibited lower performance comparing to older, Republicans lower than Democrats, and individuals who trust social media as their news source perform worse than those who do not depend on social media for news consumption (Sanders, 2023).

Also applying Maertens et al.'s (2022) Misinformation Susceptibility Test (MIST), Roozenbeek et al. (2022) additionally investigated the role of confidence in detecting misinformation. Results uncovered that people's confidence in their judgement ability can be measured by the ratings of the news headlines. In other words, if for example someone says a false headline is highly misleading, it probably means they are very confident that is misleading. Their study acted as a bridge to connect the study of confidence to how easily people believe false information - susceptibility to misinformation.

1.3.2 Misinformation spread on social media

Chen et al. (2019) conducted a systematic literature review of articles regarding the factors behind the spread of misinformation. The researchers organized the factors that may affect the spread of misinformation in four categories: source, message, context, and receiver-related factors. Various characteristics of the source, such as credibility, ambiguity, popularity, similarity, and self-interest of source, can influence the spread of misinformation on social media. It emphasizes the importance of source credibility and trustworthiness in affecting user's belief in misinformation and their likelihood to share such content. Source ambiguity, reflecting to what extent the spreader understands the source, and popularity, similarity and self-interest also playing roles in the spread of misinformation, as individuals are more susceptible to misinformation from sources that align with their interests. Message-related factors, including presentation formats, language styles, and psychological cues can also affect how the content is perceived and therefore shared. Context features like social norms (number of forwards or likes, and comments), platforms characteristics, social network features, and debunking activities are also factors that according to the literature, can affect the process of spreading misinformation. Finally, receiver-related factors refer to the individual factors that explain why certain people might be more prone to misinformation than others (Chen et al., 2019). According to the literature, less educated people are more likely to share misinformation, as are people under 40. Personality features like being an open-minded or extroverted person, emotional states like being angry or anxious, and politically conservative individuals or those religious backgrounds are also found to correlated with a likelihood to share misinformation (Chen et al., 2019).

As mentioned previously, one of the main contributions to the spread of misinformation is the fact that social media currently depends on a sophisticated machine-learning algorithm trained to assign priority to content that has exhibited higher levels of prior engagement (Meserole, 2018). For example, the Twitter algorithm has acquired knowledge that Twitter users display a greater propensity to remain engaged when exposed to content that has attained a significant level of "retweets" and mentions compared to content with relatively fewer indicators (Meserole, 2018). The dissemination of inaccurate and false information on Twitter is influenced by elements of human

behavior and of technical processes. Human biases play a significant role in shaping our responses to social media content. Specifically, individuals tend to hold pre-existing beliefs likely to be activated by triggering content such as inflammatory "tweets". As a result, such content can generate swift engagement on social media platforms. If a tweet gathers sufficient "retweets", favorites, or replies from initial viewers, the newsfeed algorithm will amplify its exposure to a broader audience, consequently appealing to these users and generating further engagement (Meserole, 2018). This cycle of increased engagement and subsequent algorithmic amplification serves to perpetuate the virality of fake news and misinformation (Meserole, 2018). This recurring phenomenon can transform social media into an ideal place for disseminating false information.

Misinformation can be spread by humans but also by automated accounts, generally known as "bots" (Himelein-Wachowiak et al., 2021). Himelein-Wachowiak et al. (2021) state that not all bots have a negative purpose, some can be used for good, like recruiting volunteers or donations. Social bots are one type of many within the "bots world", that use computer algorithms to generate content and engage with individuals on social media platforms in an effort to imitate and, in some instances, manipulate their behavior (Ferrara et al., 2016; Himelein-Wachowiak et al., 2021). Many characteristics of bots make them highly effective at spreading misinformation. They have the ability to make a Tweet go viral in just few seconds, they are extremely social, and even tag influential figures to amplify content, and are highly strategic during political campaigns. This was particularly noticeable during the 2016 United States presidential election, when 20% of political "tweets" and most of the sharing of false articles was believed to come from bots, and during the 2017 French presidential election with evidence of bot campaigns to undermine politicians (Himelein-Wachowiak et al., 2021).

However, research revealed that because people generally cannot distinguish between bots and real human accounts, they often spread false information unintentionally (Himelein-Wachowiak et al., 2021). Vosoughi et al. (2018) mentioned that the proliferation of misinformation on social media is largely humans' fault. As revealed by the researchers, fake news spreads faster than real news on Twitter because of humans' vulnerability, not because of bots.

According to the 2023 Digital News Report (Newman, 2023), a significant portion of the general world population remains skeptical of the algorithms responsible for

determining the content presented to them through search engines, social media, and other platforms. Just under one-third (30%) agree with having news stories presented to them based on their past consumption habits. Nevertheless, users favor news content chosen via algorithmic selection over content chosen by journalists (27%) (Newman, 2023). Looking to the Portuguese paradigm, there are more respondents with a positive opinion on algorithmic news selection and fewer concerned about their negative impact (Cardoso et al., 2023).

1.3.3 Misinformation in times of crisis

According to data from the 2023 Digital News Report, events such as the conflict in Ukraine and the Covid-19 outbreak have sped up the pace of fundamental changes towards increasingly digital, portable and platform-centric media landscapes, shifts that carry additional consequences for the ways journalism operates (Newman, 2023).

Previous research has shown that the appearance of misinformation on social media during times of crisis is not new (Himelein-Wachowiak et al., 2021). According to Muhammed & Mathew (2022), misinformation often arises in situations of uncertainty when individuals lack essential information. In unforeseen circumstances like crisis, people may experience anxiety or nervousness, factors that have been demonstrated to be drivers for the spread of misinformation (Chen et al., 2019; Muhammed & Mathew, 2022). Because of this, individuals desperately seeking information and not finding it from official sources, turn to their social circles or other sources like social media to manage their feelings (Muhammed & Mathew, 2022). When communities lack information, local residents for example with closer proximity to the affected area, become instant reporters of the crisis, turning to social media to offer improvised news that is often misleading or unverified by competent authorities. As such, misinformation in times of crisis has a greater capacity to worsen the already existing crisis within society, amplifying their impact (Muhammed & Mathew, 2022).

1.3.3.1 The case of the Covid-19 pandemic

According to (Sell et al., 2020), the influence of misinformation during a public health crisis depends on factors like how widespread it is, the nature of the content, and how convincing it appears to people. Furthermore, social media can amplify its impact by acting as both a breeding ground for misinformation and a means of spreading it rapidly. In the context of infectious disease outbreaks, clear and effective communication becomes vital for facilitating prompt response and recovery measures. However, feelings of fear, uncertainty, limited knowledge, and the public's tendency to seek information can create favorable conditions for the dissemination of misinformation (Sell et al., 2020). Many studies have shown that social media platforms like YouTube has been a source of both useful and misleading information during public health crises, such as Zika, Ebola, and many others (Li et al., 2020) and it is not different for this new one.

As the director of the World Health Organization stated, "we are fighting an infodemic" of misinformation that "spreads faster and more easily than this virus" (DGC, 2020). Similarly, Marcia McNutt, president of the National Academy of Sciences of the United States said that "misinformation is worse than an epidemic: It spreads at the speed of light throughout the globe and can prove deadly when it reinforces misplaced personal bias against all trustworthy evidence" (Galvin, 2021).

Infodemics mean the exorbitant amount of information that can be accurate or not that occurs during a disease outbreak , creating confusion among people who are desperate to be informed and therefore could put public health at risk. In response, fact-checking organizations joined researchers and many social media platforms like Facebook, Twitter, Google, YouTube, and others to combat the spread of misinformation and rumors related to the Covid-19. Despite all efforts, it was not enough, and many pieces of misinformation remained online, as platforms reported being overwhelmed with the amount of misinformation about the pandemic (Maréchal et al., 2020). An analysis found that 25% of the most viewed videos about Covid-19 on YouTube contained misleading information, with a total of 62 million views around the world (Li et al., 2020). In March of 2020, Facebook disclosed it "had displayed fact-checking labels on 40 million dangerous posts, based on 4000 articles that its third-party reviewers had rated as false" regarding pandemic-related misinformation (Maréchal et al., 2020, p. 15). The University of Oxford Reuters Institute, while examining 225 pieces of misinformation

considered false or misleading that appeared from January to the end of March 2020, concluded that 59 percent of posts that were considered false by fact-checkers, remained on Twitter (Brennen, 2020).

Researchers have noted that misinformation regarding health on social media can induce people to use toxic substances (Kaur, 2020). This effect was seen in many countries during the pandemic: from people taking high doses of chloroquine medication to protect themselves from the virus to miracle minerals that if ingested would kill the virus such as chlorine dioxide, a bleaching agent, or simply chemical disinfectants (Kaur, 2020). Further studies have shown that online misinformation can also encourage people to not follow the guidelines provided by the responsible health organizations, such as refusing to wear masks, not washing their hands on a regular basis, not maintaining social distance and isolation, and sometimes even being encouraged to join a crowd (Maréchal et al., 2020). These examples can be seen most in developing and under-developed countries due to a higher level of ignorance, but it can also occur in developed ones as many of these examples occurred in many different countries. A clear example was in April 2020 in Michigan, where multiple Facebook groups were created to connect and organize protests in an anti-lockdown movement. This movement attracted hundreds of people but was supported by powerful organizations such as the National Rifle Association (Maréchal et al., 2020).

This Covid-19 misinformation generated in many other forms, such as conspiracy theories about the virus being a manmade creation from a lab as a bioweapon (Kaur, 2020). Researchers also noted that religion can play a huge role, when religious fundamentalists take advantage of misinformation of the virus to attract a wider audience, by stating that religion is a way to escape from being affected by the Covid-19. An example of this was in Dhaka City when an Imam of a mosque was encouraging believers to visit mosques stating that because they must clean themselves before entering a mosque, it wouldn't be possible to get the virus (Barua et al., 2020).

Previous studies on the public's behaviors and responses regarding Covid-19 were conducted in many countries. The conceptual framework of a study conducted by Barua et al. (2020) was developed using the stimulus-response theory combined with the resilience strategy in order to propose four hypotheses and consequently test them through data collected in a questionnaire. This questionnaire was done with the purpose of

determining which responses individuals have regarding Covid-19, as a way of finding out the effects of misinformation on social media. This study adopted the structural equation model to test the hypothesis. To measure people's belief in misinformation about Covid-19, they used a three-item scale that was already employed in previous studies about the Zika virus; and for measuring credibility, five statements were used, one of them being "I do doublecheck the information about Covid-19 received through social media" (Barua et al., 2020, p. 4). The result of the study showed that credibility had a strong positive influence on individuals' responses towards Covid-19. This shows how important is to encourage social media users to engage in evaluations of the credibility of the information they encounter before acting or making an important decision according to what they have been told, raising awareness about possible Covid-19 misinformation (Barua et al., 2020).

Many other studies were conducted to determine the effects of exposure to Covid-19 misinformation. Kim et al. (2020) assessed this exposure by asking participants to report how often they have seen five false claims about how to prevent Covid-19: (a) gargling with mouthwash, (b) eating garlic, (c) avoiding pets, (d) vaccination against pneumonia, and (e) regularly rinsing the nose with saline; on eight different information sources. Exposure to general Covid-19 information was also examined for comparison purposes. This study also examined the risk perception towards Covid-19 and the negative responses experienced during the pandemic. They concluded that in the early stages of the pandemic, when people are exposed to general information about a risk they do not know, they tend to realize they need further information. Insufficient information served as a mediator between misinformation exposure and information avoidance and systematic heuristic processing (Kim et al., 2020).

In a study conducted by Roozenbeek et al. (2020) regarding people's susceptibility to misinformation about Covid19 on self-reported behavior in five different countries, it was found that the more people trust in scientists, the less are they susceptible to pandemic-related misinformation. The susceptibility was examined by measuring belief in misinformation about Covid-19 of people who were willing to get vaccinated, and how belief would influence people to comply with the measures imposed by the health organizations, such as wearing a mask. This study, as many others that talk about Covid-19 misinformation, believes in the importance of interventions with the purpose to

encourage critical thinking and evaluations of the credibility of media users encounter (Roozenbeek, et al., 2020).

Despite the existence of very few studies regarding social networks during the Covid-19 pandemic in Portugal, the 2021 Digital News Report (Cardoso et al., 2023) proves to be a great first tool to start examining the Portuguese context. The atypical conditions provoked by the pandemic, led on one hand to the intensification of an already uninformative phenomena, and on the other to the emergence of new misinformation forms of expression on social networks, mainly in messaging apps such as WhatsApp with 20.9% of Portuguese using it as news consumption and 13.9% using Facebook messenger. The "free" sharing of news on social networks is increasingly becoming the most frequent practice to consume information online. This can bring both positive outcomes but also frequently leading to practices with harmful effects. As such, it can be observed that the majority (62.2%) of the Portuguese respondents were concerned with the pandemic-related misinformation originating from social networks and messaging apps. Furthermore, about half of the respondents (52.1%) say they have come across false or incorrect information about Covid-19 in the previous week, with almost 53% of them being people who do trust social media (Cardoso et al., 2023).

1.3.3.2 The case of Russia-Ukraine War

The Russian invasion of Ukraine represents the most lethal armed engagement in Europe since the Second World War. The ongoing conflict has brought unprecedented consequences not only for the countries involved, but for the rest of the world, from an energy crisis to food shortages (Pierri et al., 2023). Social media, including TikTok videos and bots, have been utilized in conjunction with traditional military assets (Klepper, 2023) to promote propaganda and mis/disinformation to purposely manipulate public opinion (Pierri et al., 2023). Specifically, Russia's utilization of techno-military strategies, for example, digital fighting, disinformation, falsehood, and propaganda, has been generally reported and have resulted in the manipulation of popular assessment and escalation of conflicts (Fischer, 2022).

The truth about the risks of disinformation has been featured in academic writing. Mejias & Vokuev (2017) mentions that Russia has utilized various favorable Kremlin

outlets, including virtual entertainment destinations along with transmissions and print media to spread misleading stories with the end goal of influencing public sentiment. Ksenia Iliuk, an expert in Ukrainian disinformation who monitors Russia's informational campaigns, has identified that the Kremlin's propaganda campaigns against Ukraine have been ongoing for several years and intensified significantly in the months leading up to the invasion (Bond, 2023). Russia fashioned the messages to cater to particular target groups globally, employing a strategic approach in its communication tactics. In Eastern Europe, there have been instances where Russia has disseminated unfounded and unsubstantiated rumors about Ukrainian refugees engaging in criminal activities or usurping the local workforce. Klepper (2023) claimed that within Western Europe, prevailing discourse conveyed a perception of corrupt Ukrainian leaders as being unreliable and untrustworthy.

Shen et al. (2023) discovered that bots were extensively engaged in the Russia-Ukraine War conversations on Twitter. Surprisingly, they noticed a higher percentage of bots originating from Ukraine than Russia, although the ones from Russia were considered to be more effective in terms of engagement (Shen et al., 2023). One explanation for this could be fact that Russian citizens were blocked from the platforms in March 2020 (Milmo, 2022 as cited in Shen et al., 2023).

Facebook and Twitter have been intensely utilized by both the Russian government and Ukrainian patriot networks to spread deceptive information. O'Brien stated that "the Kremlin has utilized its web-based stages to spread disinformation, fully intent on sabotaging confidence in Ukraine's new government and delegitimizing its sway" (OECD, 2022, p. 138). This has been achieved using bots, which have been utilized to control discussions and intensify misleading stories. For instance, in 2014, a series of YouTube videos were suspected to show Ukrainian soldiers carrying out atrocities. This was then spread through Facebook and Twitter and utilized to demonstrate the wickedness of the new Ukrainian government and legitimize further Russian involvement in the conflict (Brangham & Nagy, 2022).

In contemporary media outlets spanning television screens and social media platforms worldwide, a continuous and unrelenting depiction of the cruelty and horror inflicted by Russia in its invasion of Ukraine is evident. However, in Russia, the script is inverted (Brangham & Nagy, 2022). The perceptual experience of Russian nationals

pertaining to their country's warfare is flawed, as it has deviated from the true representation of the conflict. The Russian population has been led to believe that their country did not engage in an attack against Ukraine. According to Brangham and Nagy (2022), there is a perception that the Ukrainian nation is responsible for instigating threats against the Russian Federation.

The dissemination of false stories and propaganda aimed at portraying Russia in a favorable manner is a prevalent form of disinformation as well as unfounded allegations concerning Ukraine's aggression (Boyd-Barrett, 2016). Additional types of false information involve "astroturfing," which entails creating fake social media profiles to distribute dishonest content. Frequently, this action is taken to distribute messages that are supportive of Russia while also influencing the public's view (Lange-Ionatamishvili et al., 2015).

According to Donn (2023), a number of women have appeared on video claiming that their sons have been taken from them, prompting the Russian ambassador to accuse Portugal and other countries, such as Spain and Germany, of taking minors from Ukrainian mothers. However, the authenticity of these videos and the people in them cannot be confirmed, and it is argued that Russia-linked accounts upload these videos in an effort to fabricate information and propaganda regarding other countries' involvement in the war (Donn, 2023).

The Portuguese Foreign Minister, Augusto Santos Silva, expressed Portugal's solidarity with Ukraine. The statement made by the minister regarding the acknowledgment by Russian President Vladimir Putin of the independence of the pro-Russian separatist regions was deemed "illegitimate and illegal," according to Neves (2022). Nonetheless, Portugal has been embroiled in instances of disinformation propagated via social media. Portugal has been implicated in the propagation of misleading information pertaining to Ukraine or certain member states of the European Union (EU) on seven occasions between 2019 and 2022 (Safe Communities Portugal, 2023).

Considering that the 2023 Digital News Report was the first edition to gather results after the Ukraine war, results provided insight into how this could have impacted Portuguese perceptions. Findings reveal that Portuguese people who trust news are

considerably more worried about what is real or fake online than what they were last year (Cardoso et al., 2023).

Chapter 2: Media Literacy

2.1 Literacy and Its Many Forms

Throughout history, there have been numerous struggles and disputes over the power and authority to access, interpret, and produce printed texts, and the emergence of digital technologies has only heightened these tensions (Livingstone, 2004). The increasing academic interest in unpacking literacy, under the influence of the digital era, has been exhibiting a multidisciplinary mix of researchers in the fields of literacy, culture, media education, human-computer interaction, and social studies of technology (Livingstone, 2004). Therefore, the question "what is literacy" might sound like a simple question but assessing and measuring literacy is a complex task, and there are multiple challenges that need to be addressed in order to ensure that measures of literature are valid and reliable.

The first challenge is defining what exactly is meant by literacy, as the definition of literacy can vary depending on the context and purpose as also includes visual, electronic, and digital forms of expression and communication (Koltay, 2011). First, it is important to consider the definitions of literacy of the United Nations and other international organizations because literacy is not local nor national, it is a global matter (Keefe & Copeland, 2011). UNESCO's 1957 definition of literacy says that an individual is literate when they have the ability to read, write and understand a basic and straightforward statement about their daily life. While in the Experimental World Literacy Program of 1966, the concept of 1957 suffered an important distinction, stating that literacy changes within the context of one's own community (Keefe & Copeland, 2011). Nevertheless, because some countries have no means to assess literacy, global statistics of literacy are established by an individual's answer to whether they can read and write (UNESCO, 2013).

Some scholars view literacy as a broader set of skills and knowledge that encompass not only reading and writing, but also communication, critical thinking, and problem-solving, others see literacy as a social practice that is shaped by cultural and historical factors, and that involves the use of language and literacy in specific contexts (Koltay, 2011). One of the generally accepted definitions belongs to Street (1984) that defined literacy as social practices and reading and writing conceptions (Koltay, 2011).

Another challenge is developing measures that are culturally sensitive and that take into account the diverse ways in which literacy is used in different contexts (Au & Raphael, 2000). Literacy is closely linked to social, economic, and cultural factors, and can both reflect and reinforce patterns of inequality and social exclusion. As mentioned previously, in many societies, literacy is a key factor in determining access to education, employment, and political participation (Lind, 2008). The relationship between literacy and social class is particularly significant. Gender also plays a big role in literacy, with women often facing greater barriers to literacy than men (Lind, 2008) and cultural factors, such as language and ethnicity, with individuals from non-dominant cultural and linguistic backgrounds (minorities) often challenges in acquiring and using literacy skills (Luke, 2003).

The expansion of the definition of literacy has developed from seeing it not solely as an individual trait but something that arises when interacting with other members of the linguistic community (Keefe & Copeland, 2011). Finally, there is a challenge of balancing the need for standardized measures of literacy with the need to recognize the multiple literacies that exist in different societies and cultures (Kalantzis & Cope, 2008).

In the 21st century, the concept of literacy has expanded to include visual, electronic, and digital forms of expression and communication. With the rise of technology, the modern understanding of literacy has broadened in scope. Being able to read and write in today's society not only involves traditional forms of written communication, but also encompasses the ability to engage with and interpret various forms of media information, such as images, videos, and digital content. As a result, becoming and remaining literate requires a long-term commitment to ongoing learning and development (Cordes, 2009 as cited in Koltay, 2011). Technology has brought about new forms of literacy, such as digital literacy, media literacy and information literacy. While these fields were once distinct, their boundaries have increasingly begun to converge (Roozenbeek et al., 2023) and became massively important in modern society, and a necessary tool for success in education, employment and in everyday life (Koltay, 2011). Furthermore, in the context of misinformation, these fields frequently intersect (Roozenbeek et al., 2023).

In the 21st century, the proliferation of digital technologies and the internet has transformed the way information is accessed and used. The American Library Association

(ALA) defines information literacy as "a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (ALA, 2000, p. 2). Similarly, UNESCO's Information for All Programme (IFAP) defined information literacy as the ability to identify and effectively use information from different sources and formats, reinforcing the importance of having the ability to navigate digital technologies and evaluate the credibility of online sources (UNESCO, 2013).

The availability of information from various sources, including the internet and social media, means that individuals are faced with vast amounts of information that they must filter and critically evaluate. This information can be presented in multiple media formats, further complicating the process of evaluating and understanding it. Individuals who are information literate have the skills and knowledge to navigate the vast and complex world of information, being able to make informed decisions and to succeed in both their personal and professional lives (Koltay, 2011). Information literacy is not limited to any specific discipline or education level, it is a lifelong learning process that is relevant to all fields and environments.

The importance of information literacy has been recognized in various fields, including academia, the workplace, and personal life. In academia, students must be able to identify and use credible sources to support their research. As (Bruce, 2008) mentions, information literacy skills are essential for lifelong learning, critical thinking, and problem-solving. Information literacy skills also can help individuals avoid misinformation, protect themselves from scams and fraud, and make better decisions about their health and well-being (UNESCO, 2013).

In the same vein, digital literacy is considered a component of various other forms of literacy, including media and informational literacy. The international community is currently working towards ensuring digital literacy, particularly in light of the increased time spent on the internet and social media during and after the Covid-19 pandemic. It is worth mentioning that digital literacy has been suggested as a means of combating social inequality, given the relationship between exclusion from technology and more extensive forms of economic and social exclusion. People with limited access to internet have fewer opportunities to acquire the necessary skills, leading to reduced participation levels. Additionally, a lack of knowledge about the algorithms that platforms use to suggest

content is associated with socio-economic disadvantage (Polanco-Levicán & Salvo-Garrido, 2022).

Back in 1997, Gilster defined digital literacy as "an ability to understand and to use information from a variety of digital sources" (Koltay, 2011, p. 216). Martin (2006, as cited in Koltay, 2011) highlights the importance of understanding the social and cultural contexts in which digital technology is used. According to Erstad and Sefton-Green (2013), digital literacy refers to the ability to use digital technology effectively, and encompasses a range of skills and competencies, including the ability to use computers, mobile devices and the internet to communicate, create, and access information. Similarly, the European Commission (2017) believes digital literacy to be the confident and critical use of digital technologies to communicate, access information and elementary problem-solving in day-to-day life (Koltay, 2011).

Buckingham (2015) believes digital literacy is much more than learning how to use technology or computers; it needs to incorporate media literacy skills into the definition. Digitally literate people need to use critically the information encountered, by questioning sources, producers, and its relationship to social, political, and economic purposes. For Hobbs (2010), the term digital and media literacy are highly interrelated, and together include the skills, knowledge and competencies related with social media and the internet.

Most digital literacy definitions emphasize the importance of using digital technology to access, evaluate, create, and communicate information. It is essential for active citizenship, as it allows individuals to participate effectively in digital spaces and to understand the ways in which digital technology is shaping our society. Individuals who are digitally literate are better equipped to navigate the complexities of digital technology, to evaluate and analyze digital media messages critically, and to participate effectively in digital spaces. As digital technology continues to play an ever-increasing role in our daily lives, being digital literate represents an ever-increasing likelihood to succeed in education, employment, and personal life (Warschauer & Matuchniak, 2010).

2.2 Media Literacy

There is a vast and complicated collection of literature on the subject of media literacy, with various interpretations which can be confusing for scholars. In essence, it appears as though each individual writer has their own unique perspective and understanding of the various elements that define media literacy. This complex patchwork of theories, and extensive diversity of interpretations, brings about a challenge to review all the ideas expressed and to form a cohesive understanding of media literacy. There have been several attempts to develop a concise definition of media literacy, but it still appears to have no consensus. Buckingham (2003) believes the definition of the term 'media literacy' is far from straightforward, it is controversial and too imprecise, with both "media" and "literacy" being debated terms. As such, this term has been approached and defined differently across fields (Buckingham, 2003).

Marshall McLuhan (1969) said "media is an extension of man". Media as a concept has evolved over time, shaped by various technological and social developments. From its earliest forms to modern-days, media has played a crucial role in shaping societies by disseminating information, shaping opinions, and influencing culture. It has been an essential part for the understanding of the world we're surrounded by and therefore it is essential to understand how media has evolved and its various forms (McLuhan, 1969). Media in the 21st century "became pervasive and ubiquitous, forming the building blocks for our constant remix of the categories of everyday life (the public and the private, the local and the global, the individual and the collective)" (Deuze, 2011, p. 138).

The internet has made it possible to connect with people from all over the world in real-time, breaking down barriers of distance and time. Digital media, including social media platforms, have made it possible for people to share their experiences and ideas with a global audience. But most importantly, it has transformed the way people access information, with news and entertainment now available on demand (Tandoc et al., 2017). Today, information is not limited to traditional forms of communication, such as books and newspapers. Instead, we are increasingly exposed to a wide variety of multimedia sources, including television, the internet, radio, movies, video games, music, and more. This exposure occurs throughout our day, from the moment we wake up to the time we go to bed. As a result, we are exposed to countless images and ideas that shape our

understanding of the world around us. In fact, media has become an integral part of our culture, influencing our values, beliefs and behavior (Thoman & Jolls, 2004). Deuze (2011) mentions that we live in media, not with media, in a sense that media can't be conceived of as separate from us.

The sheer amount of media we consume highlights the need for media literacy, which enables individuals to analyze and evaluate media content critically. With media playing such a significant role in our lives, media literacy education has become more important than ever to ensure that individuals can make informed decisions and contribute positively to society (Thoman & Jolls, 2004).

Most scholars agree on four main skills that determines a media literate person. These skills are the ability to access, analyze, evaluate, and communicate (Aufderheide, 1993; Potter, 2013; Livingstone, 2004; Hobbs, 2010). The ability to access involves locating and using suitable media instruments (Hobbs, 2010), retrieving targeted information through these instruments, and comprehend the meanings conveyed by the content (Jolls, 2008 as cited in Eristi & Erdem, 2017).

After accessing media content, the ability to analyze involves one's critical examination of structure, content, design, form and sequence of messages, employing an artistic, literary, social, political, and economic perspective (Jolls, 2008 as cited in Eristi & Erdem, 2017). Analytical skills refer to encountering media messages, and not superficially accepting them, but rather breaking them down into meaningful parts for a better understanding (Potter, 2008 as cited in Eristi & Erdem, 2017). This analysis involves examining various elements such as authorship, audience, form, type of message, points of view, characters, subjects, themes, mood, setting and context (Eristi & Erdem, 2017). Additionally, a media literate individual with analytical skills recognizes that a media message is deliberately crafted and can differentiate between the real world and the virtual world portrayed by the media (Potter, 2008 as cited in Ersiti & Erdem, 2017) and that media uses emotional manipulation techniques (Bachmair & Bazalgette, 2007, as cited in Ersiti & Erdem, 2017). Furthermore, a media literate person should have sufficient knowledge of the background and functioning of the media industry to understand and to join in discussions about that media content (Eristi & Erdem, 2017).

The ability to evaluate is a process that follows the analysis phase and involves making judgements regarding the reality, quality or value of the media messages (Ersiti & Erdem, 2017). Finally, the competency of communication in media literacy

encompasses the ability to create and share media messages with others, converting media consumers into media creators and distributors (Ersiti & Erdem, 2017).

According to Koltay (2011), media literacy is not only important because of the large amount of media exposure but also due to its vital role in the development of democracy, cultural participation, and active citizenship. Because of its influence and power, the World Health Organization (WHO) has recognized media literacy as one of the five most important literacy skills in our modern era (Nemati-Anaraki et al., 2021).

The Wisconsin Association for Better Broadcasters endeavored to impart knowledge to individuals on how to assume a critical approach towards media consumption within the United States. The initial media literacy initiatives, which persisted throughout the 1960s, aimed to safeguard students by cautioning them against media consumption. Despite this outlook, the prevalence of media, especially television, persisted in its expansion while the enthusiasm for media literacy instruction declined (Vinney, 2022).

Over many years, media literacy has been studied as a public policy issue, a cultural issue, as a collection of pedagogical instruments for elementary school teaching, as a set of proposals for parents, or as an issue of scholarly analysis from a psychological, cognitive, or anthropological perspective. Some researchers have focused only on one culture, others on several. The term has been also used, as many argue, as a synonym of media education (Christ & Potter, 1998; Potter 2013).

Aufderheide (1993) identified it as a movement created to help understanding, evaluate and produce meanings in a culture of images, words and sounds (Koltay, 2011). Within the field of education, research proposed to teach students how to fight the growth of popular culture in the era of printing media by promoting high culture (Buckingham, 2003). Having its roots in media education, which began to emerge in 1920s with the rise of mass media such as radio and newspapers, in the 1950s, media education programs began to appear in schools in the United Kingdom, Canada, Australia and the United States focusing on teaching students how to critically analyze and create a variety of messages (B. K. Lewis, 2009). In the 1980s, the term “media literacy” began to be used to describe this field of study. While early media education focused on technical aspects

of media production, media literacy shifted the focus to a more critical examination of media messages and their impact on society.

For Lewis and Jhally (1998) media literacy is not just about understanding the content of media messages, but also about being conscious of the underlying motives for their existence. Simply knowing how media messages are created is not sufficient. To fully comprehend the impact of modern media, it is crucial to be aware of the motivations behind media message creation, as well as the limitations and circumstances surrounding their production, and the individuals or entities responsible for producing them (Lewis & Jhally, 1998).

The proliferation of internet-mediated communication and mobile technologies, which facilitate access to media content with greater flexibility regarding time and location, has prompted a renewed interest in the need for media literacy (Vinney, 2022). The objective is no longer aimed at impeding individuals from utilizing media but instead towards facilitating their acquisition of improved discernment and rationality as media consumers (Vinney, 2022). Today, the field of media literacy has evolved to a level of greater comprehension of its potential. It is recognized not only as a unique form of literacy but also as a powerful tool for changing the fundamental nature of education in a world that is increasingly dominated by a global multimedia (Thoman & Jolls, 2004). It has expanded and now encompasses the proficiency to retrieve and scrutinize media messages and construct, contemplate, and instigate transformative measures through information and communication, thereby making a considerable impact on society (Potter, 2018). The concept of media literacy transcends beyond a singular medium and is considered to comprise a collection of fundamental competencies that are indispensable for occupational, communal, and civic engagement (Potter, 2018).

While there are different interpretations of what media literacy means, there is a growing consensus among scholars in various fields that share similar ideas about it. Rather than attempting to define media literacy in a specific way, these experts tend to agree on a set of fundamental concepts that serve as a foundation for teaching media literacy. As mentioned previously, most authors define media literacy as the ability to access, analyze, evaluate, and communicate (Aufderheide, 1993; Hobbs, 2010;Potter, 2013; Livingstone, 2004). This approach acknowledges the diversity of media and the

different forms it can take, as well as the importance of developing critical thinking skills when engaging with media.

Thoman and Jolls (2004) believes that in the 21st century, it is essential to have the skills and knowledge to effectively navigate and analyze media in all its forms. Media literacy education offers a framework and a teaching approach that emphasizes critical thinking and active engagement with media content. By becoming media literate, individuals can become better informed, more discerning, and more engaged citizens, which is essential for success in the modern world (Thoman & Jolls, 2004). Similarly, Scheibe and Rogow (2012) believe media literacy became a necessary skill to navigate the complex media landscape of the 21st century, as the internet and social media have enabled individuals to be constantly exposed to a stream of media messages, being difficult to discern what is accurate and what is not. In this sense, being media literate is a key component of being digital literate.

Media literacy fosters comprehension of the function of media within society and cultivates fundamental abilities of inquiry and self-expression that are imperative for individuals to be active participants within a democratic society (CML, 2023). In other words, media literacy is a way for individuals to participate fully in society and have their voices heard.

Despite several favorable aspects, the media realm also poses considerable risks and challenges. The potential for problematic media consumption looms large when one fails to exercise proper caution and care, as asserted by Potter (2018). Media literacy enables individuals to assess media motives and safeguard themselves from any unfavorable consequences of media consumption (Jones-Jang et al., 2021). The contention posited by the authors is that individuals possessing higher levels of media literacy are inclined to engage with spurious or doubtful narratives in a more analytical and discerning fashion, thereby diminishing the consequences of fabricated information on the wider community (Jones-Jang et al., 2021). The viewpoint posits that interventions related to media literacy have the potential to significantly impact and shape individuals' understanding and comprehension of media messages and content. The enhancement of critical thinking towards media can be achieved through acquiring knowledge regarding the media and its effects and the capacity to differentiate between the veracity of media portrayals and reality (Jones-Jang et al., 2021).

Nowadays, even videogames are not just pure forms of entertainment. Gee (2003) believes that it is rather a complex learning of experiences that can teach us a lot about how literacy and learning are evolving in today's world. In his book, "What Video Games Have to Teach Us About Learning and Literacy", Gee (2003) argued that video games have the potential to be powerful tools for instruction in the future and identified 36 principles that are present in good video games. By engaging players in immersive and interactive experiences, video games can promote the development of critical thinking, problem-solving, and collaboration skills. These games can also be tailored to individual learning styles, allowing players to progress at their own pace and focus on areas where they need more support. As such, video games offer an innovative and effective way of teaching that is well-suited to the needs of learners in the modern world. This convergence between media and education and entertainment and learning is deeply transforming the way we learn, creating new opportunities that are more engaging and effective. Therefore, media literacy is essential, not only in the future but also now, to equip citizens with the skills they need to navigate and analyze media content in the modern world. In today's global economy and culture, it is crucial that individuals possess critical thinking skills and the ability to make informed decisions (Thoman & Jolls, 2004).

The study of literacy, especially media literacy, has been mainly focused on children and adolescent populations and have been generally administered for educational purposes. As such, very little attention has been given to adults' needs and therefore the potential efficacy of interventions tailored to older age groups (Roozenbeek et al., 2023).

2.2.1 Scales for Measuring Media Literacy

As mentioned by Hobbs in 2017, there are two measurement approaches to access one's media literacy: performance or competency-based and self-assessment (Hobbs, 2017). Performance or competency-based assessment focuses on evaluating individuals' capacity to critically evaluate and/or create media messages (Eristi & Erdem, 2017; Hobbs, 2017). These measures involve learners actively engaging in the practice of assessing the content, format, and techniques employed in media to capture and maintain attention (Hobbs, 2017). Quin and McMahon (1995) were among the first to develop this approach. They conducted two tests that required students to analyze various aspects of media, such as language usage, narrative structure, and target audience.

Aufderheide and Firestone (1993) developed the Media Literacy Index (MLI), which measures media literacy in five ways: participation, analysis, evaluation, access, and reflection. It measures abilities to access a variety of media sources, analyze media content critically, and actively engage with media through production and participation. Hobbs and Frost (2003) also employed competency-based assessment in their study to evaluate 11th grade students. The assessment covered various aspects including the student's capability to identify the purpose, target audience, point of view, construction techniques employed in media messages, and their ability to detect missing information in written, audio, or visual formats of news media broadcasts. (Arke & Primack, 2009) adapted the work of Hobbs and Frost into the development of a study using quantitative scales to determine critical thinking skills of college students in five domains: recall, purpose, viewpoint, technique, and evaluation.

Most performance-based media literacy approaches have a set of statements or items that respondents rate or answer based on how much they agree with or are competent. Media consumption habits, comprehension of media content, critical thinking abilities, awareness of media effects, and media production abilities are all covered in these items (Eristi & Erdem, 2017). After that, the responses are given a score and added together to give a total measure of media literacy.

Self-assessment approaches, on the contrary, asks participants to rate their own media literacy skills and knowledge (Schilder & Redmond, 2019). As an example, Primack et al. (2006) focused on developing the Smoking Media Literacy (SML) scale, a self-report Likert scale to assess adolescents' media literacy regarding pro-smoking media messages. Items in the scale include "Cigarette ads show scenes with a healthy feel to make people forget about the health risks" (Schilder & Redmond, 2019). Analyses revealed that the adolescents' overall "smoking media literacy", as measured by the scale, was strongly and independently associated with a reduction in adolescent smoking and decreased susceptibility to future smoking (Primack et al., 2006).

Chang et al. (2011) developed a media literacy self-assessment scale (MLSS) with a nine-item instrument to measure the media literacy of fifth and sixth graders in Taiwan. The instrument included items related to understanding, using, discussing, and complying with the media. Some examples include: "I can understand how to operate media", "I can discuss with others the content that media display"; "I can use different media

technologies to store/backup the content" and "I can comply with the intellectual property rights of media use". Their study revealed some differences mostly regarding gender, with boys viewing technology more as a toy and girls using it to accomplish a certain task.

Because of the fast-changing nature of media and technology, Eristi and Erdem (2017) developed a richer and more contemporary scale to measure media literacy. The study comprised 45 items under the four basic skills highlighted in the literature, that determines the levels of one's media literacy skills – the ability to access, analyze, evaluate, and communicate media messages, using Likert-scales for measurement.

Ofcom, a regulator for the communication services in the UK, has been doing annual research into media literacy, providing reports every year on adult's media use and attitudes. For this, they have developed an extensive quantitative survey. The instrument comprised questions for respondents to self-assess their confidence and behavior as media users. Some examples include "I am confident in using the settings on my social media account to control who sees the photos and videos I share", "when I visit websites or apps, I usually accept the terms & conditions without reading them", using Likert-scales of agreement for its measurement (Ofcom, 2023).

Chapter 3: Social Media as a News Source

3.1 Using and trusting social media as a news source

Mitchell et al. (2015) believe social media has become the local TV for the Millennial generation. Social media not only transformed the way news is spread but also disrupted conventional notions of what news ought to be. Social media platforms have emerged as crucial outlets for news consumption among a considerable number of individuals (Tully et al., 2020). With social media, legitimate news content coexists with everyday social interaction and entertainment content shared among friends. In essence, the environment for news consumption on social media, is significantly different from the meticulously edited content offered by traditional media (Flintham et al., 2018). As such, the configuration of these platforms often stimulates the proliferation of misinformation, making it challenging for users to discriminate between credible and misleading sources of information (Tully et al., 2020).

A study conducted by Fletcher and Nielsen (2018) revealed that not everyone is searching for news directly on social media, users can also be incidentally exposed to it. This is because most people use social media for a variety of purposes and are not always in control of what they encounter. Self-reported incidental exposure to news on social media has been demonstrated to be related with people's responses and attitudes towards what they read (Fletcher & Nielsen, 2018). Results have shown that the impact of incidental news exposure is more pronounced for younger individuals and those less interested in news. An explanation for this could be the fact that these groups also use social media more frequently and therefore are more likely to come across a large variety of content, including news. This could have a positive impact especially on societies with limited options for accessing information (Fletcher & Nielsen, 2018). Furthermore, research has shown that people trust news on social media highly if is shared by someone they trust (Tandoc et al. (2017), even if it is from a public figure (Shu et al., 2017).

Social media for news consumption represents a quick and cost-efficient option when compared to traditional news, offering news on a regular basis, updated in real-time and with generally free access. Usually, this news can appear in the form of news stories or post or from links shared by others. Furthermore, it enables sharing, commenting and engagement with other friends and platform users (Shu et al., 2017). Social media users

also perceive their access to news on these platforms as an opportunity to find a more 'genuine' version of news, one that would be less influenced by politicians or media outlet. In fact, research has shown that teenagers believe social media presents stories in a raw and pure manner, not being afraid to present it as it is (Flintham et al., 2018). Additionally, social media's "appealing" news design, usually only displaying headlines and visual images to attract curiosity (Shu et al., 2017), make consuming news there more interesting.

Because of this, a lot of concerns about misinformation infiltrating these platforms have emerged (Tully et al., 2020). First, the reduced costs of publishing on social media mean a huge amount of information is easily available, most of which has no journalistic process. These platforms, which were initially envisioned as forums enabling communication, have rapidly overtaken broadcasters as the primary source of news for many citizens (Jewitt, 2009). Originally, the production and dissemination of news were concentrated in a small group of broadcasters who were granted licenses to operate from their governments. However, with social media, everyone can become a broadcaster, with the ability to produce, deliver and share information or create any story which represents a new, low-cost, faster, and more effective mechanism for the spread of information without controls (Tandoc et al., 2017).

The digital appearance and format of social media platforms have made it challenging to determine the truthfulness or credibility of news articles (Tully et al., 2020; Pearson, 2021) and has been reducing positive media literacy behaviors (Pearson, 2021). Pearson (2021) states that social media platforms present content in the same way, no matter where it comes from. In his study, participants who encountered a mix of news and entertainment on social media, tended to pay less attention to the original source and therefore be more prone to potentially confuse real with fake news, therefore being more susceptible to misinformation. On the other hand, those who viewed content categorized did not have the same challenges (Pearson, 2021). In a study conducted to assess American students' media literacy, results revealed that most of them struggled to distinguish between an actual news story and content that resembles news but is, in fact, an advertisement (Sheufele & Krause, 2019).

The volume of content available on the internet has also made users feel overwhelmed (Panek, 2016 as cited in Pearson, 2021) This is made worse by social

media's "infinite scroll" design (Pearson, 2021). Media literacy definitions revolve around four skills, two of which are the ability to analyze and evaluate. These skills become increasingly relevant when exposed to misinformation, when assessing the source or evaluating the content require analysis efforts (Pearson, 2021). Tandoc Jr. et al. (2020) mentioned that the propagation of false news is facilitated through the utilization of social media platforms because of its effortless and widespread dissemination, which is not proportionate to the ease of sharing legitimate information.

According to Schulz et al. (2022), individuals' literacy regarding news media can shape their utilization of social media for news consumption. The study illustrated that individuals possessing extensive news media knowledge are inclined to use social media more frequently to acquire news, exhibit greater faith in the news they consume through social media, and use other social media platforms for obtaining news information. In contrast, individuals with lower media literacy tend to rely on only one social media platform and show a reduced degree of trust in social media news.

Vraga and Tully (2021) focused on evaluating the correlation among news literacy, social media behaviors, and skepticism towards information that is disseminated on social media platforms. They conducted an internet-based questionnaire among a sample of 1,005 individuals residing in the United States. Their study investigated news consumption patterns, social media behaviors, and attitudes toward news on social media. Findings revealed that individuals with higher levels of news literacy exhibited a greater tendency to engage in critical analysis of news articles on social media platforms and employed a diverse range of sources to verify the authenticity of the information. Furthermore, they exhibited a high skepticism towards information on social media platforms and a reduced tendency to share or comment on news stories before carefully verifying their accuracy. Furthermore, individuals with a high degree of skepticism towards social media information showed a lower propensity to believe in and disseminate fabricated news.

According to Tully et al. (2020), individuals with greater proficiency in media literacy are inclined to scrutinize the authenticity of sources and confirm information prior to disseminating it. According to their findings, being media literate is crucial for individuals to effectively assess news stories, identify any biases present, and

subsequently make well-informed decisions regarding the consumption and dissemination of information on various social media platforms.

Pearson (2021) believes that media literacy efforts should be more focused on the structure and design of the platforms, instead of only considering users' actions. He further believes that it should be in the social media designers' interest to help their users process content effectively and therefore apply media and digital literacy within the platforms to help combat the spread of misinformation. This could be done by enhancing the visibility of source cues like larger fonts or increasing color contrast (source cues are indicators that people use to quickly assess the credibility or reliability of the source of information). He goes further by giving some examples of how this could be accomplished, such as assigning a new color to news posts or enabling users to organize their feeds according to each account content type they follow (Pearson, 2021).

3.2 News consumption, Trust and Misinformation in Portugal

The relationship between news literacy, trust, and the consumption of news information in Portugal has been examined with a focus on the prevalence of fake news. Paisana et al. (2020) argue that news literacy is vital in determining people's trust in news sources and their capacity to distinguish false information from reliable sources. According to the researchers, people with higher levels of news literacy tend to be more skeptical of news stories and are better able to spot false news. The study also shows that exposure to fake news has a detrimental impact on trust in news sources. Paisana et al. (2020) argue that to improve critical thinking abilities and lessen the influence of fake news, there is a need for news literacy promotion among the Portuguese populace. The authors advocate for the implementation of educational programs and media literacy campaigns to help people navigate the complex world of social media use and develop better judgment about the news they come across.

Silva et al. (2017) reveal that while traditional media sources continue to play a significant role in news consumption, social media platforms are becoming increasingly influential. The study identifies different news repertoires among participants, with some individuals relying heavily on traditional media, others relying solely on social media, and a significant portion engaging with both. The authors discuss the implications of these findings, highlighting the need for media organizations to adapt to the changing media

landscape by incorporating social media strategies while maintaining journalistic standards (Silva et al., 2017). The authors also emphasize the importance of media literacy programs to help individuals critically evaluate news content from various sources, ensuring informed and responsible social media consumption in Portugal.

The study conducted by Baptista and Gradim (2022) explored the function of Facebook as a platform for propagating false information during electoral campaigns. They highlight the critical necessity of enhancing awareness and media literacy among the Portuguese population as a measure to combat the propagation of false information and its potential influence on electoral procedures. The scholars further advocate that social media platforms adopt a more proactive approach toward identifying and combating the proliferation of inaccurate information, thereby fostering a more robust informational milieu during the electoral process (Baptista & Gradim, 2022).

According to data provided by the Reuters Digital News Report 2023 (Cardoso et al., 2023), Portuguese people continue to show high levels of trust in news when compared to most countries, being third among 46 other countries in the world, with 58 percent of respondents saying they trust news. Regarding concern about what is real and what is fake on the internet, the ones who trust news are more worried than those who do not trust news, with 7 out of 10 Portuguese people expressing their concern (Cardoso et al., 2023).

In 2023, Portugal continues to be a country where television is the most used media for news consumption. Although the percentage has been decreasing year by year. Portugal consumes online news mostly indirectly rather than going directly to the news website. Search engines and social media are the major ways people access news online, with mobile notifications also representing a significant value (15.2%) when compared with the rest of the countries considered in the report (9%) (Cardoso et al., 2023).

Regarding the general use of social media and social media for news consumption, Facebook, although the number keeps decreasing, remains the leader. Out of 69% of people using Facebook, 40% reported using it as a news source. On the contrary, WhatsApp and Instagram shows continuous growth both in general use and use for news consumption. Regarding young adults (from 18 to 24 years old), the outlook is significantly different when compared to the general sample. In 2023, Facebook is only

the fourth-most used, surpassed by Instagram in first, Twitter in second and TikTok in third. Facebook is also the social media platform that Portuguese people prefer to use for news related to health issues like Covid-19. They prefer Twitter for following news regarding the war in Ukraine (Cardoso et al., 2023).

When questioned about ways of sharing news, Portuguese tend to prefer doing it by chatting with friends or colleagues. Another important aspect to note is that 41.6% of the respondents share news online using social media apps (Cardoso et al., 2023). An important question to these respondents would be whether they share only if they believe or have checked if the news is true, or just because they think it was interesting. This aspect will be included in the present study.

3.3 Attempts to fight the spread of misinformation

Addressing the significant and intricate issue of misinformation spread on social media, asks for a diverse combination of strategies to achieve effective solutions (Pennycook & Rand, 2019).

According to Roozenbeek et al. (2023), boosting interventions can reduce susceptibility to misinformation. These boosting interventions include prebunking or inoculation theory, critical thinking, and media and information literacy. Prebunking involves strategies to immunize individuals against misinformation before they encounter it. The primary approach for prebunking is based on inoculation theory, with two types of interventions: passive, where individuals receive counterarguments, and active, where they generate their own counterarguments. Additionally, there are inoculations targeting specific misinformation topics, and ones which address manipulation techniques (Roozenbeek et al., 2023). The Bad News game, previously mentioned, is an example of an active inoculation intervention. This game is one of many that educate individuals about manipulation techniques, and thus improve critical thinking and the ability to identify misinformation strategies (Roozenbeek et al., 2023). Critical thinking is the ability to question and analyze arguments and assess the quality of information encountered (Duron et al., 2006 as cited in Roozenbeek et al., 2023). It has also been considered by the literature as one of the skills needed for an individual to be media literate (Ersiti & Erdem, 2017). Because the study of information and media literacy is highly focused on examining student and teacher populations, scholars have explored

methods for implementing media and information literacy programs through social media platforms (Tully et al., 2020). Research has demonstrated that showing users pop-up messages guiding them how to employ lateral-reading techniques led to an increased adoption of these strategies. Additionally, offering media literacy tips to identify false and misleading content improved their ability to distinguish between true and false news (Roozenbeek et al., 2023).

Research suggests that individuals share false information because of social media's distracting nature (Pennycook & Rand, 2019; Pearson, 2021). Nudging interventions such as accuracy primes and social norm nudges address this issue by redirecting people's focus towards accuracy and partisan or societal norms. For instance, research revealed that encouraging individuals to reflect upon the accuracy of news headlines significantly lowered their willingness to share false news and improved their ability to distinguish false headlines (Roozenbeek et al., 2023).

Although some studies mention debunking activities could help the spread of misinformation (Chen et al., 2023), several others believe that it is a beneficial approach to tackling misinformation (Roozenbeek et al., 2023). Debunking is similar to fact-checking but differs in that it only pertains to misinformation. Some tech companies like Meta (formerly Facebook) employ debunking using automated and human-centered techniques to moderate content on their platforms.

Fact-checking organizations are made up of journalists and researchers who are committed to examining the veracity and accuracy of statements made in news stories, articles, and other public sources of information. Their main goal is to offer trustworthy and unbiased evaluations of the assertions made by people, organizations, and the media (Ünal & Çiçeklioğlu, 2019). To determine veracity, fact-checkers use thorough research methods, including source analysis, expert interviews, and cross-referencing data (Baptista et al., 2023; Missau & Storch, 2022). Fact-checking organizations have been crucial in battling false information during public health crises such as the Covid-19 pandemic (Ceron et al., 2021). They dispel misleading claims and rumors that can threaten public health, providing factual and evidence-based information (Pulido et al., 2020). By doing this, they significantly contribute to public safety, supporting informed decision-making and limiting the negative impacts of misinformation (Pulido et al., 2020; Ceron et al., 2021). Holding public figures, lawmakers, and media organizations

responsible for the truthfulness of their comments is one important service that fact-checking organizations provide (Baptista et al., 2023). Fact-checkers examine the claims made by political candidates during election campaigns in order to expose false information and give voters correct information so they can make informed decisions (Baptista et al., 2023).

To combat false information and advance media literacy, some fact-checking organizations have sprung up in Portugal. One notable site is “Poligrafo”, a well-known fact-checking website that looks at claims made by public personalities, journalists, and politicians (Ünal & Çiçeklioğlu, 2019). Additionally, “Observador” runs a section devoted to fact-checking incorrect claims and misinformation (Durr Missau & Storch, 2022).

Because of the time human professional fact-checking requires and their difficulties in responding to the vast amount of content generated by social media, social media platforms have embraced automation to moderate the substantial volume of content uploaded to their platforms (Chen et al., 2023). Automated content labelling includes fact-checks, general or specific content warnings, and credibility labels. Their general goal is to categorize content into different problem categories. Moreover, Moravec et al. (2020) asserted that combining a warning label with an explanation of why the information is false, would more effective than just the label.

Pennycook and Rand (2019) mention a crowdsourced approach, also known as ‘wisdom of the crowds’, as an alternative to the more standard fact-checking. Crowdsourcing is defined by Brabham (1982 as cited in Collins et al., 2021, p. 255) as “an online, distributed problem-solving and production model that leverages the collective intelligence of online communities to serve specific organizational goals”. In other words, crowdsourcing as the name says, involves engaging a large crowd to collaboratively achieve specific goals (Collins et al., 2021).

Part II – Empirical Study

Chapter 4. Methodology

4.1 Research Purpose

The main purpose of this study is to explore what effect media literacy has on Portuguese people's use and trust of social media as a news source and their susceptibility to misinformation. This study builds on previous research by offering one main contribution: the Portuguese context. Additionally, extant literature on the direct assessment of media literacy is scarce and is mostly confined to studies of student populations (Roozenbeek et al., 2023), although this age group is particularly susceptible to encountering unreliable news sources (Potter, 2010). Because of the rapid rise of social media use among all age groups, this study focused on reaching the most diverse respondents in age, not considering their level of education, income or professional area. This study will focus on relating two other important and highly significant concepts with media literacy, that proves to be relevant for current rapid technological transformation. Because of people's dependency on social media platforms, social media has become a colossal part of consumers' daily lives and has been used for many different tasks, particularly for news consumption (Tully et al., 2020). As such, this study aims to explore whether Portuguese people use and trust social media as a news source and if this varies between ages and gender.

Additionally, according to literature, media literacy is one of the most effective skills in the fight against misinformation susceptibility (Maertens et al., 2023; Rozenbeek & van der Linden, 2019; Pearson, 2021; Sheufele & Krause, 2019. As such, the second objective of this study is to examine what impact does media literacy have on people's susceptibility to misinformation.

A study conducted by Fletcher and Nielsen (2018) revealed that not everyone is searching for news directly on social media; users can also be incidentally exposed to them. As such, this study aimed to determine whether people see news on social media because they look for it or because it appears to them. After gathering these results, the purpose is to determine whether media literacy influences individuals' use and trust in social media as a news source, and to what extent.

To this end, research questions in this study are as follows:

4.2 Research Question

1. (RQ1) How does media literacy affect Portuguese people's use of social media as a news source?
2. (RQ2) How does media literacy affect Portuguese people's trust of social media as a news source?
3. (RQ3) How does media literacy affect Portuguese people's susceptibility to misinformation?

4.3 Research Approach and Strategy

A quantitative approach was considered to be the most appropriate method for the present study. Punch (2003, p. 11) believes that "the essence of a quantitative research is the study of the relationship between variables" and to best measure the variables, this study conducted a survey as the quantitative method applied. The essential idea of a survey is that a sample of people will respond to a questionnaire, and the resulting quantitative data will be used to study the relationship between variables. "Quantitative means that the survey is designed to produce numerical data, and proceeds by measuring variables" (Punch, 2003, p. 3) with the main aim to study how the variables are related to each other. For this research, the independent variable, the one "that (probably) cause, influence, or affect outcomes" (Creswell, 2009, p. 50) is "media literacy" and the dependent variables, "that depend on the independent variable" (Creswell, 2009, p. 50) are "using social media as a news source" and "susceptibility to misinformation."

A cross-sectional survey was conducted; this means obtaining data at a single point in time (Creswell, 2009) to determine the prevailing characteristics in the Portuguese population, being able to collect data on different variables such as sex, age, and to determine if there is a correlation with the variables of interest.

Considering this, data collected through online surveys is the most suitable for the current research. An online survey was used to reach a greater number of participants from different parts of the country and because of the specific internet users this study

aims to target. Online surveys were conducted due to the quick access to a large sample without any constraints on time or location, being easy to process and analyze data (Creswell, 2009).

The expectation is that, similar to previous studies (Schulz et al., 2022), higher levels of media literacy will be associated with an increase trust in social media as a news source and increase reliance on social media as a main source of news. As such, the first hypotheses were developed as follows:

(H1) Individuals with lower levels of media literacy will show reduced trust in social media as a news source

(H2) Individuals with lower levels of media literacy will be less likely to rely on social media as their main source of news

According to the literature (Maertens et al., 2023; Rozenbeek & van der Linden, 2019; Pearson, 2021; Sheufele & Krause, 2019), media literacy is also associated with the ability to detect the veracity of news and susceptibility to misinformation. As such, the following hypotheses were developed:

(H3) Individuals with higher levels of media literacy will be better able to detect the veracity of news (and therefore be less susceptible to misinformation).

4.4 Data collection

The survey was made accessible through a URL link shared on random Facebook, Instagram and WhatsApp groups to be voluntarily completed by Portuguese adults from different parts of the country and of all ages. The survey was available online from the 22nd of August to the 5th of September of 2023.

4.5 Survey Design / Instrumentation

The online survey was administered using Google Forms and was pilot tested, sent by WhatsApp to 20 family and friends of different ages, to assess clarity, validity, spot errors or areas for improvement and to provide a general idea of the time required to finish the questionnaire. These participants were not included in the study.

The survey first included an introduction explaining the purpose of the research and important information about anonymity, voluntary participation, time completion, and asked participants not to look for the answers online, to obtain the most honest responses possible, thus increasing the validity of the results. also mentioned that participant's must have at least 18 years old to answer the survey and that it was possible to cancel participation at any time. No incentives were offered for survey completion. The survey was done in Portuguese to have no limitations or constraints on understanding. Introduction text can be found on Appendix 1.

The survey instrument comprised 20 questions divided into five sections: 1) Participant characteristics and social media account (3 items), 2) Frequency of social media usage and news source (3 items), 3) Social media as a news source usage and trust (3 items); 4) Media literacy (11 items), 5) News headlines on social media (1 item).

The first section included demographic data, gender, and age, and the first eliminatory question – "Do you have any social media profile or account on platforms like Facebook, X, Instagram, WhatsApp, YouTube, Snapchat, or other?". Those who responded "no" would be taken to the end of the survey and were removed from the sample for data analysis. This eliminatory question was created since the intended population for this study were social media users.

The second section included a question about the frequency of social media usage (with answers adapted from the Pew Research Center, 2019 – frequency of internet usage) and frequency of getting news from different sources like social media, traditional media (TV, radio, newspapers, etc.), family members/colleagues/friends, official government websites, and other websites. This section also included the second and final eliminatory question – "Do you see or come across news on social media platforms like Instagram, WhatsApp, X, YouTube, TikTok, or others?". Once again, participants who responded "no" were taken to the end of the survey and were not included in the analysis. These three item results would be analyzed in addition to the results crossing variables, only serving as a complement to the main objective of this study.

There are three focal concepts in this study. These are (1) media literacy assessment; (2) use and trust of social media as a news source; (3) susceptibility to misinformation. Table 1 illustrates the survey variables, subvariables, items that measure

each variable and response options and theoretical foundation. A complete version of the survey instrument items can be found in Appendix 1.

Variables	Subvariables	Items	Answer options	Theoretical Basis
Independent variable: Media Literacy	**Understand / Use (U)**	10. Overall, how confident are you as a social media user?	Likert-scale from 1= not at all confident to 5= very confident	Chang et al. (2011)
		11. "I can understand the meaning and importance of the messages shared on social media"	Likert-scale from 1= strongly disagree to 5= strongly agree	Chang et al. (2011); Simons et al. (2017);
		12. When you see or read things on social media, how confident are you in judging their veracity?	Likert-scale from 1= not at all confident to 5= very confident	
	Critically Analyze (CA)	13. When you see or read a news story or article on social media, do you check other media platforms to confirm the content?	Likert-scale from 1= never to 5= often	Chang et al. (2011); Austin et al. (2016); Simons et al. (2017)
		14. When you see or read a news story or article that appears in your news feed, or a link to an article that is shared or sent to you, do you do any of the following?	1. Check if it was by an organization I had heard of 2. See how professional the article looks 3. Think about how likely it is to be true 4. Check to see if the same information in the article appears anywhere else 5. Think about whether the person who shared it was someone I trusted 6. Look at the comments / what people have said about the article 7. Other (please type in below)	Simons et al. (2017)

			8. I don't usually check the information in the article to see if it was true	
		15. "When I visit websites or apps linked to a social media article, I usually accept the terms and conditions without reading them"	Likert-scale from 1= strongly disagree to 5= strongly agree	
		16. Are you familiar with the term fact-checking? 17. If yes, do you know any of the following fact-checking websites?	Yes/No Multiple choice: 1- FactCheck.org 2- PolitiFact 3- Polígrafo 4- Poynter Institute 5- Observador Fact Check 6- Don't know any	
	Communicate / Discuss (CD)	18. "I discuss with someone the news I see on social media"	Likert-scale from 1= never to 5= always	Chang et al. (2011)
		19. "I share news articles I see or read on social media…"	1. … when I believe they're true 2. … when I'm absolutely sure they are factual 3.… just because I think they're interesting 4.I don't share news articles I see or read on social media	
Dependent variable 1: Social media as a news source	Use	7. Which statement best describes you?	1. I mostly come across news on social media because I'm looking for it 2. I mostly come across news on social media when I'm scrolling or using social media for other purposes	
		9. Is social media your main news source?	Likert-scale from 1= never to 5= always	
	Trust	8. Do you trust social media as a news source?	Likert-scale from 1= highly distrust to 5= highly trust	

Dependent variable 2: Susceptibility to misinformation	Veracity Discernment Ability (VDA) – MIST8	20. Please categorize the following news headlines as either 'Fake' or 'Real' News	1. The President of Ukraine ordered the destruction of 100 million books written in Russian 2. Portugal without taxes would have cheaper fuel than Spain 3. China has created the coronavirus in order to kill 1% of its population 4. Ukraine has created a phone line for Russian soldiers who want to leave the war 5. Lithuania changed street name of Russian Embassy to "Street of Ukrainian Heroes" 6. Lisbon City Council hid comments about sexual abuse in the Church and blocked followers on Twitter 7. Covid-19 test using a swab was used to collect DNA from the population 8. Kim Jong-un's regime is supporting Russia militarily by sending soldiers from North Korea to Ukraine	Maertens et al. (2022)

Table 1: Variables, Subvariables, Items, Answer options, Theoretical Foundation

To assess levels of media literacy, self-assessment was the approach used for this study. As mentioned in the literature review, self-assessment approaches ask participants to rate their own media literacy skills and knowledge (Schilder & Redmond, 2019). Based on the literature review (Chang et al., 2011; Ofcom, 2023; Simons et al., 2017; Primack et al., 2016; Eristi & Erdem, 2017), an item pool was developed considering the competencies a media literate person needs to possess, clustering them in three: understand/use, critically analyze, communicate/discuss. To assess personal media literacy competencies, most questions were formulated as 'I' -statements, e.g. "I can understand the meaning and importance of the messages shared on social media" as recommended in the extant research on media literacy (van den Berg, 2023).

In addition to asking people to self-assess their competencies, knowledge of media institutions have also been considered to be important variables in the development of media literacy competencies (Potter, 2010). As such, I have included two questions regarding knowledge of the concept of fact-checking as well as asking participants to indicate what fact-checking institutions they are familiar with. Item classification is illustrated in the Data Analysis part.

To measure susceptibility to misinformation, I adapted the misinformation susceptibility test (MIST) created by Maertens et al. (2022). According to the researchers, the measurement of susceptibility to misinformation hinges on capturing veracity discernment ability. Through the verification done framework, as illustrated in the theoretical framework (Fig. 1), veracity discernment ability involves measuring the ability to correctly identify real news and the ability to correctly identify fake news (Maertens et al., 2022). Additionally, their assessment includes two judgement biases - positive and negative – that will not be considered for this study.

Similar to Maertens et al.'s (2022) study, a MIST-8 was developed for the present research. This involves presenting participants with 8 news headlines, with four headlines being fake and four being real. The MIST was developed using the researchers' MIST Implementation Guide. Survey participants were asked to determine the authenticity of each headline, indicating whether they believed it to be true or false. The item question was as follows: "Please categorize the following news headlines as either 'Fake' or 'Real' News". A matrix of all MIST items, enabling question randomization, with *Real* and *Fake* radio button options was presented to respondents. This was the last item of the questionnaire.

In phase 1, the fake news headlines were selected from the Polígrafo Fact-check Database and Observador Fact-Check, selecting news sources marked as false or misleading. Real news headlines were selected from Polígrafo Fact-check Database and Observador Fact-Check as well, selecting news sources marked as true. A total of 20 items were collected (10 false, 10 true). Because of the length of the questionnaire and time spent analyzing 20 news headlines, Phase 2 involved condensing the item into eight that addressed a variety of subjects including the Russia-Ukraine War and the Covid-19 pandemic. A full version of the 20 headlines can be found in Annex A.

4.6 Population and Research Sampling

According to the Global State of Digital Report (2023), the population size for this study would be 8.05 million people, which corresponds to the number of social media users in Portugal at the start of 2023. The SurveyMonkey sample size calculator was used to calculate that 385 would be the size of the sample needed to achieve a confidence level of 95 and a margin of error of 5 percent, and to be able to generalize the interpretations from the data (Creswell, 2009).

Considering gender, there is a slight over-representation of girls (54.9%). Regarding age, there are representation of all age groups considered in the study. 34 (10.8%) respondents were between 18 and 24 years old, 94 (29.8%) respondents between 25 and 34 years old, 41 respondents (13% between 35 and 44 years old), 84 (26.7%) respondents were between 45 and 54 years old, 58 respondents (18.4%) between 55 and 64 years old, 3 respondents (1%) were 65 to 74 years old and 1 respondent (0.3%) was more than 74 years old. This diverse sample in terms of age satisfies one of the goals of this study: to expand the research of media literacy and social media to all ages, when most literature about the subject has been confined to student populations.

4.7 Data Measurement and Analysis

Media literacy level was calculated giving a score for each item. Questions with Likert-scale responses would have a score between 1 to 5 and 1 to 4 in the case of item 9. Questions of yes or no answers would have a score of 1 if yes and 0 if no. Item number 6 "when you see or read a news story or article that appears in your news feed, or a link to an article that has been send to you, do you do any of the following?" was a multiple response item. To calculate it, I separated every option as a different item and turned it into a yes or no question, giving a score of 1 if that option was selected and 0 if not. Additionally, item number 9 "I share news I see or read on social media…" was transformed into a Likert-scale response from 1 to 4, with 1 being "…just because I think they're interesting", 2 being "…when I believe they are true", 3 being "…when I'm sure they're true", and 4 being "I don't share news I see or read on social media". These changes resulted on a total of 15 items to measure media literacy levels, separated into

the three categories previously mentioned categories: (U) understand/use (4 items); (CA) critically analyze (10 items); (CD) Communicate/Discuss (1 item). An individual's media literacy level was the sum of all media literacy item scores.

To calculate the MIST-8, and according to the instructions of the MIST Implementation Guide (Maertens et al., 2022), the three scores of the verification done framework – (V) Veracity Discernment, (r) Real News Detection, and (f) Fake News Detection – were calculated and reported as follows:

V was calculated by scoring each of the responses on a binary 0 (if incorrect) or 1 (if correct) metric and taking the sum of the score. The sum of all scores for the real news items results in the r score. The sum of all scores for the fake news items results in the f score. To verify relations and effect between two variables, Spearman' rho correlation test was used. All p-values are considered statistically significant if inferior to 0.05.

In this study, I employed a range of statistical tests to analyze data and test the hypotheses. This statistical analysis was done using software IBM SPSS version 25.

Firstly, Chi-square test of independence was used to examine the differences between categorical variables. An independent two sample t-test was employed to compare means between two groups, enabling to investigate differences between continuous variables. Spearman's correlation was used to assess the strength and direction of relationships between quantitative variables. Furthermore, the Mann-Whitney U test was applied for non-normally distributed data to compare two independent groups. The statistical significance level would be set at $P < 0,05$ for these tests to determine statistical significance (van den Berg, 2023).

All tables, boxplots, graphs and histograms can be found in Annex C and D.

Chapter 5. Results: Descriptive Analysis

5.1 Demographics

A total of 315 participants responded the survey. Supporting the data from the Global State of Digital Report (2023) with a big percentage of the total population of Portugal using some type of social media (78.5%), this study revealed that out of 315 respondents from all different age groups, 310 have a social media profile or account, this corresponds to 98.4% of this study's initial population. Responses from these 5 individuals who did not have any social media account were discarded from studying the variables in question. This resulted on a sample of 310 respondents who use at least one social media platform.

Another aspect of elimination was not seeing news on social media, whether if by purposefully searching for it or finding it while using the platform for other purposes. The study demonstrated that 48 (around 15.5%) respondents do not see news on social media. Therefore, these 48 respondents were also only considered for descriptive analysis. 262 was the sample used for data analysis in the study. Out of these people, cases of weird response, or responses with contradictory meanings were eliminated, resulting in a final sample of 259 people for the present study.

As seen in table 2, when comparing the total sample of 315 respondents with the final sample of 259, it is very noticeable that most of the respondents that were eliminated for not having a social media account and for not seeing news on social media, had between 45 to 64 years old. This resulted in a bigger representation of people with 25 to 34 years old (34.7%).

	Total sample Age		Final sample Age	
	Frequency	Percent	**Frequency**	**Percent**
18 - 24	34	10.8	**32**	**12.4**
25 - 34	94	29.8	**90**	**34.7**
35 - 44	41	13.0	**29**	**11.2**
45 - 54	84	26.7	**63**	**24.3**
55 - 64	58	18.4	**41**	**15.8**
65 - 74	3	1.0	**3**	**1.2**
> 74	1	0.3	**1**	**0.4**
Total	315	100.0	**259**	**100.0**

Table 2: Initial sample vs final sample

5.2 Frequency of social media usage

When asked about the frequency of social media usage (using a 7 Likert-scale adapted from the Pew Research Center, 2019: frequency of internet usage), almost all participants (around 96.1%) use social media at least once a day, with the majority of the respondents using social media several times a day (66.8%) and 49 respondents (18.9%) using it almost constantly.

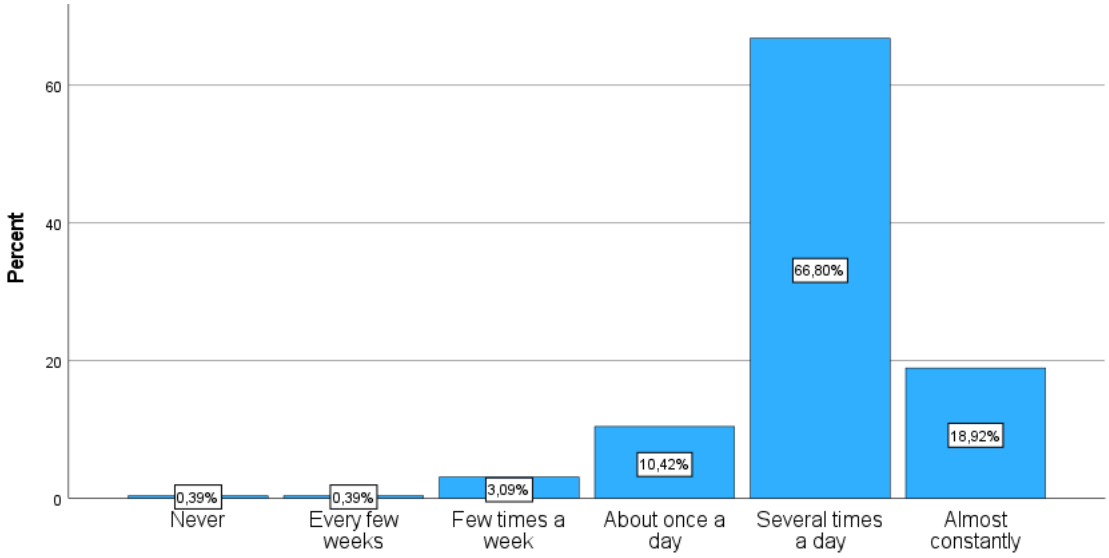


Figure 2: Frequency of social media usage

5.3 Source for News

Regarding the frequency of getting news from different sources, results showed that, like the data provided by the Reuters Digital News Report 2023 (Cardoso et al., 2023), Portuguese people continue to show high levels of trust in traditional forms of media like TV, radio, and newspapers, with 163 respondents using it often to get news. Surprisingly, an even bigger portion of people (178) responded that they consider social media a source for news. The reason for this could be the great representation of younger adults in this sample.

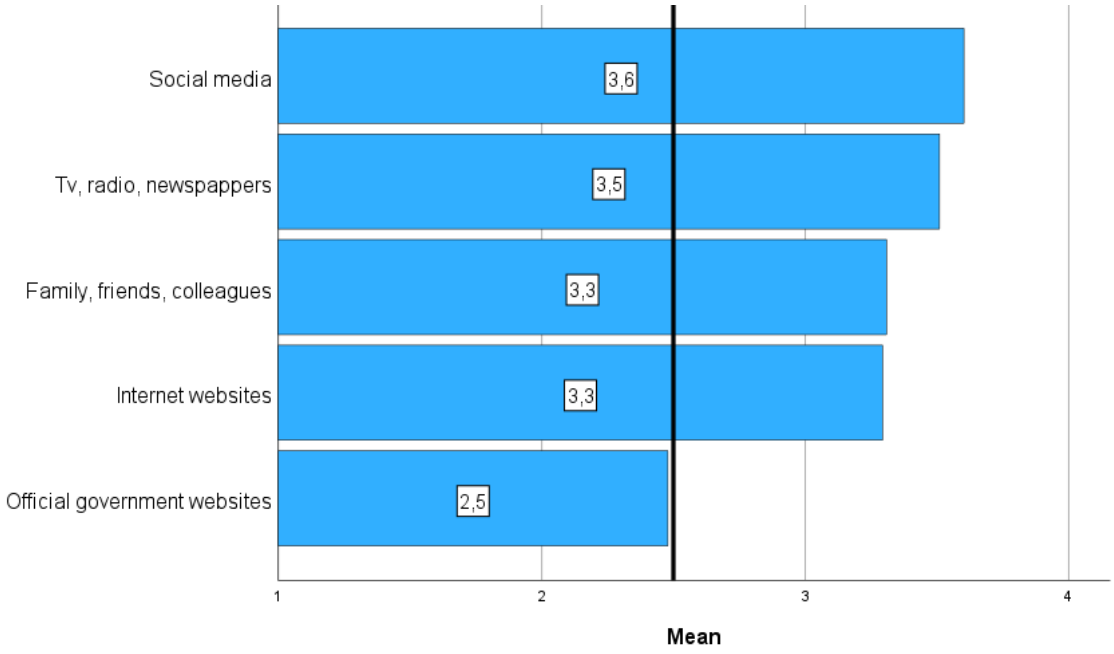


Figure 3: "How often do you watch/hear news from the following sources?"

To confirm this, Spearman's correlation test was used to correlate age with using traditional media for news consumption. Although results, as shown in fig X, clearly demonstrate that adults from 45 to 55 and older tend to look for news most frequently in traditional media like TV, radio and newspapers, and younger adults from 25 to 34 years old use both social media and traditional media for news consumption, with higher frequency of social media, the Chi-square test revealed that 9 cells (45%) had expected frequency of less than 5.

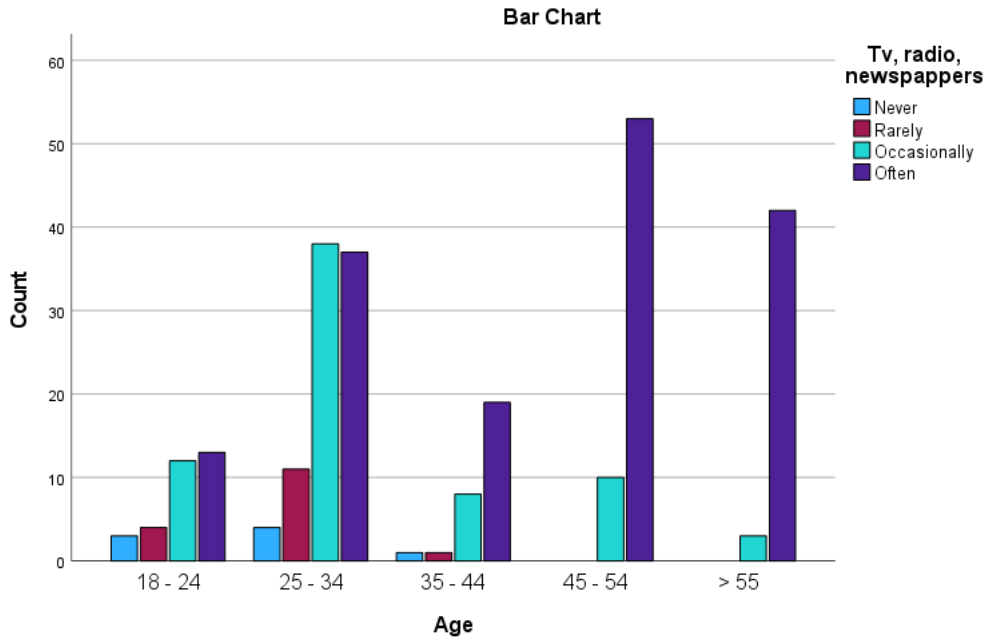


Figure 4: "How often do you watch/hear news from traditional media like TV, radio, or newspapers?"

As such, results required some adjustments, specifically combining categories. In this case, the frequency of using traditional media for news consumption that was previously divided into four scores: (1) Never, (2) Rarely, (3) Occasionally, (4) Often, was transformed in only two: (1) Never or rarely and (2) Occasionally or often. The age groups previously divided in 5 categories (18-24; 35-34; 35-44; 45-54; >55) were transformed in two groups: younger adults (18 to 34) and older adults (>34). This combination of age categories into two groups was used in all correlation tests considering age.

Spearman's correlation test was used once again to correlate the variables, and the chi-square test demonstrated a p-value less than 0,001, demonstrating that there is in fact a correlation between age and using traditional media for news consumption. Most older adults frequently use traditional media to see news (98.5%), while younger people also use traditional media frequently to look for news, but not as many (82%).

When correlating age with frequency of using social media as a news source, as demonstrated in table 3, although results look similar, it is possible to observe that

younger adults (18-34) tend to use social media for news consumption more frequently than older adults (> 34).

			Social media		
			Never or rarely	Occasionally or often	Total
Age	18 - 34	Count	6	116	122
		Expected Count	8,5	113,5	122,0
		% within Age	4,9%	**95,1%**	100,0%
		Adjusted Residual	-1,2	1,2	
	> 34	Count	12	125	137
		Expected Count	9,5	127,5	137,0
		% within Age	8,8%	**91,2%**	100,0%
		Adjusted Residual	1,2	-1,2	
Total		Count	18	241	259
		Expected Count	18,0	241,0	259,0
		% within Age	6,9%	93,1%	100,0%

Table 3: Age and Frequency of using Social Media for news consumption Crosstabulation

Considering the circumstances under which people find news on social media, 175 respondents, two-thirds of the sample (67.6%) come across news when they are scrolling or using social media for other purposes rather than because they are looking for it.

5.4 Trust in social media as news source

Trust in social media as a news source revealed that respondents' distrust social media more than they trust it. Table 4 illustrates that the majority of people are neutral (neither trust or distrust) (44.8%), while 31.7% distrust or highly distrust, and a lower percentage do trust or highly trust (23.5%). When correlating trust in social media as a news source with age and combining trust categories in three options to increase validity of the results: distrust, neutral and trust, it is possible to observe that more people within both age groups distrust social media as a news source. The difference between trust and distrust is highly noted in adults older than 34 years old, with 36.5% saying they do not trust, while only 19.7% say they trust.

	Trust in social media as a news source			
	Distrust	Neutral	Trust	Total

Age	18 - 34	Count	32	56	34	122
		Expected Count	38,6	54,6	28,7	122,0
		% within Age	**26,2%**	45,9%	**27,9%**	100,0%
		Adjusted Residual	-1,8	0,3	1,5	
	> 34	Count	50	60	27	137
		Expected Count	43,4	61,4	32,3	137,0
		% within Age	**36,5%**	43,8%	**19,7%**	100,0%
		Adjusted Residual	1,8	-0,3	-1,5	
Total		Count	82	116	61	259
		Expected Count	82,0	116,0	61,0	259,0
		% within Age	31,7%	44,8%	23,6%	100,0%

Table 4: Age and Trust in social media as a news source Crosstabulation

5.5 Social media as main news source

Most people use social media as their main news source only sometimes (33.6%), almost never (29.7%) or never (18.5%). Looking at it from a different perspective, we can also note that the majority (51.7%) uses social media as their main news source at least sometimes. When comparing extreme cases, we can observe that more people never use social media as their main news source (18.5%) when compared to those who used it always (3.9%).

When comparing these results between the two age groups, big differences are notable (see table 5). When looking at adults older than 34, it is evident that the percentage of people that almost never use social media as their main news source (38.7%) is considerably higher than those who use it almost always (8%). While in the case of people younger than 34, the percentage of people that almost never use social media as their main news source (19.7%) is lower than those who use it almost always (21.3%).

			Social media as main news source					
			Never	Almost never	Sometimes	Almost always	Always	Total
Age	18 - 34	Count	19	24	46	26	7	122
		Expected Count	22,6	36,3	41,0	17,4	4,7	122,0
		% within Age	15,6%	**19,7%**	37,7%	**21,3%**	5,7%	100,0%
		Adjusted Residual	-1,2	-3,3	1,3	3,0	1,5	
	> 34	Count	29	53	41	11	3	137
		Expected Count	25,4	40,7	46,0	19,6	5,3	137,0

	% within Age	21,2%	**38,7%**	29,9%	**8,0%**	2,2%	100,0%
	Adjusted Residual	1,2	3,3	-1,3	-3,0	-1,5	
Total	Count	48	77	87	37	10	259
	Expected Count	48,0	77,0	87,0	37,0	10,0	259,0
	% within Age	18,5%	29,7%	33,6%	14,3%	3,9%	100,0%

Table 5: Age and Social media as main news source Crosstabulation

5.6 Susceptibility to misinformation

Following the guidelines outlined in the MIST Implementation Guide (Maertens et al., 2022), the three scores of the verification done framework – (V) Veracity Discernment, (r) Real News Detection, and (f) Fake News Detection – were calculated to provide an individual's susceptibility to misinformation score.

When looking into the 'Veracity Discernment Ability' table (see table X), most respondents displayed the ability to distinguish between what was fake and what was real headlines, with only two headlines getting less than half of the answers correct. The headline "Covid-19 test using a swab was used to collect DNA from the population" was the most correctly identified headline (88%). While the headline "Lithuania changed the street name of the Russian Embassy to "Street of Ukrainian Heroes" was the least correctly identified one (39.8%).

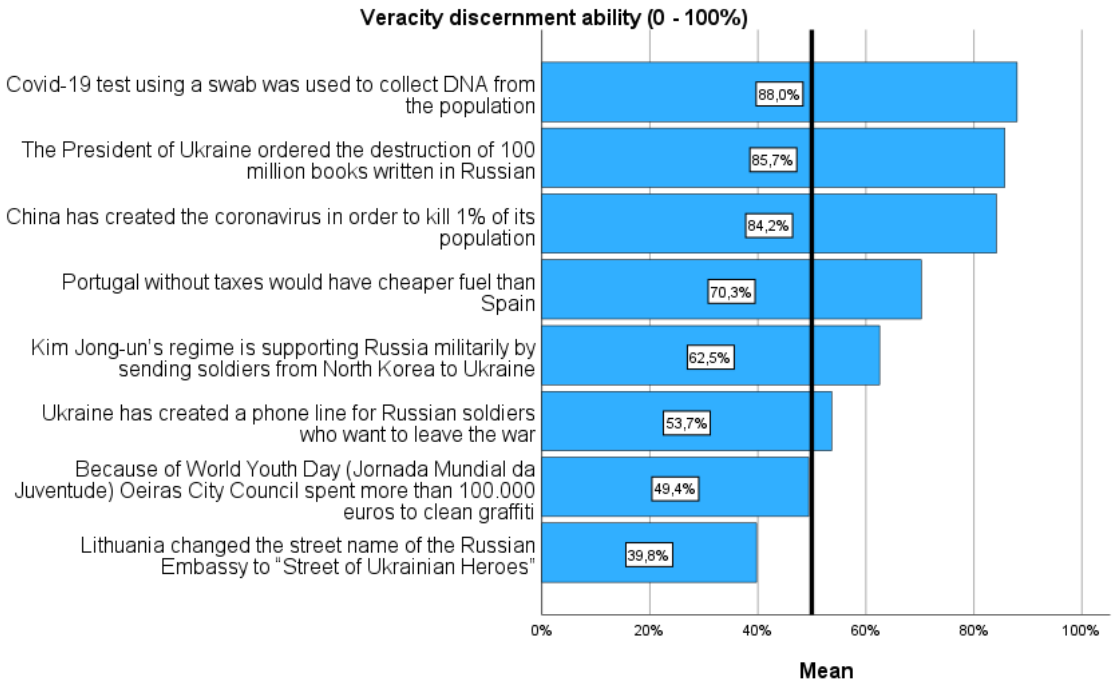


Figure 5: "Please indicate for each of the following news headlines whether you consider to be real or false"

Overall, it is possible to say that the surveyed population in this study possess an elevated level of veracity discernment ability (66.7%). Furthermore, respondents detected most accurately the headlines that were fake (80.1%) when compared to the headlines that were real (53.3%).

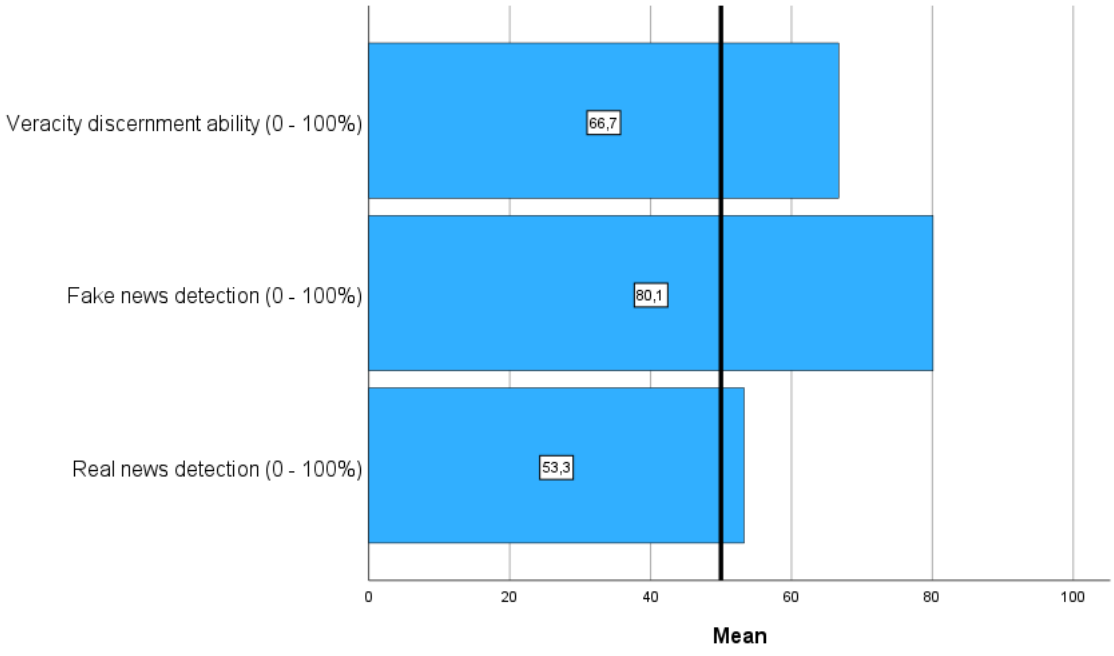


Figure 6: Average VDA, r and f news detection

To correlate veracity discernment ability with age, Mann-Whitney U test was the appropriate statistical method. Firstly, because the data was not normally distributed, exhibiting pronounced skewness. Secondly, the study compared two distinct groups – those aged 34 and below and those above 34 – making this test ideal for assessing potential differences between these groups. The test yielded a U statistic of 6615.500 ($p = 0.003$). The p-value, being less than the conventional significance level of 0.05 provided compelling evidence to reject the null hypothesis, indicating a statistically significant difference in veracity discernment ability between the two age groups. Specifically, those aged from 18 to 34 exhibited a higher median veracity discernment ability percentage compared to their older counterparts.

Considering gender, a T-test was the instrument chosen because of its ability to compare the means of two different groups – those identifying as male and those as female – and because the data followed an approximately normal distribution, being able to detect subtle differences. The T-test revealed a t-statistic of -2.8 and a p-value of 0.005, indicating a difference in veracity discernment ability between two genders. Specifically, males exhibited a higher mean veracity discernment ability percentage compared to females.

Factor	VDA (%) (Average ± DP)	P-value
18 - 34	75 ± 16.3	0.003
< 34	62,5 ± 16.4	
Female	64 ± 17.6	0.005
Male	70 ± 15	

Table 6: Age and Veracity Discernment Ability (VDA)

5.7 Media Literacy

The evaluation of media literacy self-assessment items was organized into the three distinct competencies that collectively comprise the skillset of a media literate individual. These competencies are understand/use, critically analyze, and communicate/discuss. These competencies were then combined together so they could calculate an individual's media literacy level, which was subsequently utilized for

correlation analyses with the remaining variables: age, gender, trust in social media as a news source, social media as a primary news source, and veracity discernment ability.

5.7.1 Understand/Use (4 items)

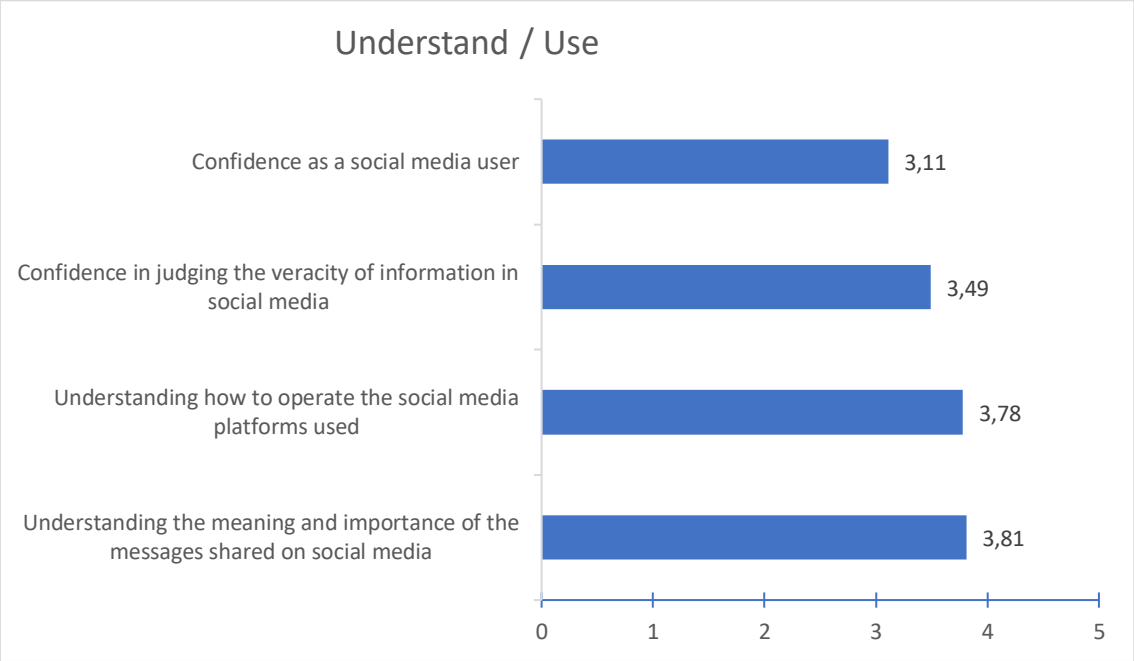
As observed in fig. X, when considering the response range from 1 to 5, with the midpoint at 3 (neutral), it is evident that all items within this group are positive. In other words, respondents generally express a level of confidence and/or agreement higher than 3, meaning they agree and are confident more than what they disagree or are not confident.

Understanding the meaning and importance of the messages shared on social media emerged as the most positively rated question, with an average score of 3.81. To this item, a significant proportion of respondents (66.0%) agree or strongly agree that they can understand the meaning and importance of the messages shared on social media, with agree (4) being the most predominant option (42.9%).

Understanding how to operate the social media platforms used was the second rated question (3.8%). Similarly, the majority of respondents (61.4%) expressed agreement or strong agreement with this statement, with 'agree' (4) being the most selected response (34.8%).

'Confidence in judging the veracity of information on social media' demonstrated an average of 3.49, with most people (51.4%) reporting feeling somewhat or very confident in their ability to assess the accuracy of information on social media. 'Somewhat confident' was the most selected response (35.9%), although a substantial proportion also remained neutral (33.6%).

The lowest-rated item (3.11) – 'confidence as a social media user' – showed a rather balanced distribution of confidence levels, with 44.8% of the respondents remaining neutral, neither confident nor not confident and a mere fraction expressed feeling 'very confident' (8.9%).



Label: Confidence level: 1. Not at all confident | 2. Not very confident | 3. Neutral | 4. Somewhat confident | 5. Very confident
Agreement level ("understanding" items): 1. Strongly disagree | 2. Disagree | 3. Neither agree or disagree | 4. Agree | 5. Strongly agree

Figure 7: Average response to the items of the understand/use self-assessment media literacy scale

5.7.2 (CA) Critically Analyze (9 items)

When asked about whether they check other media platforms to confirm the content they see or read on social media, a substantial majority answered positively, that they do it at least sometimes (85.0%). Additionally, another significant portion reported doing so almost always (39%), while 22% indicated doing it always.

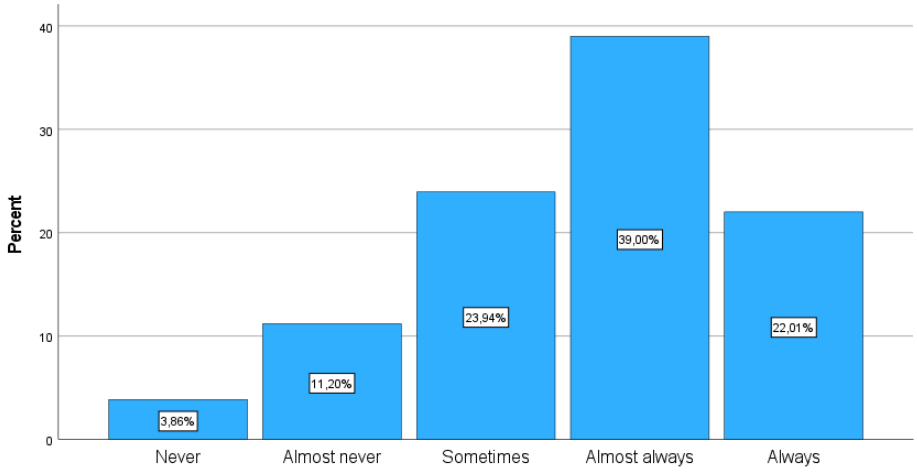


Figure 8: "Checking other media platforms to confirm the content seen on social media"

However, when posed a similar question "I check if the same information appears elsewhere", the affirmative responses dropped noticeably, with only 53% of respondents answering yes.

Furthermore, regarding other responses to what respondents do when they see or read a news story or article that appears in their news feed or a link to an article that was sent to them, 60% expressed a tendency to assess the professionalism of the article. As hoped, only 7% confessed to not usually verifying the information within the article to confirm its veracity, which aligns with the previous findings that 3.9% never check other media platforms to corroborate the content, and 11.2% almost never do so.

Surprisingly, a majority of respondents indicated that they do not consider the trustworthiness of the person sharing the content (59%), neither do they check the comments or what people say about the article (61%).

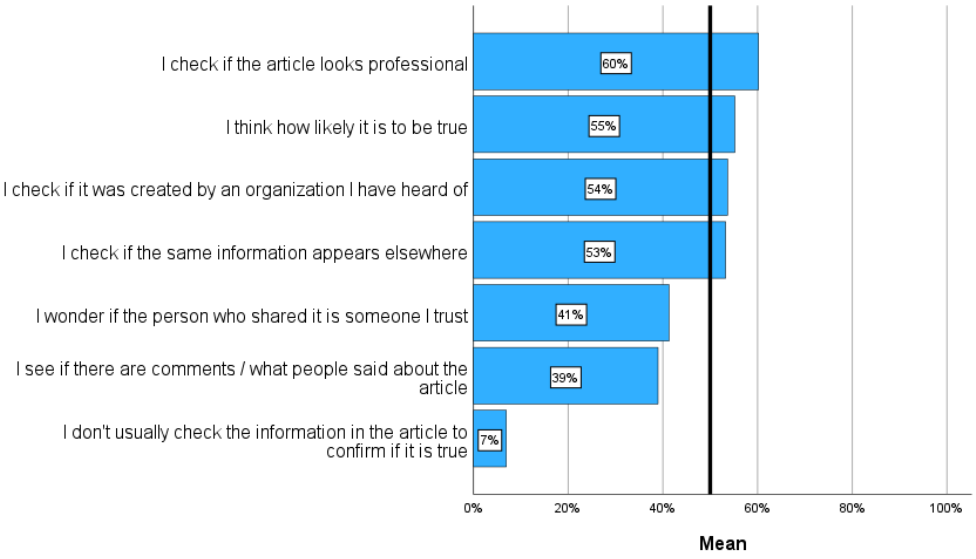


Figure 9: "When you see or read a news story or article that appears in your news feed, or a link to an article that has been sent to you, do you do any of the following?"

The item regarding the acceptance of terms and conditions without reading them may have caused some confusion among the respondents. The interpretation was not straightforward as the numbering system for this item was reversed compared to all the

other items. In this case, a rating of 1 indicated “strongly agree”, while a rating of 5 meant “strongly disagree”. This change was made because accepting terms and conditions without reading them is generally considered a negative action.

Due to this alteration, the validity of the results might be somewhat compromised. However, it is worth nothing that the average response was negative, with an average rating of 2.92, implying that most people indeed accept terms and conditions without reading them. Furthermore, the most frequently selected response option was “strongly agree” (5), chosen by 23.6% of the respondents.

The final item assessed respondents’ familiarity with the term “fact-checking”. The findings were encouraging, with a majority of respondents (52.5%) being familiar with the term. However, it is noteworthy that a substantial portion of respondents (47.5%) said they did not recognize the term. This highlights the pressing need for media literacy initiatives to bridge this knowledge gap.

Among those who were familiar with the term, as anticipated, the most well-known fact-checking websites were Portuguese – Polígrafo and Observador Fact Check. More than half of the respondents (61.3%) knew about Polígrafo and 27.9% were familiar with Observador Fact Check.

5.7.3 Communicate / Discuss (1 item)

The last item to assess respondents’ media literacy levels aimed to explore respondents’ motivations for sharing news encountered on social media. Responses revealed that 14.3% indicated that they share news simply because they find it interesting, 15.0% when they believe it to be true, a substantial 26.6% when they are sure about its accuracy and the bigger portion of respondents indicated that they refrain from sharing news they see or read on social media.

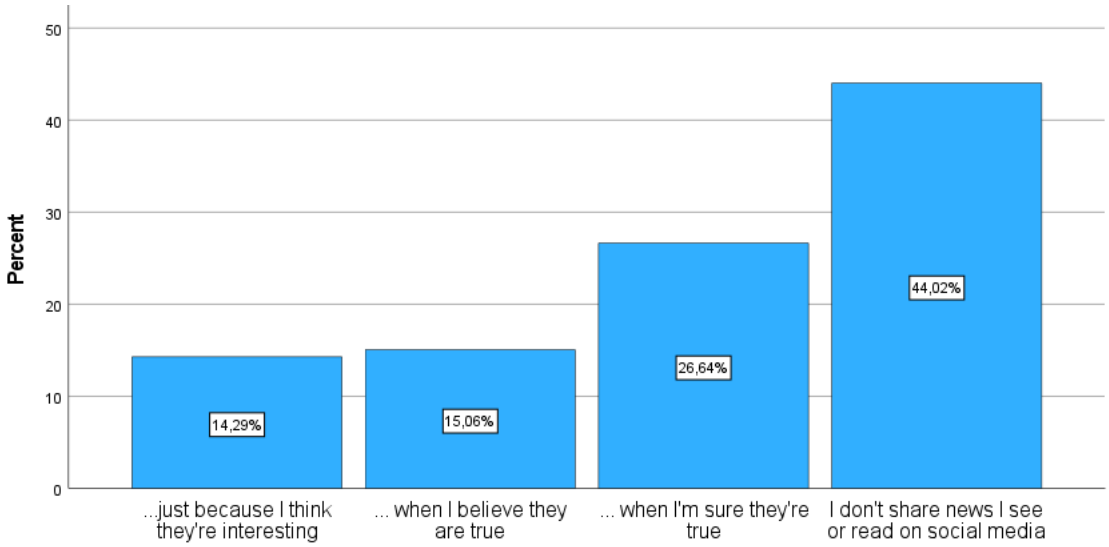


Figure 10: "I share news I see or read on social media…"

5.7.4 Media Literacy level

As mentioned above, the assessment of media literacy levels was conducted by aggregating scores across all media literacy items. The histogram (X) illustrates the distribution of media literacy levels within the surveyed population, represented on a scale from 0% to 100%. The histogram appears to display a relatively symmetrical distribution, suggesting that media literacy levels are somewhat normally distributed in the surveyed population. This is corroborated by a skewness close to zero (-0.029), indicating a fairly symmetrical distribution.

With both mean and median converging around 59-60%, it appears that the majority of respondents possess media literacy levels at a moderately high level. There is one outlier present who reported an unusually low media literacy level of 20.59%. This outlier, being significantly below the central tendency, might have a notable impact on the overall interpretation of the data.

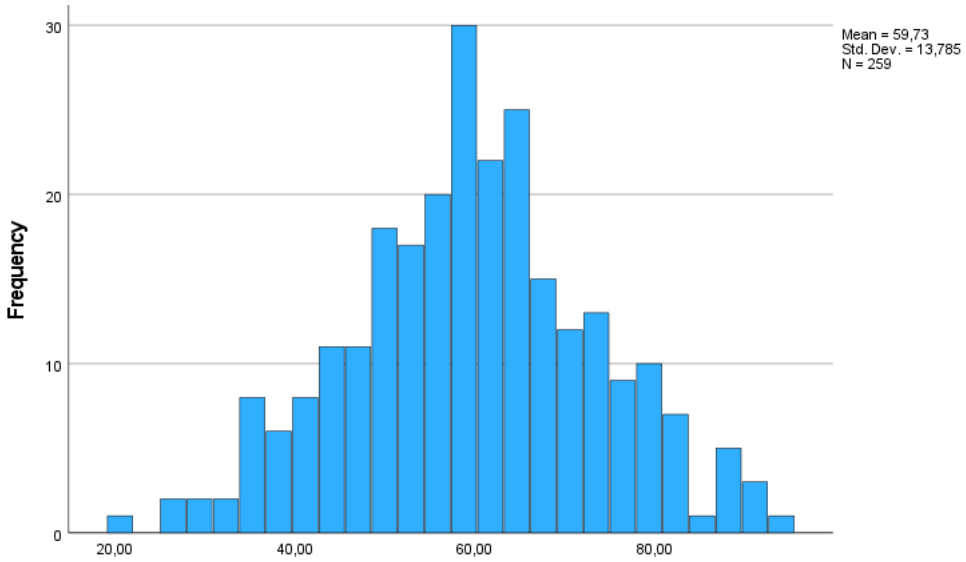


Figure 11: Media Literacy level (0-100%) Histogram

5.7.5 Media literacy level * Age

When examining the relationship between media literacy and age, it is notable that younger adults, aged between 18 and 34 years, exhibit a substantially higher average media literacy level of 66.1% in comparison with adults older than 34 years (54.0%). Another aspect worth mentioning in the boxplot analysis (see Annex D) is that we can identify that the outlier with a significant low level of media literacy is an individual more than 34 years old.

5.7.6 Media literacy level * Gender

When exploring the correlation between media literacy levels and gender, it becomes evident that both genders exhibit a very similar average level. A very slightly higher media literacy level for males (59.8%) compared with the average for females (59.7%). Additionally, looking at the boxplot analysis (see Annex D), we can note that the outlier with a significant low level of media literacy is to a male individual aged 34 or older. Overall, gender does not appear to be a strong determinant of media literacy in this context.

5.7.7 Media literacy level (%) * trust in social media as news source (H1)

Using Spearman's rho to test Hypothesis 1, results show that media literacy indeed influences the trust in social media as news source. The p-value (<0.001) confirms that this relationship is statistically significant and not simply the result of random variation. However, the strength of this relationship is considered relatively weak to moderate because the correlation coefficient is 0.227. Nevertheless, these findings supported the first hypothesis, that imply that individuals with higher media literacy levels are more likely to trust social media as a source of news, while those with lower media literacy levels may exhibit lower trust in social media for news consumption.

			Trust in social media as a news source	Media literacy level (0 - 100%)
Spearman's rho	Trust in social media as a news source	Correlation Coefficient	1,000	**0,227****
		Sig. (2-tailed)	.	**<0,001**
		N	259	259
	Media literacy level (0 - 100%)	Correlation Coefficient	0,227**	1,000
		Sig. (2-tailed)	<0,001	.
		N	259	259

**. Correlation is significant at the 0.01 level (2-tailed).

Table 7: Media Literacy level and Trust in social media as news source Correlation

5.7.8 Media literacy level (%) * social media as main source of news (H2)

Using Spearman's rho to test hypothesis 2, analysis reveals that media literacy also influences the choice of social media as the primary source for news consumption. This influence is underscored by the p-value (<0.001), affirming that this association is not a random occurrence. However, similar to the relationship with trust in social media as news source, the strength of this relationship is also weak to moderate, as indicated by a correlation coefficient of 0.267. Consequently, these findings support the second hypothesis suggesting that individuals with higher media literacy levels are more likely to use social media as main source of news, while those with lower media literacy levels may not use social media for main news source.

			Media literacy level (0 - 100%)	Social media as main news source
Spearman's rho	Media literacy level (0 - 100%)	Correlation Coefficient	1,000	**0,267****
		Sig. (2-tailed)	.	**<0,001**
		N	259	259
	Social media as main news source	Correlation Coefficient	0,267**	1,000
		Sig. (2-tailed)	<0,001	.
		N	259	259

**. Correlation is significant at the 0.01 level (2-tailed).

Table 8: Media Literacy level and Social media as main news source Correlation

5.7.9 Media literacy level (%) * Veracity Discernment Ability (H3)

As noted in the table below, Spearman's rho correlation test was once again used to test hypothesis 3 and therefore correlate media literacy with veracity discernment ability (VDA), fake news detection ability (f) and real news detection ability (r).

While the primary purpose of this correlation was to assess the impact of media literacy on veracity discernment ability, it is worth acknowledging other interesting findings. As anticipated, these findings reveal a robust correlation between veracity discernment ability and the capacity to identify real news, with a high correlation coefficient of 0.763. These results imply that individuals with high levels of veracity discernment ability tend to excel in identifying authentic news headlines. Additionally, it also shows a moderately strong correlation coefficient of 0.472 between veracity discernment ability and the ability to recognize fake news.

The principal aim of this correlation analysis was then to test hypothesis 3 and ascertain whether there is a relationship between veracity discernment ability and media literacy. The results indeed confirm the presence of a correlation, although very weak. When examining the correlation between media literacy and veracity discernment ability, the correlation coefficient of 0.247 substantiates the weak nature of this association. Furthermore, media literacy exhibits some influence on the capacity to identify real news, although once more with a relatively low correlation coefficient of 0.262. Lastly, when seeking to establish a correlation between media literacy and the ability to detect fake news headlines, the correlation coefficient registers at an exceptionally low 0.041.

Notwithstanding, the results show that hypothesis 3 was supported: higher levels of media literacy are associated with a greater ability to discern real from fake news.

			Veracity discernment ability (0 - 100%)	Real news detection (0 - 100%)	Fake news detection (0 - 100%)	Media literacy level (0 - 100%)
Spearman's rho	Veracity discernment ability (0 - 100%)	Correlation Coefficient	1,000	**0,763****	0,472**	0,247**
		Sig. (2-tailed)	.	<0,001	<0,001	<0,001
		N	259	259	259	259
	Real news detection (0 - 100%)	Correlation Coefficient	0,763**	1,000	-0,170**	0,262**
		Sig. (2-tailed)	<0,001	.	0,006	<0,001
		N	259	259	259	259
	Fake news detection (0 - 100%)	Correlation Coefficient	0,472**	-0,170**	1,000	0,041
		Sig. (2-tailed)	<0,001	0,006	.	0,507
		N	259	259	259	259
	Media literacy level (0 - 100%)	Correlation Coefficient	**0,247****	**0,262****	0,041	1,000
		Sig. (2-tailed)	<0,001	<0,001	0,507	.
		N	259	259	259	259

**. Correlation is significant at the 0.01 level (2-tailed).

Table 9: Media Literacy level and VDA Correlation

5.1 Discussion

This section aims to critically review and highlight the most relevant findings from the study, and therefore attempt to answer the research questions. Furthermore, this reflection will also attempt to contextualize results obtained with the theoretical framework.

This study builds on previous research by offering many contributions. Extant literature on the assessment of media literacy, although growing, remains scarce. Furthermore, it has been centered around the study of student populations and for educational purposes (Roozenbeek et al., 2023). This study provides insights of differences between younger and older populations. This research focused on correlating media literacy with a variety of other variables such as gender and age, as well as using

and trusting in social media as news source and the veracity discernment ability as implemented by the literature (Maertens et al., 2022) to assess susceptibility to misinformation.

Firstly, results show the increasing frequency of using social media daily among all populations, no matter the age or gender. According to Silva et al. (2017), while traditional media continues to play a significant role in Portuguese news consumption, social media are becoming increasingly influential. The results of this study precisely demonstrate this. 163 respondents reported using traditional forms of media like TV, radio and newspapers often to get their news. As literature suggests (Silva et al., 2017), social media is also frequently used as a source for news consumption by 178 respondents. To investigate if the findings tended so positively towards social media because of the great proportion of the respondents being younger adults, who tend to be the ones regularly consuming news on social media (Robb, 2017), I correlated these results with age. This correlation demonstrated that in fact the ones consuming news from traditional media most frequently were the adults from 45 to 55. Similar to what (Vraga et al., 2015) described, young people nowadays get their news from an increasingly diverse set of sources, which includes both traditional and emerging news outlets. Results from this study show that younger adults from 25 to 34 use both social media and traditional media for news consumption, with social media being the most used one. Additionally, findings also show that adults older than 34 use very frequently social media for news consumption.

As suggested by Fletcher and Nielsen (2018), not everyone is searching for news directly on social media, users can also be incidentally exposed to them. The fact that in this study most people (67.6%) encounter news on social media not because they are searching for it, but rather because they are using the platforms for other purposes, underscores the significant effectiveness of algorithms and targeted content strategies in shaping the information on social media. Although users may follow specific news sources or entities on social media, other pieces of news may appear while scrolling their news feed through advertisements, shares by followers, and algorithmic decisions. This becomes even more problematic because users who are using a certain platform for a more relaxed and entertaining purpose, lack the motivation to understand the original source (Kim & Dennis, 2018). It emphasizes the need for media literacy education and the importance of fact-checking organizations to ensure that users receive credible

information, rather than being exposed to misleading content. Besides, it shows how important is to encourage social media users to engage in evaluations of the credibility of the information they encounter before acting or making an important decision according to what they have been told (Barua et al., 2020).

As reported by the Reuters Digital News Report 2023 (Cardoso et al., 2023), Portuguese people continue to demonstrate high levels of trust in traditional forms of media like TV, radio, and newspapers. Respondents remain skeptical about the trustworthiness of social media, despite frequently using it as a source for news. In line with prior research (Paisana et al. 2020; Vraga & Tully, 2021), this study revealed that respondents distrust more than trust social media as news source, with a substantial portion leaning towards distrust (31.7%) and most being neutral (44.8%), neither trusting nor distrusting. When considering age, this distrust in social media as a news source becomes even more evident with adults older than 34, with 36.5% saying they do not trust, while only 19.7% say they trust.

Similarly, when looking at the use of social media as main news source, the study reveals a rather balanced distribution with most agreeing with the statement that they never use social media for this purpose. Age emerges once again with some significant differences, with the majority of older adults more inclined to almost never or never use social media as their main news source (59.9%) when compared to the younger ones (35.3%).

The study developed by Maertens et al. (2022), a psychometrically validated measure designed to evaluate individuals' aptitude to distinguish between real and fake news headlines, was a great instrument for the current study. Individuals' ability to detect headline accuracy has been used in other studies (e.g. Roozenbeek et al., 2022; Pennycook et al., 2020). In my investigation, I have encountered challenges in finding assessment tools to measure susceptibility to misinformation, since asking for respondents' attitudes directly or their self-reported exposure to misinformation would rely on people's ability to correctly identify information that was created to mislead, although unintentionally (Barua et al., 2020). The findings revealed that the surveyed population has a high level of veracity discernment ability, with fake news being easier to detect than real news.

Additionally, and in line with the literature (Van Der Linden, 2022; Pan et al., 2021; Scheufele & Krause, 2019) age was found to be an influential variable in susceptibility to misinformation, with older people demonstrating a lower ability to discern the veracity of news headlines than their younger counterparts. These findings underscore the encouraging level of veracity discernment ability within the study's participants. The capacity to differentiate between genuine and fabricated news has proven to be a critical skill in the fight against misinformation (Roozenbeek & van der Linden, 2019; Maertens et al., 2022).

Research on media literacy has generally agreed on the main skills a literate individual needs to possess. These skills include the ability to assess, analyze, evaluate and communicate media effectively. Self-assessment scales for measuring media literacy asks participants to rate their own media literacy skills and knowledge (Schilder & Redmond, 2019). The instrument developed for this study was based on the framework used by many scholars (Primack et al., 2016; Chang et al., 2011; Eristi & Erdem, 2017), comprising items for respondents to self-assess their confidence and behavior as media users. The findings reveal a generally positive outlook among respondents, with nearly 60 percent of respondents possessing moderately high media literacy level. While they exhibit a certain degree of confidence as a social media user, in judging the veracity of information, in understanding message content and in operating social media platforms used, there remains notable room for improvement. Individuals who are confident in judging the veracity of news content are less likely to be susceptible to misinformation (Roozenbeek et al., 2022). According to Paisana et al. (2020), people with higher levels of literacy tend to look for further information to check if a link or story is credible. Results showed that although many people usually confirm the content they see or read on social media, a big portion indulges in few practices. Checking if the article looks professional was the most common action done by respondents. Although the general level of the surveyed population demonstrates a rather positive level of media literacy, the presence of an outlier, indicating an individual with exceptionally low media literacy levels, raises concerns. This outlier may signify a subgroup within the population that requires targeted media literacy interventions. Thus, media literacy initiatives should consider tailoring their efforts to address the needs of individuals with lower media literacy levels, even within a population that, on average, exhibits moderate to high levels of media literacy.

Because knowledge of media institutions has been considered an important factor in the development of media literacy competencies (Potter, 2010), results have shown that although the majority of the respondents are aware of fact-checking entities, especially the Portuguese ones, a considerable portions remains unaware of what the term means. Furthermore, these results add to previous research (Cardoso et al., 2023) on news sharing on social media by assessing individuals' motivations. While a big percentage of respondents are cautious and selective ensuring they only share verified information, a notable fraction shares news based on personal interests rather than factual accuracy.

One of the main purposes of this study was to assess media literacy level differences between age groups, as Roozenbeek et al. (2023) mention, the extant literature on media literacy is mainly confined to student populations and educational purposes (e.g. Chang et al., 2011; Hobbs, 2017; Ashley et al., 2013). The results revealed that younger adults tend to be more media literate than older adults. Furthermore, this result shows some differences with previous research (Chang, 2008) that examined gender differences. In this case, gender does not appear to be a strong determinant of media literacy.

Based on the literature review (Schulz et al., 2022), it was hypothesized that media literacy levels would affect individuals' trust in social media as news source. This study revealed that there is in fact a relationship, albeit very weak, with a correlation coefficient of 0.227. The first hypothesis was therefore supported, meaning that individuals with higher levels of media literacy are more likely to trust social media as a news source. Similarly, this study hypothesized that higher levels of media literacy would be associated with use of social media as main news source. Again, the second hypothesis was supported: Adults with higher levels of media literacy are more likely to use social media as their main news source.

This study correlated not only media literacy with using social media as a news source but went beyond to make a connection with susceptibility to misinformation. The literature illustrated that media literacy is indeed related with susceptibility to misinformation (Pearson, 2021; Sheufele & Krause, 2019; Jones-Jang et al., 2021), and that a media literate individual is better at distinguishing between real and deliberately crafted news (Potter, 2008 as cited in Eristi & Erdem, 2017).

Firstly, and not surprisingly, the study revealed a high correlation between veracity discernment ability and the capacity to correctly identify real news. Furthermore, it also demonstrated a moderate relationship with the ability to identify false news. This suggests that those who have good levels in discerning true headlines from false, are also more likely to recognize misinformation and therefore supports the validity of results obtained by using the MIST (Maertens et al., 2022). The real purpose of this analysis was to test Hypothesis 3 that posited that individuals with higher levels of media literacy would be better able to detect the veracity of news, and therefore be less susceptible to misinformation. Results demonstrated that although the hypothesis was supported, the degree of correlation was very weak. The same was noted when correlating media literacy levels with the capacity to identify real news and even weaker to almost zero relationship with identifying fake news.

In summary, these findings reveal that while a correlation does exist between media literacy and veracity discernment ability, it is weak. This suggests that media literacy alone may not be a robust predictor of an individual's ability to distinguish between real and fake news. Instead, the results emphasize the multifaceted nature of media literacy and underscore the need for comprehensive media literacy programs that encompass a wide array of competencies beyond media literacy alone.

Chapter 6. Conclusion

This research aimed to look at the Portuguese paradigm and analyze if and how media literacy effects the use and trust of social media as news source and on people's susceptibility to misinformation. Based on the literature review and the quantitative cross-sectional survey employed for this study, several noteworthy and interesting insights can be highlighted.

First and foremost, it is evident that social media has become an integral part of almost every surveyed participant. Results also corroborate with the existing literature (Cardoso et al., 2023), indicating Portuguese people continue using traditional media, but also use social media for news consumption. As this study had a good participation of people from most age groups, it can be concluded that the use of social media for news consumption is not a practice only among younger populations, as almost all participants older than 34 years old admitted also using social media to look for news. However, a substantial portion of the respondents does not fully trust news on social media. This distrust is mostly pronounced among adults older than 34. Regarding the use of social media as main news source, the study reveals a balanced distribution, with a significant portion choosing never to use social media for this purpose. Age emerges once again as a significant influential factor, with older adults more inclined to avoid social media as their primary news source. This underscores the need for media literacy initiatives to encompass a wider age range, especially older people, as the strategies and challenges faced by these people may differ significantly from those of younger populations.

Furthermore, the study aligns with existing literature by highlighting the prevalence of incidental exposure to news on social media Fletcher and Nielsen (2018). In fact, most people in this study encounter news on social media when they are using the platform for other purposes. This emphasizes what Pearson (2021) highlighted - the need for media literacy efforts to be integrated by the social media platforms itself, rather than being so focused on addressing user's actions. The design and structure of the platform should include media literacy initiatives among all their tactics in the fight against misinformation (Pearson, 2021).

The assessment of veracity discernment ability demonstrates that respondents generally exhibit good levels of discernment, with a better ability to detect fake news.

Age again emerges as an important variable, with older individuals exhibiting lower ability to discern news headlines on social media. Once again reinforcing the need for targeted interventions to increase older individuals' media literacy skills.

An encouraging aspect of this study was the generally high levels of media literacy observed among the respondents. Many individuals reported usually trying to confirm the content they see on social media, with the most common practice being the assessment of whether an article appeared professional, but a big portion also indulges in very few practices. When assessing media literacy levels among the two age groups (adults younger and older than 34) the results revealed what was expected: younger people being more media literate than their older counterparts. This once again calls for the importance to extend the study of media literacy to older populations.

In conclusion, and addressing the main purpose of this thesis, the study corroborated literature and therefore supported all the three hypotheses, assessing that media literacy does in fact affect the other three variables analyzed in this study (trust in social media as news source, use of social media as main news source, and susceptibility to misinformation), but the relationship with the latter is rather weak. Once again suggesting that media literacy alone may not be a robust predictor of an individual's ability to distinguish between real and fake news. Notwithstanding, high levels of media literacy are indeed associated with increased trust in social media as news source, greater likelihood of using social media as main news source and greater ability to distinguish false from real news.

In sum, this study has contributed valuable insights into the complex world of media literacy and misinformation on social media. It underscores the necessity for a multifaceted approach, involving not only media literacy among individuals but also platform design improvements to help effectively navigate the complex landscape of social media and misinformation. Furthermore, social media and the possibility of being exposed to misinformation has proven to be not solely confined to younger generations. As such, the importance of continued research and educational efforts to promote media literacy across diverge age groups, especially older individuals, would contribute to combat the evident discrepancies between age groups' media literacy and the ability to discern false from real news.

6.1 Ethical Considerations

An introductory paragraph to explain the purpose of the study was included at the beginning of the survey and, in the end, participants were thanked for participation. The beginning also informed participants about anonymity, voluntary participation and asked participants not to look for the answers online, to obtain the most honest responses possible, thus increasing the validity of the results. No incentives were offered for survey completion.

6.2 Limitations

Despite the positive results, as with all empirical studies, some limitations and recommendations merit discussion. Clearly, data was collected online and, when using the internet for research, it relies on "WEIRDos", meaning most of the respondents would be white, have a certain degree of education, class/stratification, and resources (Nielsen & CommerceNet, 1995). This obviously makes it impossible to generalize the research findings to the general Portuguese population.

Another constraint of the present study is the possibility of participants giving socially desirable responses. There is the possibility that participants may have answered based on what they perceived to be expected of them. Besides, the possibility of people looking for the answers online is also high, which can limit the veracity and reliability of the responses.

This questionnaire used a self-assessment approach, posing the risk of misreporting by respondents as well as the risk of misinterpretation of concepts (Hargittai, 2005 as cited in Simons, 2017). Literature suggests to possibly combine self-assessment measurement with performance measurement (Simons et al., 2017). Additionally, literature on the measurement of media literacy is very incomplete, as it only speaks about results and outcomes and does not provide clear guidelines on how to assess it.

Although the MIST and the Verification Done framework represent a significant methodological advance in misinformation research, there are some inherent limitations. As with all systematic and methodological news headline research, what is considered accurate news today could become outdated or irrelevant later on. Conversely, although less common, information once considered false news could potentially be regarded as accurate or more credible in the future (Maertens et al., 2023). Furthermore, although the

MIST-8 used in this study was based on Maertens et al.'s (2023) framework, their research additionally included a method to calculate response biases – distrust and naïveté – which was not used in this study and therefore means the results cannot be verified in the same way.

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Annexes

Annex A: Full Survey Instrument

Section 1 **Demographics**	What is your gender?	Male / Female / Other
	Please specify your age group	18 – 24 25 – 34 35 – 44 45 – 54 55 – 64 65 – 74 > 74
	Do you have any social media profile or account on platforms like Fakebook, X (previous Twitter), Instagram, WhatsApp, YouTube, Snapchat, or others?	Yes/No (eliminatory question if "no")
Section 2 **Media Use / Social media Use**	Frequency of social media usage (adapted from the Pew Research Center, 2019 – frequency of internet usage)	Almost constantly Several times a day About once a day Few times a week Every few weeks Almost never Never
	How often do you get news from the following sources?	1) News, Media (TV, Radio, newspapers) (2) Social media (Facebook, Twitter, Whatsapp, YouTube, Instagram, Snapchat…) (3) Official government websites (SNS, WHO…) (4) Family member, colleague or friend (5) Internet websites

	Do you see or come across news on social media platforms like Instagram, WhatsApp, X, YouTube, TikTok, or others?	Yes/No (eliminatory question if "no")
Section 3 For those who see news on social media…	Which statement best describes you?	1) I mostly come across news on social media because I'm looking for it (2) I mostly come across news on social media when I'm scrolling or using the platform for other purposes
	Do you trust social media as a news source?	Rate from 1= highly distrust to 5= highly trust
	Is social media your main news source?	Rate from 1= Never to 5= Always

Section 4

<u>Media Literacy Items</u>

Understand/use (U); Critically Analyze (CA); Communicate/discuss (CD)

(U1) Overall, how confident are you as a social media user? Please select one option

Very confident 1

Fairly confident.....2

Neither confident nor not confident 3

Not very confident 4

Not at all confident 5

(U2) I understand how to operate the social media platforms I use.

Please rate from 1=strongly disagree to 5=strongly agree)

(U3) I can understand the meaning and importance of the messages shared on social media

Please rate from 1=strongly disagree to 5=strongly agree

(U4) When you see or read things online, how confident are you in judging its veracity?

Rate from 1= not at all confident to 5= very confident

(CA1) When you read or see a news story or article on social media sites do you check other media platforms to store/back up the content?

Rate from 1= Never to 5= Often

(CA2) When you see or read a news story or article that appears in your news feed, or a link to an article that is shared with you or sent to you, do you do any of the following? (multiple answer – randomized)

Check if it was by an organization I had heard of.....1
Look at how professional the article looks, e.g. are there spelling mistakes, do the images or videos look high quality.....2
Think about how likely it is to be true.....3
Check to see if the same information in the article appears anywhere else.....4
Think about whether the person who shared it was someone I trusted 5
Look at the comments/ what people have said about the article.....6
Check to see if it is by someone who was there when it happened/ saw it for themselves.....7
I wouldn't tend to check the information in the article to see if it was true..... 8

(CA3) When I visit websites or apps, I usually accept the terms & conditions without reading them.

Rate from 1= Strongly agree to 5= Strongly disagree

(CA4) Are you familiar with the term fact-checking?

(YES/NO)

(CA4.1) IF YES. Do you know any of the following fact-checking sites?

(1) FactCheck.org
(2) PolitiFact
(3) Polígrafo
(4) Poynter Institute
(5) Observador Fact Check
(6) Don't know any

(CD1) I discuss with someone the news I see on social media
Rate from 1= Never to 5= Always

(CD2) I share news articles I see and read on social media … (Please select which one better applies to you)

(1) …when I believe their true
(2) …when I'm absolutely sure they are factual
(3) …just because I think they're interesting
(4) I don't share news articles I see or read on social media

Section 5

Veracity Discernement Ability (see Maertens et al., 2023) –

Phase 1: 20 news headlines that appeared on social media about actual news – 10 fake (F), 10 real (T) (in bold, the ones who made it to the survey – MIST 8)

(T) Electric cars exist since 1884 but disappeared with the introduction of gasoline in the 1920s

(T) Portugal stands out as the 4th EU country with the highest percentage of young people living with their parents

(T) Portugal without taxes would have cheaper fuel than Spain

(T) Ukraine has created a phone line for Russian soldiers who want to leave the war

(T) Lithuania changed street name of Russian Embassy to "Street of Ukrainian Heroes"

(T) Moscow State students sign manifesto against the war in Ukraine

(T) Because of the World Youth Day (Jornada Mundial da Juventude) Oeiras City council spent more than 100.000 euros to clean a graffiti

(T) In three years, Portugal fel from 3rd to 7th place in the ranking of the safest countries in the world

(T) José Sócrates is receiving a lifetime pension of almost 3000 euros per month

(T) GNR traffic agents will receive a commission for each fine

(F) Worker with a master's degree would need to enter university at the age of 16 to enjoy the five years of the "IRS Jovem"

(F) Covid-19 test using a swab is used to collect DNA from the population

(F) Kim Jong-un's regime is supporting Russia militarily by sending soldiers from North Korea to Ukraine

(F) The President of Ukraine ordered the destruction of 100 million books written in russian

(F) Launch of a rocket in Russia goes wrong and ends up crashing in the same place, causing the death of 295 people of Russian nationality, a few days before the invasion of Ukraine

(F) Moscow power station hit by Ukrainian missiles in surprise attack, leaving millions of residents without access to electricity

(F) Carrot juice prevents myopia and astigmatism

(F) China has created the coronavirus in order to kill 1% of its population

(F) Lady Gaga kisses an unknown lady who insults her for her sexual orientation

Annex B: Online Survey Introduction

'Dear participant,

My name is Sara Marques (sarabamarques@gmail.com) and I developed this questionnaire as a student of Master's in Communication Sciences, Marketing and Advertising at Universidade Católica Portuguesa.

This study aims to explore the effect of media literacy on people's reliance on social media as a news source and susceptibility to misinformation.

You must be at least 18 years old to answer this questionnaire. Your responses are completely anonymous and any collected data will only be used for academic purposes. To get the most valid results possible, please answer honestly and do not look for answers online.

You can cancel your participation at any time. Estimated response time – 5 minutes.

Thank you very much for your participation!'

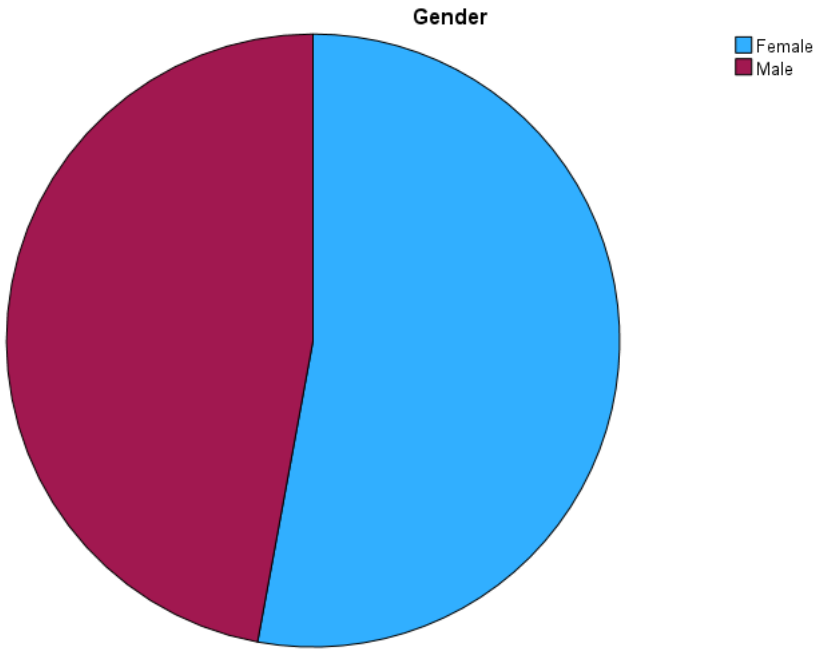
Annex C: Univariate Analysis SPSS

Participant's Age

Age

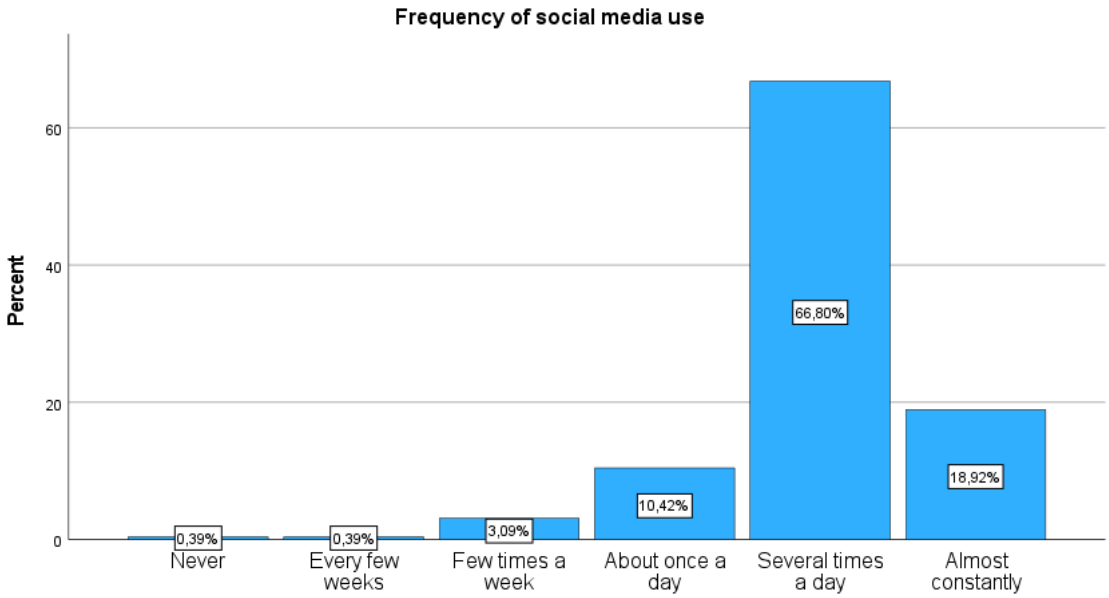
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 - 24	32	12,4	12,4	12,4
	25 - 34	90	34,7	34,7	47,1
	35 - 44	29	11,2	11,2	58,3
	45 - 54	63	24,3	24,3	82,6
	55 - 64	41	15,8	15,8	98,5
	65 - 74	3	1,2	1,2	99,6
	> 74	1	0,4	0,4	100,0
	Total	259	100,0	100,0	

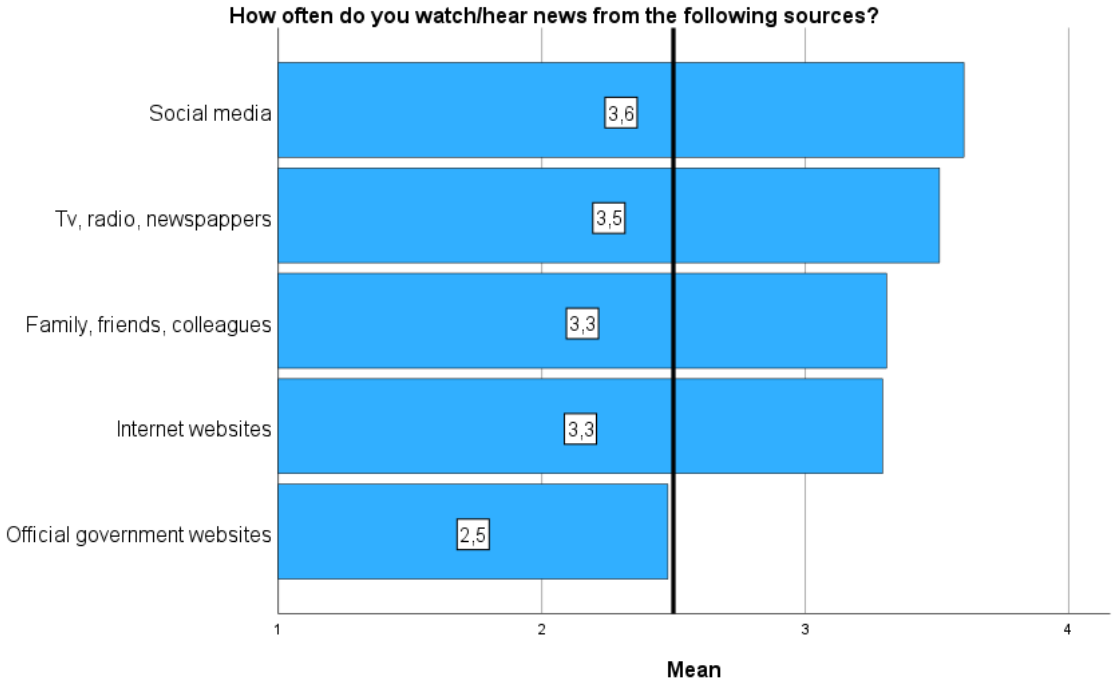
Participant's Gender



Frequency of social media use

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	1	0,4	0,4	0,4
	Every few weeks	1	0,4	0,4	0,8
	Few times a week	8	3,1	3,1	3,9
	About once a day	27	10,4	10,4	14,3
	Several times a day	173	66,8	66,8	81,1
	Almost constantly	49	18,9	18,9	100,0
	Total	259	100,0	100,0	

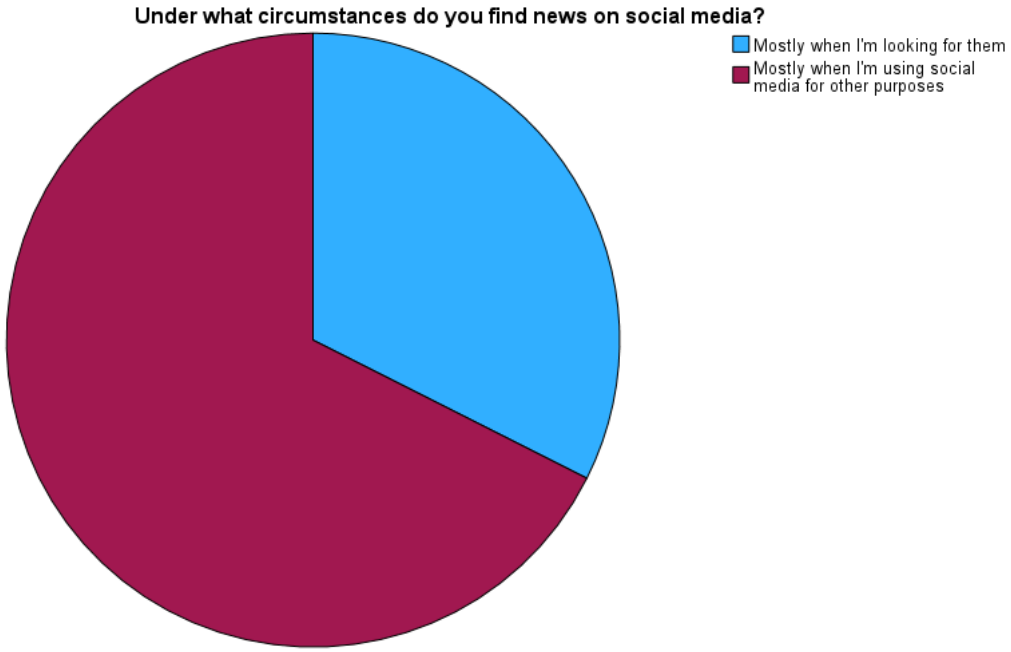


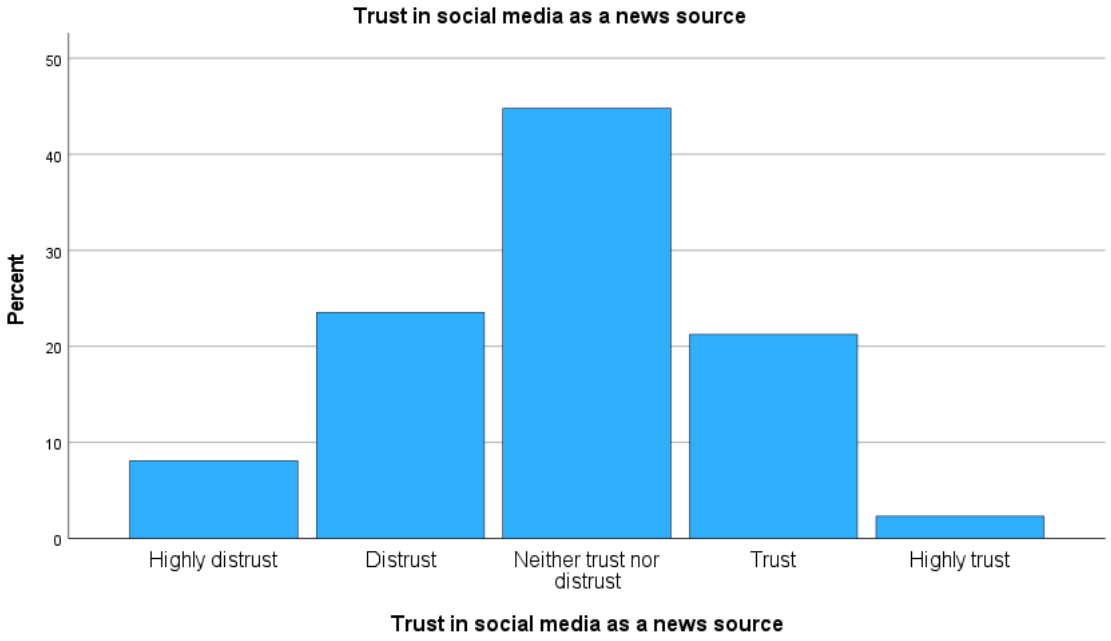


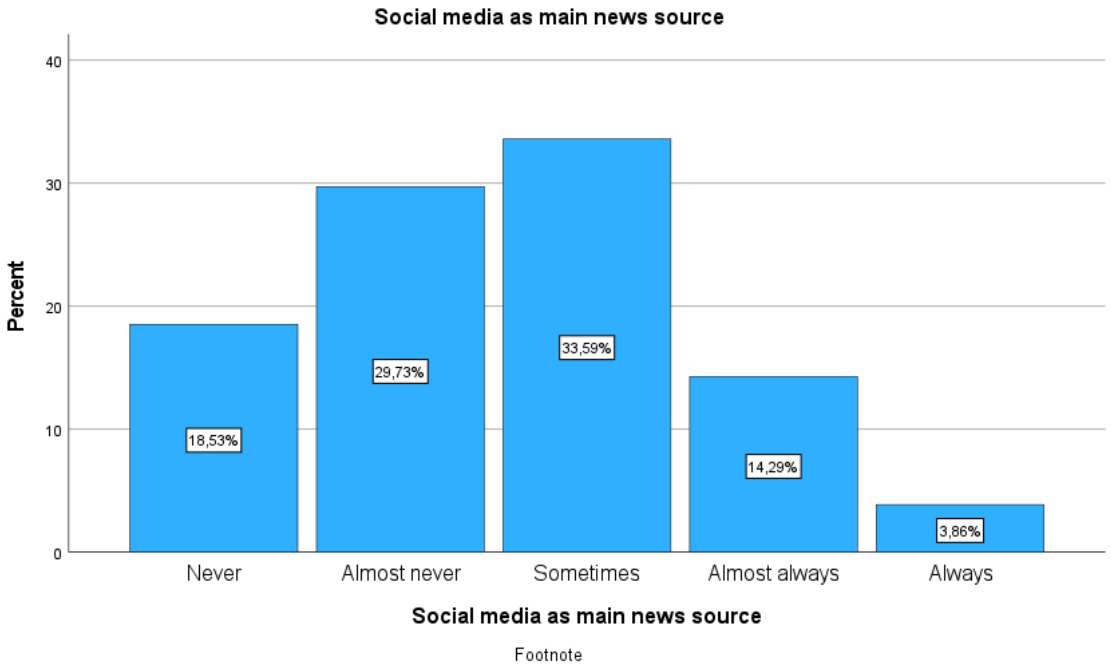
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Tv, radio, newspappers	259	1	4	3,51	0,749
Social media	259	1	4	3,60	0,676
Family, friends, colleagues	259	1	4	3,31	0,657

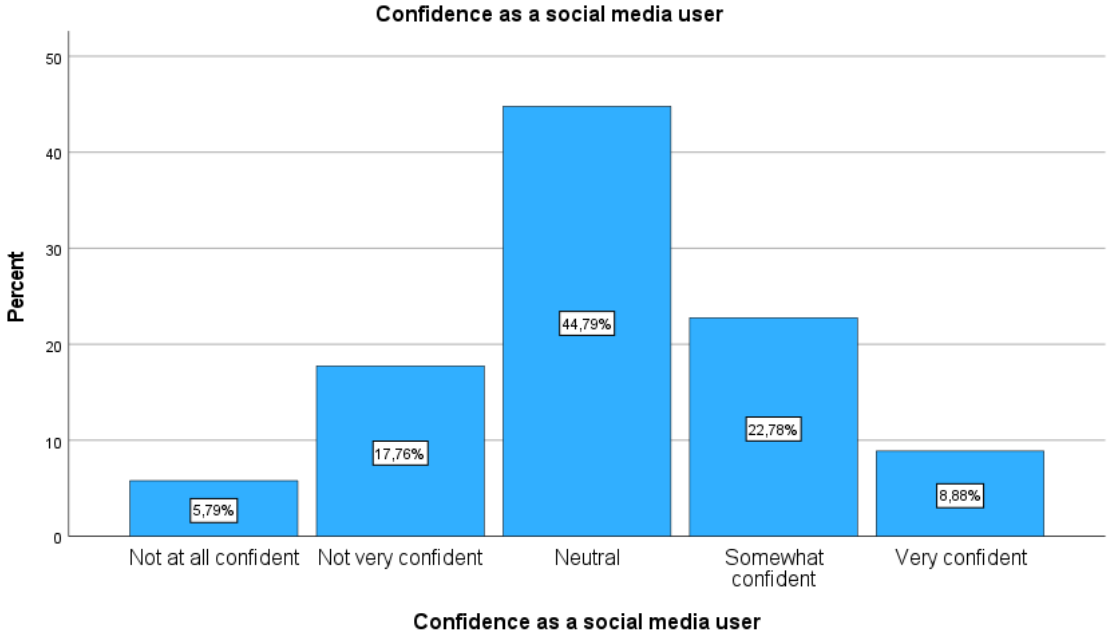
Official government websites	259	1	4	2,48	0,950
Internet websites	259	1	4	3,29	0,736
Valid N (listwise)	259				

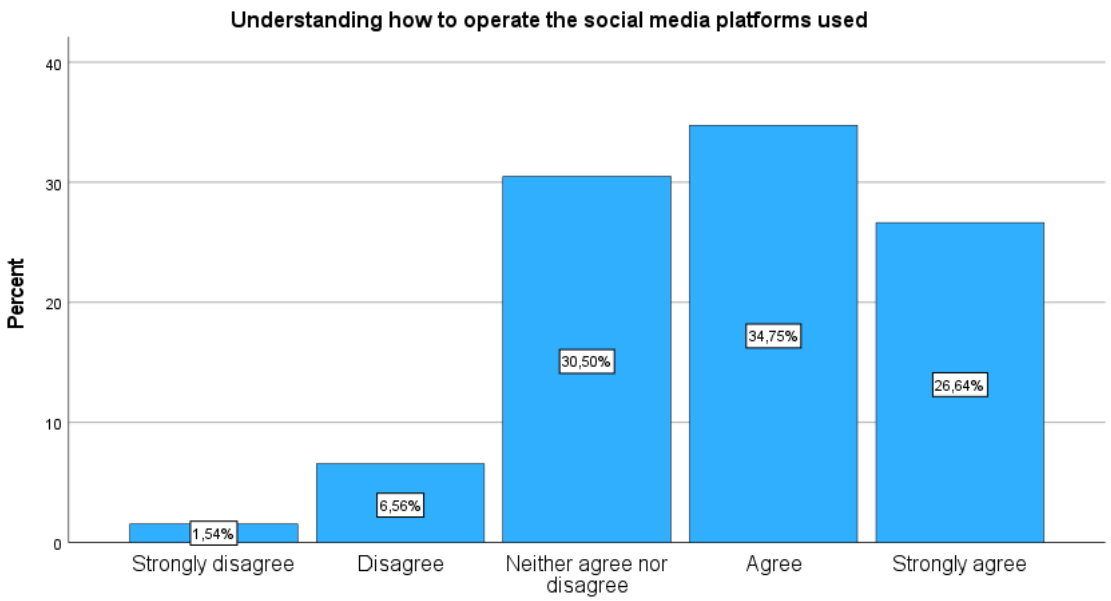




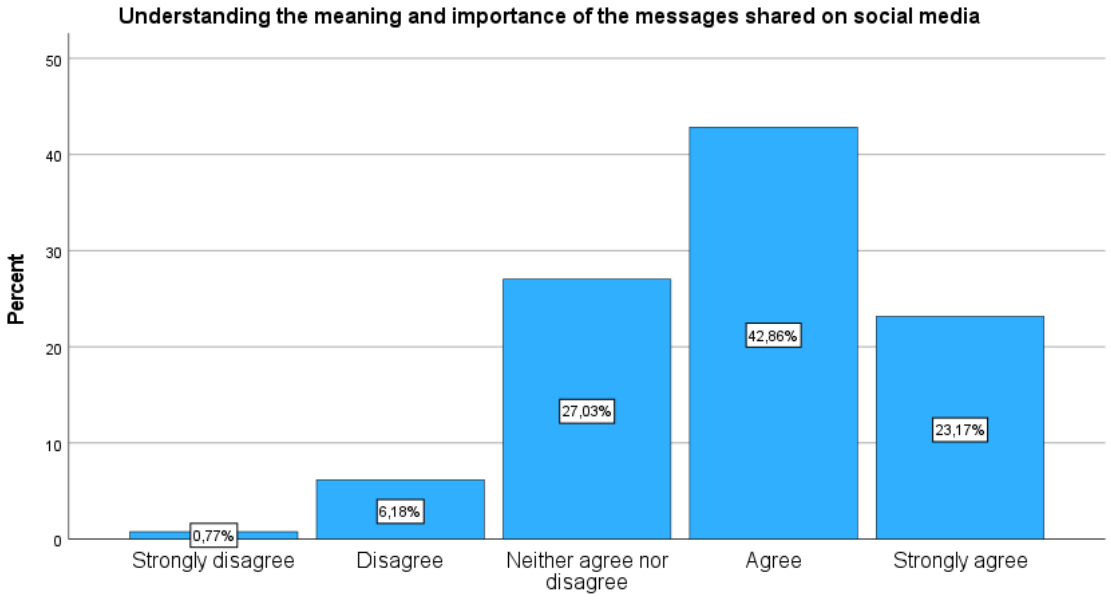

Social media as main news source
Percent
40
30
20
10
0
18,53%
29,73%
33,59%
14,29%
3,86%
Never
Almost never
Sometimes
Almost always
Always
Social media as main news source

Footnote

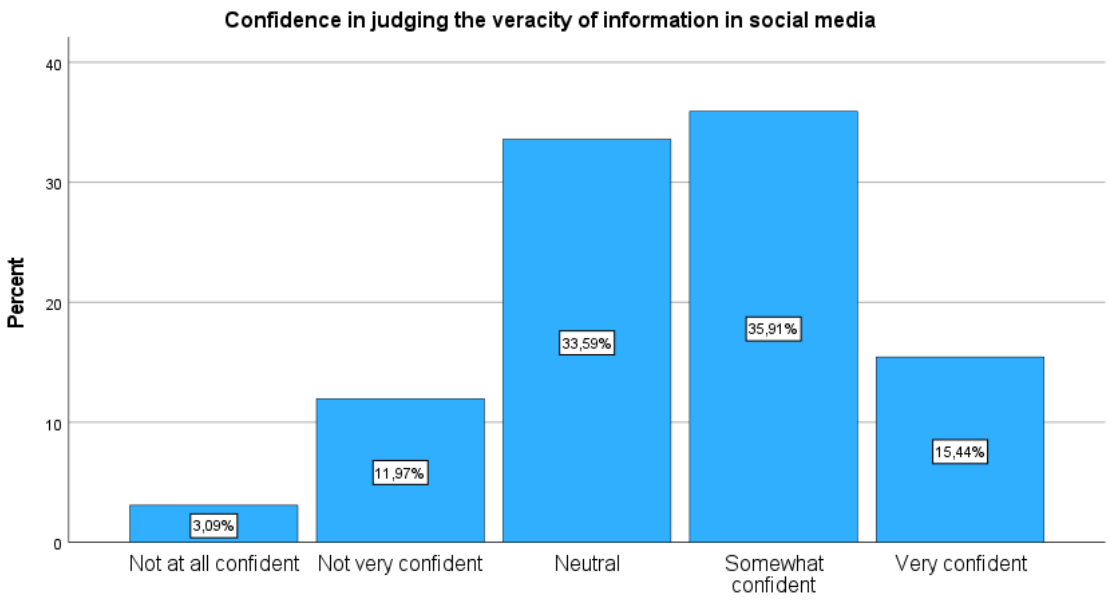

Confidence as a social media user
Percent
50
40
30
20
10
0
5,79%
17,76%
44,79%
22,78%
8,88%
Not at all confident
Not very confident
Neutral
Somewhat confident
Very confident
Confidence as a social media user



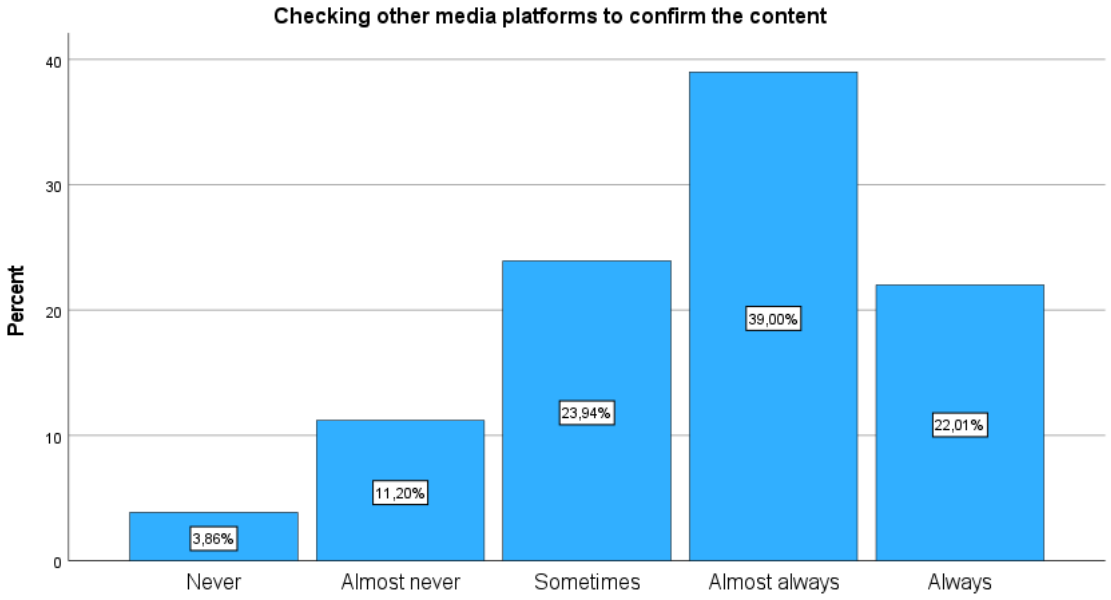
Understanding how to operate the social media platforms used

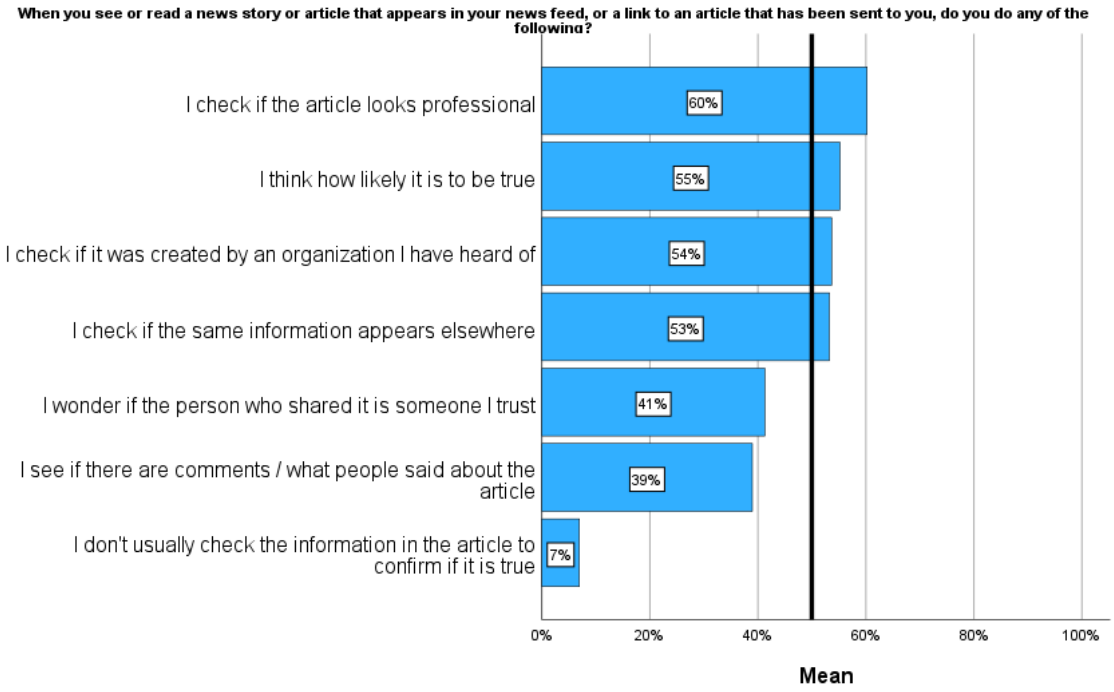


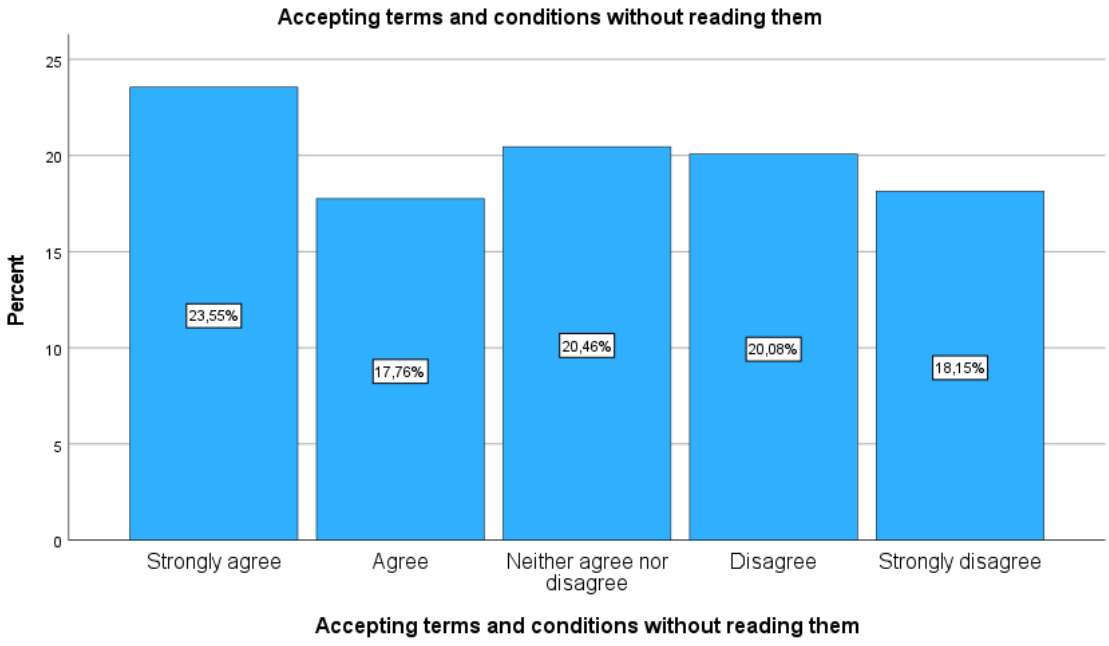
Understanding the meaning and importance of the messages shared on social media

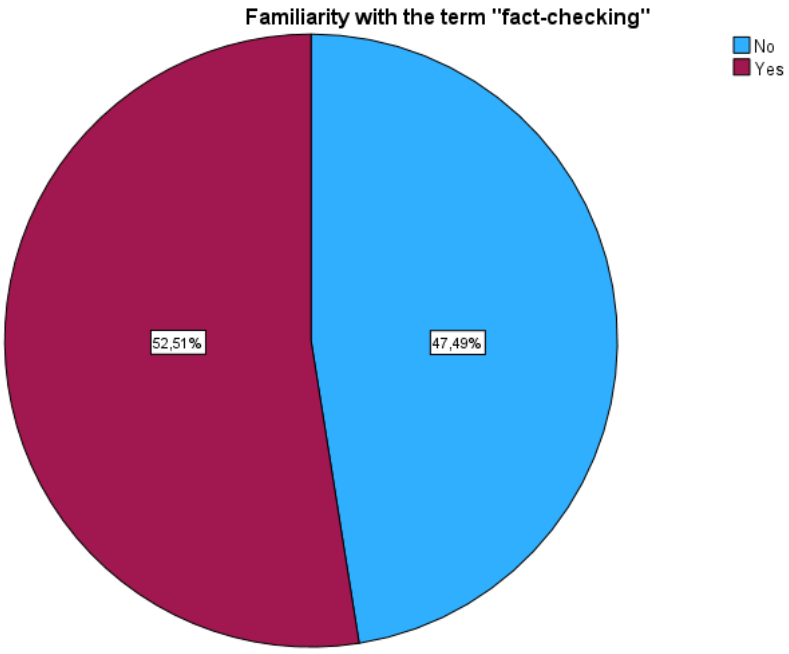


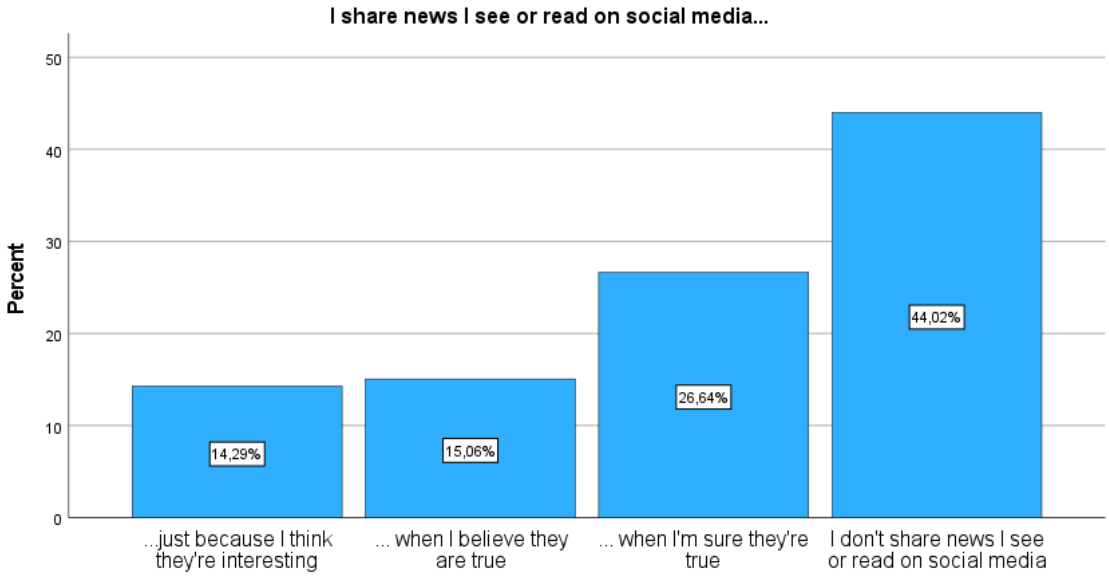
Confidence in judging the veracity of information in social media

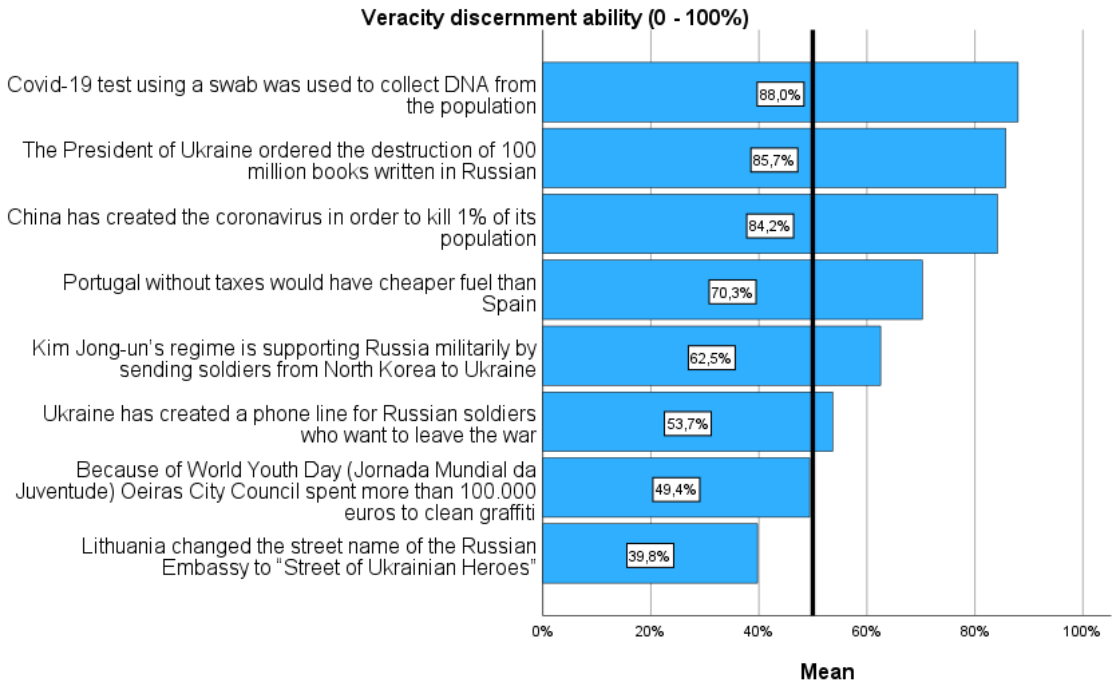



When you see or read a news story or article that appears in your news feed, or a link to an article that has been sent to you, do you do any of the following?
I check if the article looks professional
60%
I think how likely it is to be true
55%
I check if it was created by an organization I have heard of
54%
I check if the same information appears elsewhere
53%
I wonder if the person who shared it is someone I trust
41%
I see if there are comments / what people said about the article
39%
I don't usually check the information in the article to confirm if it is true
7%
0%
20%
40%
60%
80%
100%
Mean


Accepting terms and conditions without reading them
Percent
25
20
15
10
5
0
23,55%
17,76%
20,46%
20,08%
18,15%
Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree
Accepting terms and conditions without reading them


Familiarity with the term "fact-checking"
No
Yes
52,51%
47,49%


I share news I see or read on social media...
Percent
50
40
30
20
10
0
14,29%
15,06%
26,64%
44,02%
...just because I think they're interesting
... when I believe they are true
... when I'm sure they're true
I don't share news I see or read on social media

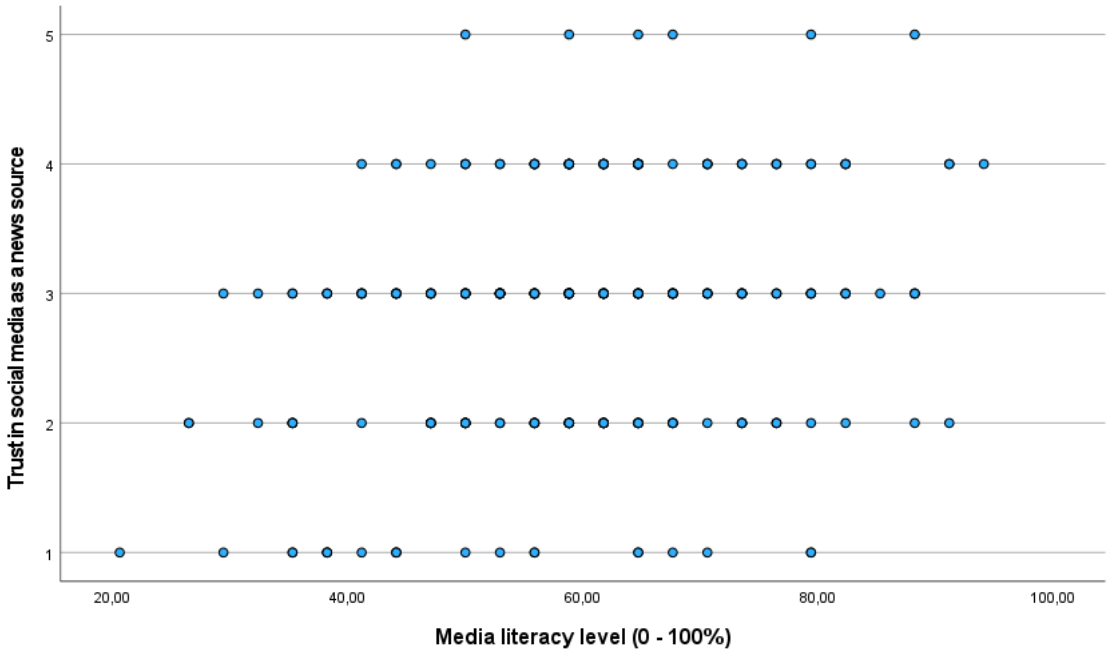


Annex D: Bivariate Analysis SPSS

Correlations

			Trust in social media as a news source	Media literacy level (0 - 100%)
Spearman's rho	Trust in social media as a news source	Correlation Coefficient	1,000	**0,227****
		Sig. (2-tailed)	.	**<0,001**
		N	259	259
	Media literacy level (0 - 100%)	Correlation Coefficient	0,227**	1,000
		Sig. (2-tailed)	<0,001	.
		N	259	259

**. Correlation is significant at the 0.01 level (2-tailed).



Correlations

			Media literacy level (0 - 100%)	Social media as main news source
Spearman's rho	Media literacy level (0 - 100%)	Correlation Coefficient	1,000	**0,267****
		Sig. (2-tailed)	.	**<0,001**
		N	259	259
	Social media as main news source	Correlation Coefficient	0,267**	1,000
		Sig. (2-tailed)	<0,001	.
		N	259	259

**. Correlation is significant at the 0.01 level (2-tailed).

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Veracity discernment ability (0 - 100%)	259	100,0%	0	0,0%	259	100,0%
Real news detection (0 - 100%)	259	100,0%	0	0,0%	259	100,0%
Fake news detection (0 - 100%)	259	100,0%	0	0,0%	259	100,0%

Media literacy level (0 - 100%)	259	100,0%	0	0,0%	259	100,0%

Descriptives

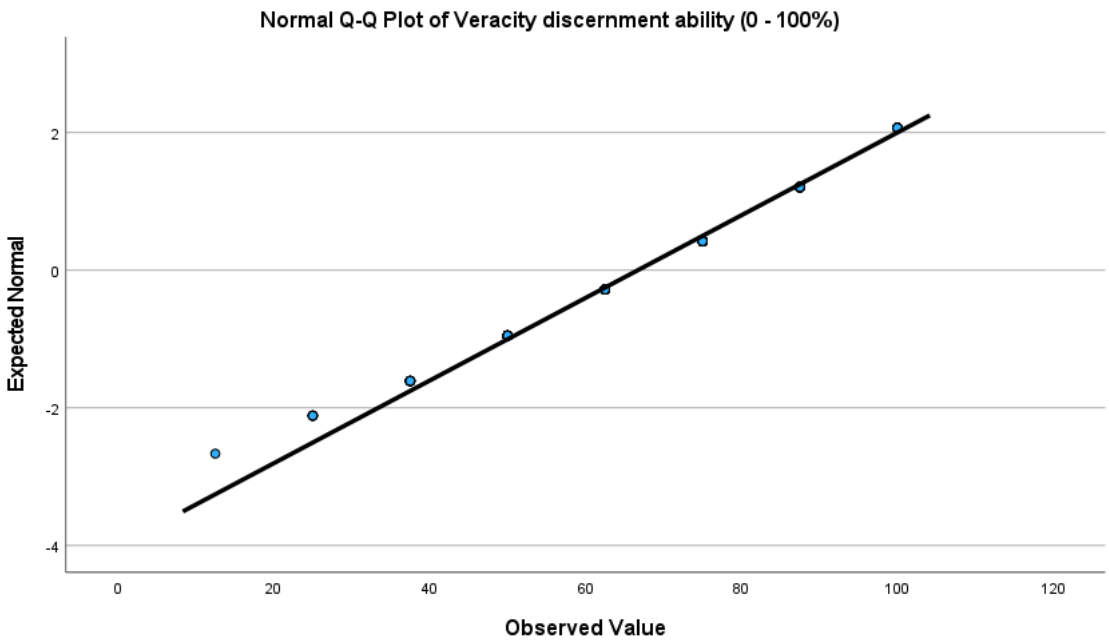
			Statistic	Std. Error
Veracity discernment ability (0 - 100%)	Mean		66,6988	1,03461
	95% Confidence Interval for Mean	Lower Bound	64,6615	
		Upper Bound	68,7362	
	5% Trimmed Mean		67,1118	
	Median		62,5000	
	Variance		277,238	
	Std. Deviation		16,65048	
	Minimum		12,50	
	Maximum		100,00	
	Range		87,50	
	Interquartile Range		25,00	
	Skewness		-0,347	0,151
	Kurtosis		0,004	0,302
Real news detection (0 - 100%)	Mean		53,2819	1,70152
	95% Confidence Interval for Mean	Lower Bound	49,9312	
		Upper Bound	56,6325	
	5% Trimmed Mean		53,6465	
	Median		50,0000	
	Variance		749,847	
	Std. Deviation		27,38333	
	Minimum		0,00	
	Maximum		100,00	
	Range		100,00	
	Interquartile Range		50,00	
	Skewness		-0,085	0,151
	Kurtosis		-0,696	0,302
Fake news detection (0 - 100%)	Mean		80,1158	1,41528
	95% Confidence Interval for Mean	Lower Bound	77,3288	
		Upper Bound	82,9028	
	5% Trimmed Mean		82,3949	
	Median		75,0000	
	Variance		518,785	
	Std. Deviation		22,77685	
	Minimum		0,00	
	Maximum		100,00	

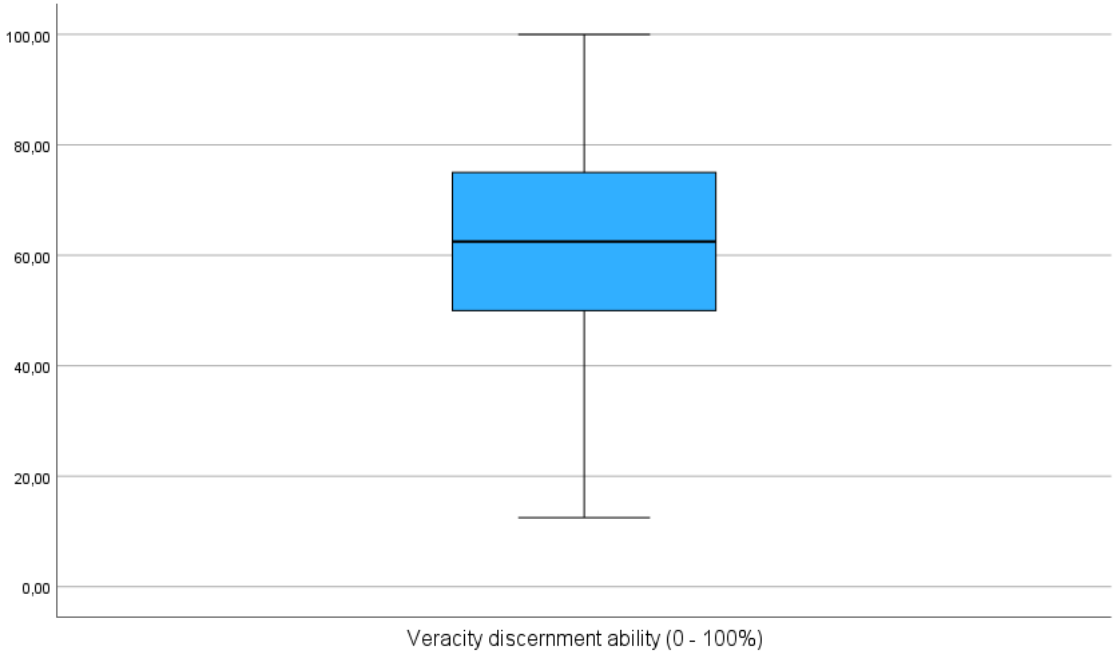
	Range		100,00	
	Interquartile Range		25,00	
	Skewness		-1,099	0,151
	Kurtosis		0,885	0,302
Media literacy level (0 - 100%)	Mean		59,7320	0,85654
	95% Confidence Interval for Mean	Lower Bound	58,0453	
		Upper Bound	61,4187	
	5% Trimmed Mean		59,7446	
	Median		58,8235	
	Variance		190,019	
	Std. Deviation		13,78475	
	Minimum		20,59	
	Maximum		94,12	
	Range		73,53	
	Interquartile Range		17,65	
	Skewness		-0,029	0,151
	Kurtosis		-0,108	0,302

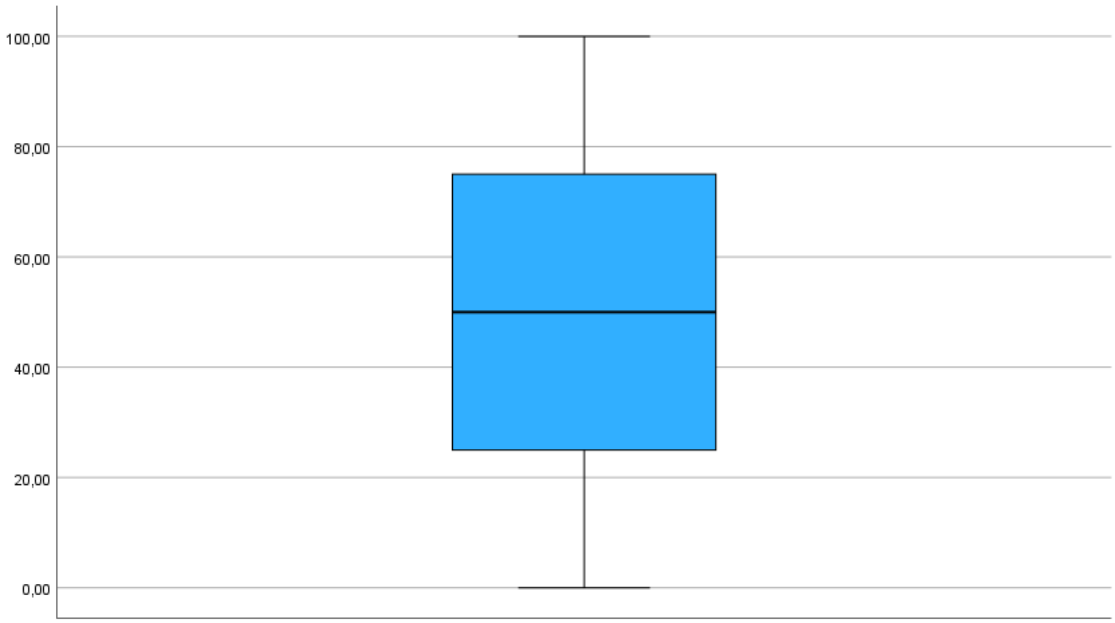
Tests of Normality

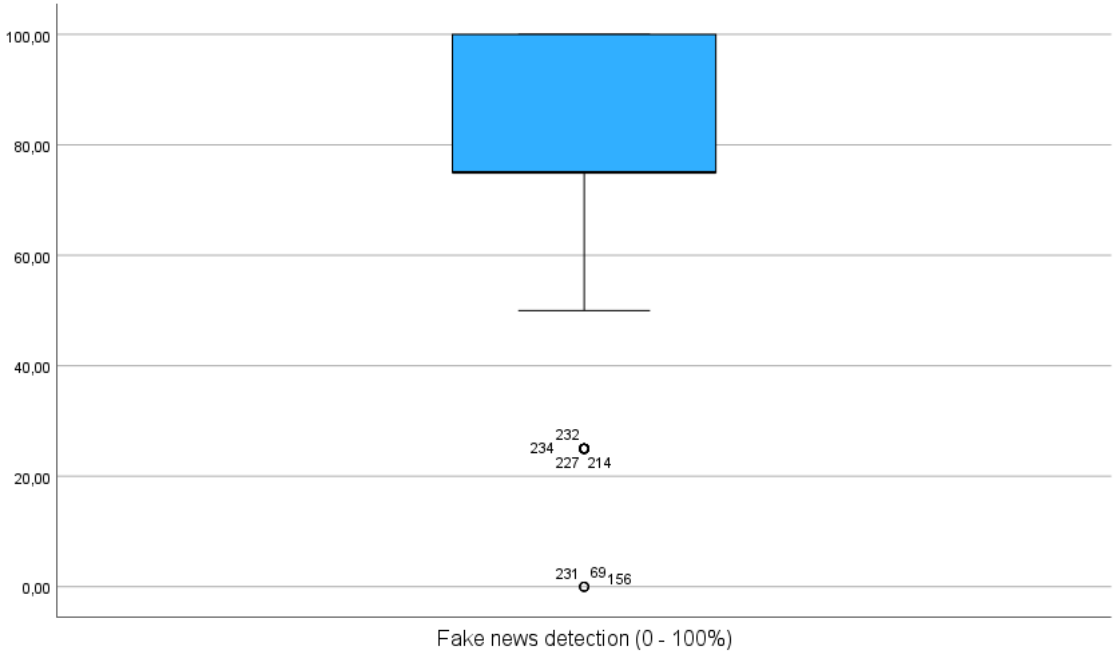
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Veracity discernment ability (0 - 100%)	0,174	259	<0,001	0,943	259	<0,001
Real news detection (0 - 100%)	0,172	259	<0,001	0,915	259	<0,001
Fake news detection (0 - 100%)	0,272	259	<0,001	0,790	259	<0,001
Media literacy level (0 - 100%)	0,066	259	0,009	0,993	259	0,218

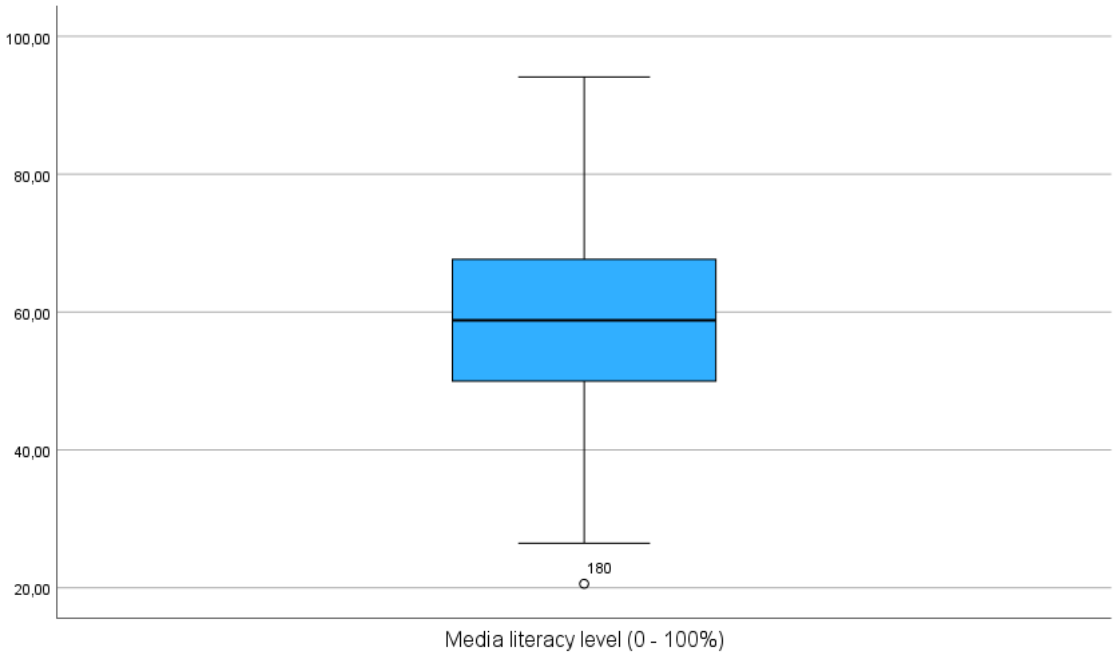
a. Lilliefors Significance Correction


Normal Q-Q Plot of Veracity discernment ability (0 - 100%)
Expected Normal
2
0
-2
-4
0
20
40
60
80
100
120
Observed Value


100,00
80,00
60,00
40,00
20,00
0,00
Veracity discernment ability (0 - 100%)


100,00
80,00
60,00
40,00
20,00
0,00
Real news detection (0 - 100%)


100,00
80,00
60,00
40,00
20,00
0,00
232
234
227
214
231
69
156
Fake news detection (0 - 100%)



Correlations

			Veracity discernment ability (0 - 100%)	Real news detection (0 - 100%)	Fake news detection (0 - 100%)	Media literacy level (0 - 100%)
Spearman's rho	Veracity discernment ability (0 - 100%)	Correlation Coefficient	1,000	**0,763****	0,472**	0,247**
		Sig. (2-tailed)	.	<0,001	<0,001	<0,001
		N	259	259	259	259
	Real news detection (0 - 100%)	Correlation Coefficient	0,763**	1,000	-0,170**	0,262**
		Sig. (2-tailed)	<0,001	.	0,006	<0,001
		N	259	259	259	259
	Fake news detection (0 - 100%)	Correlation Coefficient	0,472**	-0,170**	1,000	0,041
		Sig. (2-tailed)	<0,001	0,006	.	0,507
		N	259	259	259	259
	Media literacy level (0 - 100%)	Correlation Coefficient	**0,247****	**0,262****	0,041	1,000
		Sig. (2-tailed)	<0,001	<0,001	0,507	.
		N	259	259	259	259

**. Correlation is significant at the 0.01 level (2-tailed).

Age * Tv, radio, newspappers Crosstabulation

			Tv, radio, newspappers				
			Never	Rarely	Occasionally	Often	Total
Age	18 - 24	Count	3	4	12	13	32
		% within Age	9,4%	12,5%	37,5%	40,6%	100,0%
	25 - 34	Count	4	11	38	37	90
		% within Age	4,4%	12,2%	42,2%	41,1%	100,0%
	35 - 44	Count	1	1	8	19	29
		% within Age	3,4%	3,4%	27,6%	65,5%	100,0%
	45 - 54	Count	0	0	10	53	63
		% within Age	0,0%	0,0%	15,9%	84,1%	100,0%
	> 55	Count	0	0	3	42	45
		% within Age	0,0%	0,0%	6,7%	93,3%	100,0%
Total		Count	8	16	71	164	259
		% within Age	3,1%	6,2%	27,4%	63,3%	100,0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	61,251[a]	12	<0,001
Likelihood Ratio	70,811	12	<0,001
Linear-by-Linear Association	49,824	1	<0,001
N of Valid Cases	259		

a. 9 cells (45,0%) have expected count less than 5. The minimum expected count is ,90.

Age * Tv, radio, newspappers Crosstabulation

			Tv, radio, newspappers		
			Never or rarely	Occasionally or often	Total
Age	18 - 34	Count	22	100	122
		Expected Count	11,3	110,7	122,0
		% within Age	18,0%	**82,0%**	100,0%
		Adjusted Residual	4,6	-4,6	
	> 34	Count	2	135	137
		Expected Count	12,7	124,3	137,0
		% within Age	1,5%	**98,5%**	100,0%
		Adjusted Residual	-4,6	4,6	

Total	Count	24	235	259
	Expected Count	24,0	235,0	259,0
	% within Age	9,3%	90,7%	100,0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	21,081[a]	1	**<0,001**		
Continuity Correction[b]	19,156	1	<0,001		
Likelihood Ratio	23,866	1	<0,001		
Fisher's Exact Test				<0,001	<0,001
Linear-by-Linear Association	21,000	1	<0,001		
N of Valid Cases	259				

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 11,31.

b. Computed only for a 2x2 table

Age * Social media Crosstabulation

			Social media		
			Never or rarely	Occasionally or often	Total
Age	18 - 34	Count	6	116	122
		Expected Count	8,5	113,5	122,0
		% within Age	4,9%	95,1%	100,0%
		Adjusted Residual	-1,2	1,2	
	> 34	Count	12	125	137
		Expected Count	9,5	127,5	137,0
		% within Age	8,8%	91,2%	100,0%
		Adjusted Residual	1,2	-1,2	
Total		Count	18	241	259
		Expected Count	18,0	241,0	259,0
		% within Age	6,9%	93,1%	100,0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1,472[a]	1	**0,225**		

Continuity Correction[b]	0,938	1	0,333		
Likelihood Ratio	1,506	1	0,220		
Fisher's Exact Test				0,328	0,167
Linear-by-Linear Association	1,467	1	0,226		
N of Valid Cases	259				

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 8,48.

b. Computed only for a 2x2 table

Age * Trust in social media as a news source Crosstabulation

			Trust in social media as a news source					
			Highly distrust	Distrust	Neither trust nor distrust	Trust	Highly trust	Total
Age	18 - 34	Count	2	30	56	31	3	122
		Expected Count	9,9	28,7	54,6	25,9	2,8	122,0
		% within Age	**1,6%**	24,6%	45,9%	25,4%	2,5%	100,0%
		Adjusted Residual	**-3,6**	0,4	0,3	1,6	0,1	
	> 34	Count	19	31	60	24	3	137
		Expected Count	11,1	32,3	61,4	29,1	3,2	137,0
		% within Age	**13,9%**	22,6%	43,8%	17,5%	2,2%	100,0%
		Adjusted Residual	**3,6**	-0,4	-0,3	-1,6	-0,1	
Total		Count	21	61	116	55	6	259
		Expected Count	21,0	61,0	116,0	55,0	6,0	259,0
		% within Age	8,1%	23,6%	44,8%	21,2%	2,3%	100,0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13,985[a]	4	**0,007**
Likelihood Ratio	16,082	4	0,003
Linear-by-Linear Association	7,271	1	0,007
N of Valid Cases	259		

a. 2 cells (20,0%) have expected count less than 5. The minimum expected count is 2,83.

Age * Trust in social media as a news source Crosstabulation

		Trust in social media as a news source			
		Distrust	Neutral	Trust	Total

Age	18 - 34	Count	32	56	34	122
		Expected Count	38,6	54,6	28,7	122,0
		% within Age	26,2%	45,9%	27,9%	100,0%
		Adjusted Residual	-1,8	0,3	1,5	
	> 34	Count	50	60	27	137
		Expected Count	43,4	61,4	32,3	137,0
		% within Age	36,5%	43,8%	19,7%	100,0%
		Adjusted Residual	1,8	-0,3	-1,5	
Total		Count	82	116	61	259
		Expected Count	82,0	116,0	61,0	259,0
		% within Age	31,7%	44,8%	23,6%	100,0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4,037[a]	2	0,133
Likelihood Ratio	4,057	2	0,132
Linear-by-Linear Association	4,001	1	0,045
N of Valid Cases	259		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 28,73.

Age * Social media as main news source Crosstabulation

			Social media as main news source					
			Never	Almost never	Sometimes	Almost always	Always	Total
Age	18 - 34	Count	19	24	46	26	7	122
		Expected Count	22,6	36,3	41,0	17,4	4,7	122,0
		% within Age	15,6%	**19,7%**	37,7%	**21,3%**	5,7%	100,0%
		Adjusted Residual	-1,2	**-3,3**	1,3	**3,0**	1,5	
	> 34	Count	29	53	41	11	3	137
		Expected Count	25,4	40,7	46,0	19,6	5,3	137,0
		% within Age	21,2%	**38,7%**	29,9%	**8,0%**	2,2%	100,0%
		Adjusted Residual	1,2	**3,3**	-1,3	**-3,0**	-1,5	
Total		Count	48	77	87	37	10	259
		Expected Count	48,0	77,0	87,0	37,0	10,0	259,0
		% within Age	18,5%	29,7%	33,6%	14,3%	3,9%	100,0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	20,173[a]	4	**<0,001**
Likelihood Ratio	20,618	4	<0,001
Linear-by-Linear Association	14,486	1	<0,001
N of Valid Cases	259		

a. 1 cells (10,0%) have expected count less than 5. The minimum expected count is 4,71.

Age * Social media as main news source Crosstabulation

			Social media as main news source		
			Rarely	Often	Total
Age	18 - 34	Count	89	33	122
		Expected Count	99,9	22,1	122,0
		% within Age	73,0%	**27,0%**	100,0%
		Adjusted Residual	-3,5	3,5	
	> 34	Count	123	14	137
		Expected Count	112,1	24,9	137,0
		% within Age	89,8%	**10,2%**	100,0%
		Adjusted Residual	3,5	-3,5	
Total		Count	212	47	259
		Expected Count	212,0	47,0	259,0
		% within Age	81,9%	18,1%	100,0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	12,306[a]	1	**<0,001**		
Continuity Correction[b]	11,199	1	<0,001		
Likelihood Ratio	12,512	1	<0,001		
Fisher's Exact Test				<0,001	<0,001
Linear-by-Linear Association	12,259	1	<0,001		
N of Valid Cases	259				

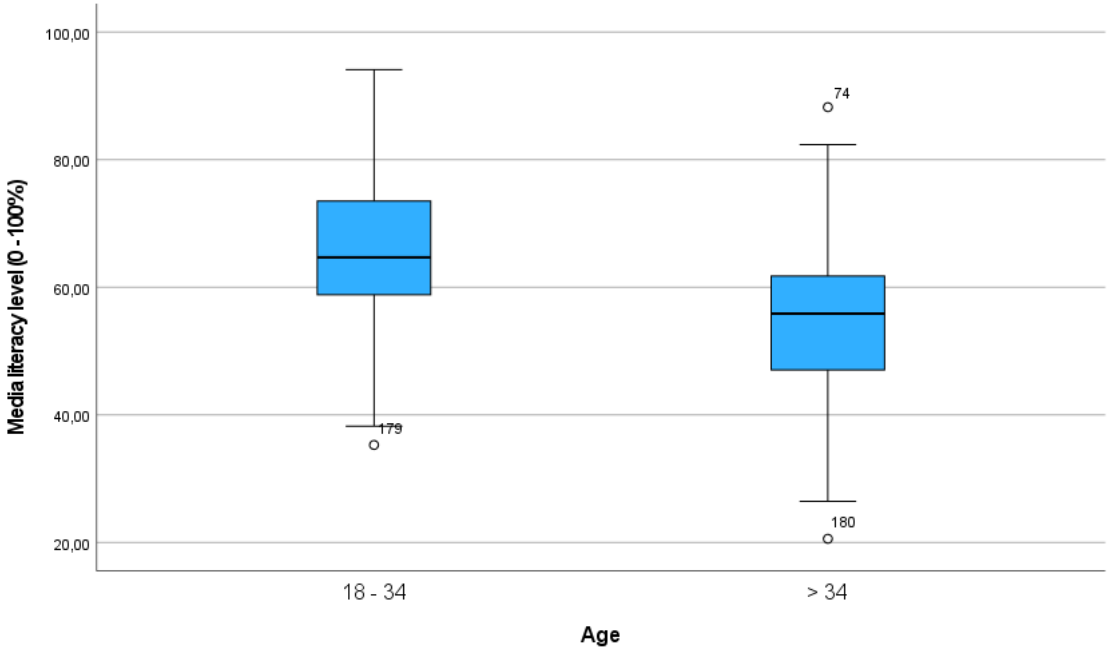
a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 22,14.

b. Computed only for a 2x2 table

Report

Media literacy level (0 - 100%)

Age	N	Mean	Std. Deviation	Median	Minimum	Maximum	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
18 - 34	122	**66,1041**	**12,49103**	64,7059	35,29	94,12	**0,014**	**0,219**	-0,432	0,435
> 34	137	**54,0575**	**12,36124**	55,8824	20,59	88,24	**-0,143**	**0,207**	0,017	0,411
Total	259	59,7320	13,78475	58,8235	20,59	94,12	-0,029	0,151	-0,108	0,302



Group Statistics

	Age	N	Mean	Std. Deviation	Std. Error Mean
Media literacy level (0 - 100%)	18 - 34	122	**66,1041**	12,49103	1,13088
	> 34	137	**54,0575**	12,36124	1,05609

Independent Samples Effect Sizes

	Standardizer[a]	Point Estimate	95% Confidence Interval Lower	95% Confidence Interval Upper

Media literacy level (0 - 100%)	Cohen's d	12,42251	0,970	0,711	1,227
	Hedges' correction	12,45891	0,967	0,709	1,223
	Glass's delta	12,36124	0,975	0,703	1,243

a. The denominator used in estimating the effect sizes.

Cohen's d uses the pooled standard deviation.

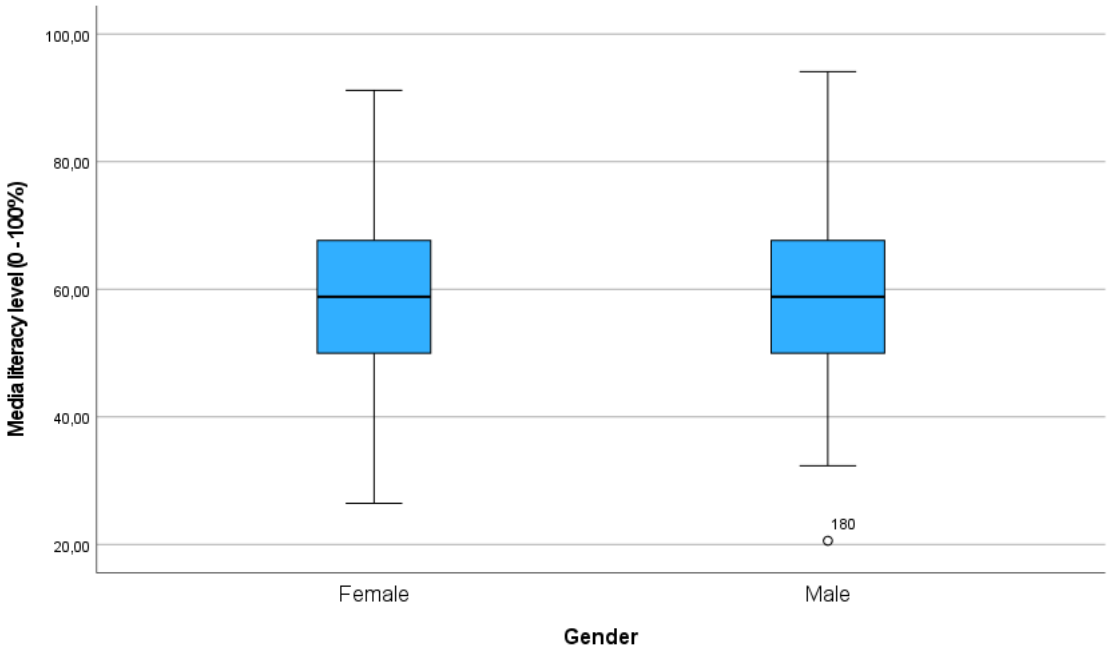
Hedges' correction uses the pooled standard deviation, plus a correction factor.

Glass's delta uses the sample standard deviation of the control group.

Report

Media literacy level (0 - 100%)

Gender	N	Mean	Std. Deviation	Median	Minimum	Maximum	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
Female	137	**59,7037**	**13,74159**	58,8235	26,47	91,18	**-0,073**	**0,207**	-0,078	0,411
Male	122	**59,7637**	**13,88968**	58,8235	20,59	94,12	**0,020**	**0,219**	-0,096	0,435
Total	259	59,7320	13,78475	58,8235	20,59	94,12	-0,029	0,151	-0,108	0,302



Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
	Female	137	59,7037	13,74159	1,17402

Media literacy level (0 - 100%)	Male	122	59,7637	13,88968	1,25751

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Media literacy level (0 - 100%)	Equal variances assumed	0,006	0,937	-0,035	257	0,486	**0,972**	-0,06001	1,71930	-3,44571	3,32570
	Equal variances not assumed			-0,035	252,910	0,486	0,972	-0,06001	1,72037	-3,44808	3,32807

Independent Samples Effect Sizes

				95% Confidence Interval	
		Standardizer[a]	Point Estimate	Lower	Upper
Media literacy level (0 - 100%)	Cohen's d	13,81151	-0,004	-0,248	0,240
	Hedges' correction	13,85198	-0,004	-0,248	0,239
	Glass's delta	13,88968	-0,004	-0,248	0,240

a. The denominator used in estimating the effect sizes.

Cohen's d uses the pooled standard deviation.

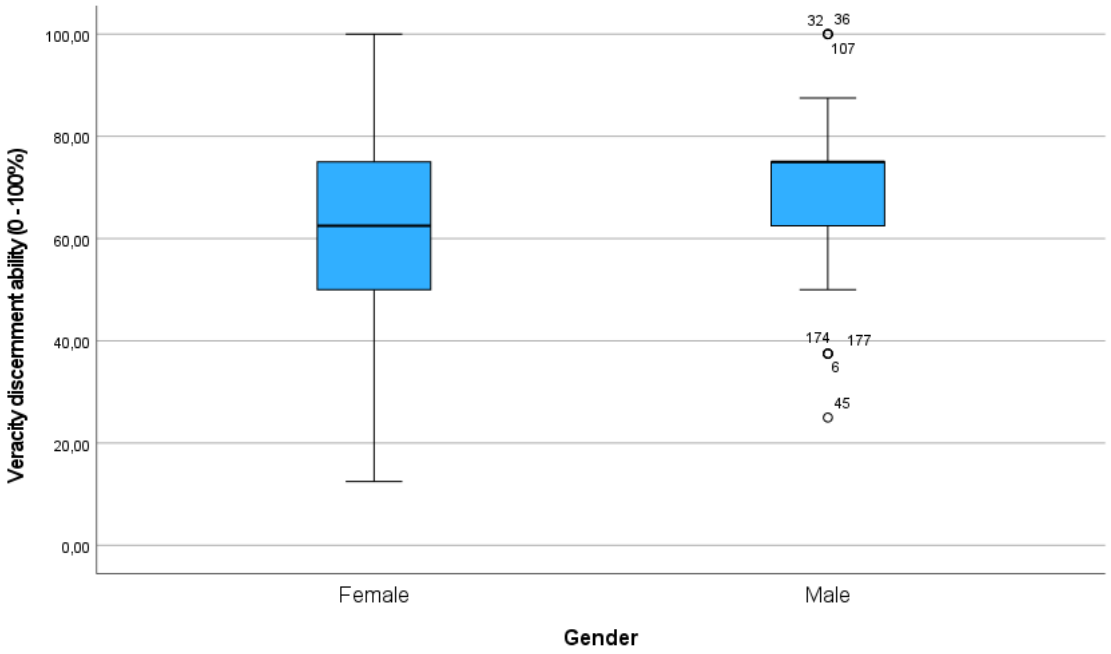
Hedges' correction uses the pooled standard deviation, plus a correction factor.

Glass's delta uses the sample standard deviation of the control group.

Report

Veracity discernment ability (0 - 100%)

Gender	N	Mean	Std. Deviation	Median	Minimum	Maximum	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
Female	137	**63,9599**	**17,61684**	62,5000	12,50	100,00	**-0,258**	**0,207**	0,055	0,411
Male	122	**69,7746**	**14,97589**	75,0000	25,00	100,00	**-0,314**	**0,219**	-0,354	0,435
Total	259	66,6988	16,65048	62,5000	12,50	100,00	-0,347	0,151	0,004	0,302



Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Veracity discernment ability (0 - 100%)	Female	137	63,9599	17,61684	1,50511
	Male	122	69,7746	14,97589	1,35585

Independent Samples Effect Sizes

				95% Confidence Interval	
		Standardizer[a]	Point Estimate	Lower	Upper
Veracity discernment ability (0 - 100%)	Cohen's d	16,42642	-0,354	-0,600	-0,108
	Hedges' correction	16,47455	-0,353	-0,598	-0,107
	Glass's delta	14,97589	-0,388	-0,636	-0,139

a. The denominator used in estimating the effect sizes.

Cohen's d uses the pooled standard deviation.

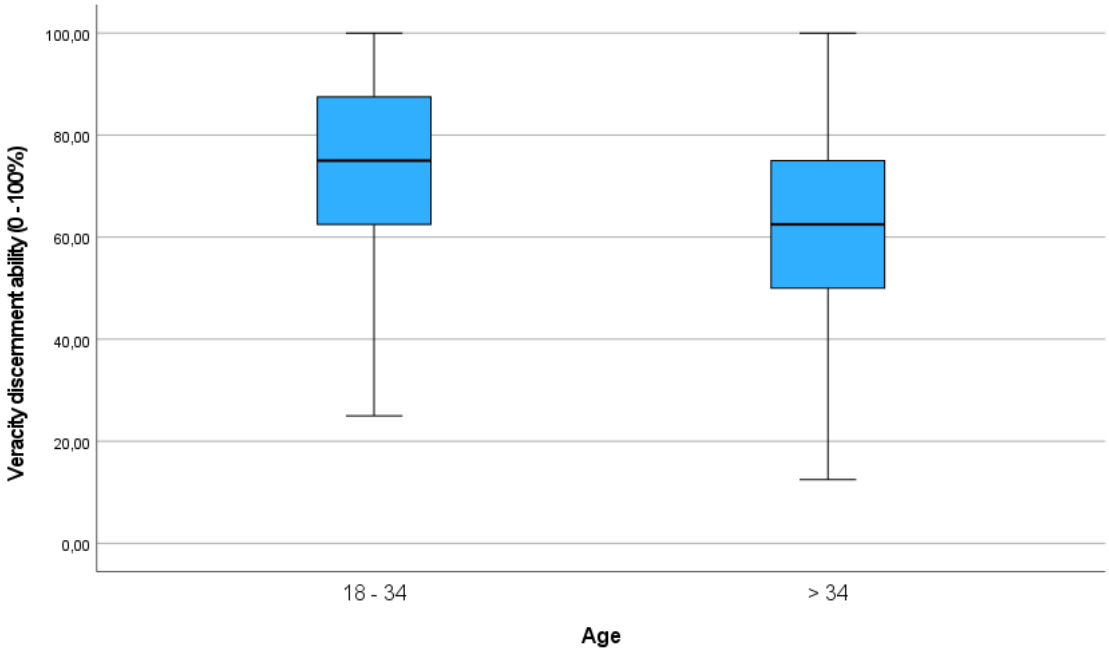
Hedges' correction uses the pooled standard deviation, plus a correction factor.

Glass's delta uses the sample standard deviation of the control group.

Report

Veracity discernment ability (0 - 100%)

Age	N	Mean	Std. Deviation	Median	Minimum	Maximum	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
18 - 34	122	70,1844	16,26602	**75,0000**	25,00	100,00	**-0,211**	**0,219**	-0,384	0,435
> 34	137	63,5949	16,42961	**62,5000**	12,50	100,00	**-0,499**	**0,207**	0,152	0,411
Total	259	66,6988	16,65048	62,5000	12,50	100,00	-0,347	0,151	0,004	0,302



Ranks

	Age	N	Mean Rank	Sum of Ranks
Veracity discernment ability (0 - 100%)	18 - 34	122	**144,27**	17601,50
	> 34	137	**117,29**	16068,50
	Total	259		

Test Statistics[a]

	Veracity discernment ability (0 - 100%)
Mann-Whitney U	6615,500
Wilcoxon W	16068,500
Z	-2,972
Asymp. Sig. (2-tailed)	**0,003**

a. Grouping Variable: Age