Combating Fake News through Media Literacy: Developing Educational Strategies for University Students

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Abstract

Media literacy is relevant for the young generation due to their extensive exposure to online content, including fake news. While media literacy is recognized as crucial component in resisting fake news, the applied research remains limited. This study aimed to examine the educational potential of fake news to enhance university students' media literacy. A two-stage qualitative strategy was used. In the first stage, 150 user comments from blogs and forums (Reddit, Quora, and Lemmy) devoted to fake news were analyzed. Deductive thematic analysis was applied, grounded in a predefined framework of affordances and constraints. The selected comments were grouped under these two main themes. During the analysis of comments, sub-themes were identified. These sub-themes reflected how users understand how social media facilitates or hinders the dissemination of fake news. Based on these findings, a set of educational tasks using fake news as a tool was created to improve students' media literacy. This study contributes to the development of new educational strategies to increase students' resilience to fake news. Future research should empirically evaluate the proposed tasks, particularly student engagement and reflection on fact-checking strategies.

Keywords: *fake news, media literacy, university students, educational strategies, disinformation*

1. Introduction

Fake news poses a global challenge for society in the digital age [16]. The effects of fake news on society are substantial. The rapid spread of fake news undermines public trust, democracy, and diminishes the role of authoritative sources of information [25]. One of the key problems is that individuals cannot easily distinguish between real news and fake news [14], [12]. Fake news is constructed to appear as credible information and often aims to promote a specific ideology, politicize issues, and radicalize public discourse [5]. It is typically targeted at specific segments of the population, reflecting their beliefs and confirming existing biases. By triggering emotional responses, users are more likely to consume, believe, and share fake news on social media.

By far, a significant amount of research has been conducted on the dissemination of fake news on the internet. Much attention has been paid to digital infrastructures for spreading fake news [13], algorithmic amplification [17], and the cognitive biases that facilitate its spread [20]. On the contrary, this research focuses on a user-centered approach. According to this approach, internet users are seen as active consumers of online content who express their perspective on the mechanisms of fake news dissemination. To gather relevant data, the author analyzed users' comments about the mechanisms behind the spread of fake news posted on blogs and forums (Reddit, Quora, and Lemmy). The analysis results showed that the crucial factor contributing to fake news dissemination is the lack of media literacy. The term "media literacy" refers to the ability to access, analyze, and communicate messages across digital platforms [10]. Media literacy encompasses cognitive skills such as critical thinking, allowing individuals to reflect on media content, its sources, and its purposes [24]. These skills may help users identify fake news and reduce the likelihood of consuming or sharing fake news on social media. Developing media literacy is important for the younger generation, especially students. As active social media users, students have to think critically while selecting news sources and consuming content. The objective of universities is to develop students' media literacy, which may help combat fake news on social media. A wide range of tools and approaches may be used in education to develop analytical skills and enhance resistance to fake news.

Hence, this study aims to reveal the educational potential of fake news, which can be integrated into the learning process to enhance university students' media literacy. The research builds on and expands previous studies [15], [21], [23], [22], [19]. This study offers comprehensive guidance on how

fake news can be used as an educational tool for developing students' media literacy. This paper seeks to answer the following research questions (RQs):

RQ1. What factors contribute to the spread (affordances) and limitations (constraints) of fake news on social media?

RQ2. How can fake news be effectively used in educational contexts?

2. Theoretical Frameworks

This paper focuses on multi-theoretical perspectives to capture the complexity of user engagement with fake news on social media. The first theoretical framework is Hall's [8] encoding/decoding model. According to this model, individuals are seen as active agents who interpret media content and decode media texts, depending on their social and cultural contexts. Blog and forum comments become valuable platforms for examining how fake news is addressed in everyday users' discourse.

The second theoretical framework is affordances, which draws on Gibson's ecological theory [7] of perception (1979). The term "affordances" describes the action possibilities that the environment offers to an individual. The concept of affordances is versatile and applicable to numerous fields, including information systems and media studies. In 1988, Norman [18] extended the term of affordances into the design realm, introducing the concept of perceived affordances. Perceived affordance means that objects (or design elements) have certain properties that encourage users to interact with them. Bucher and Helmond [2] examine how digital platforms shape user behavior. Affordances refer to the opportunities that individuals can extract from social media. Constraints refer to the limitations or restrictions imposed by the design of digital platforms that influence or restrict user behavior.

3. Methodological Approach

The study was grounded in a two-stage qualitative strategy. This strategy was constructed following two research questions. RQ1. What factors contribute to the spread (affordances) and limitations (constraints) of fake news on social media? RQ2. How can fake news be effectively used in educational contexts?

In the first stage, a qualitative content analysis was conducted on user comments about fake news from blogs and forums (Reddit, Quora, and Lemmy). These websites—Reddit, Quora, and Lemmy—were chosen due to their popularity among internet users, high user engagement in discussions related to fake news. The selected platforms provide valuable data for analyzing user perceptions and interactions with fake news. This was also necessary to show how ordinary people perceive the role of social media in contributing to both the spread and limitation of fake news. A total of 50 comments were selected from each platform over the last 5 years. Deductive thematic analysis [3] was applied, based on a predefined framework of affordances and constraints. The selected comments were grouped under these two main themes. During the analysis of comments, sub-themes were identified. These sub-themes reflected how users understand how social media allows or prevents fake news from spreading.

In the second stage, based on the findings in the thematic analysis, a set of educational activities involving fake news was designed. These activities were aimed at improving students' media literacy and critical engagement with online content.

4. Findings

4.1 Affordances

During the collection of comments from blogs and forums (Reddit, Quora, and Lemmy), 18 sub-themes emerged related to affordances. This paper focuses on the most frequent sub-themes reflecting factors by which social media contributes to or limits the spread of fake news.

A significant proportion of the selected comments addressed issues such as the presence of false and manipulative sources disseminating fake news. Many users identified this issue as one of the most acute problems in the discussion of fake news. The freedom of the internet and the possibility of anonymity provide individuals with the opportunity to post and share fake news without consequences. The uncontrolled dissemination of fake news and the lack of moderation lead to digital pollution. This has a significant impact on users who are exposed to an excessive flow of information, much of it is false or misleading. People with low levels of media literacy are especially vulnerable to such exposure – this group emerged as the second most frequent sub-theme during content analysis.

The selected comments indicated that the issue of the dissemination of fake news lies in the cognitive and behavioral patterns of users themselves. On the one hand, individuals tend to engage with fake news on social media if it supports their beliefs and confirms their biases: "*People are more likely to share articles that support their beliefs without verifying whether the information is true. People are becoming more impatient. They don't want to spend the time to verify the information themselves, so they are more likely to believe whatever is being presented to them.*" (source: comment extracted from Quora). These cognitive mechanisms form the basis for accepting fake news and further sharing it with others. The motivations behind this may vary: the desire to belong to a group [6], avoidance of cognitive dissonance [4], altruistic goals (e.g., informing others), etc. On the other hand, a low level of media literacy is caused by other factors as low education, lack of critical thinking, insufficient knowledge, and weak fact-checking skills: "*Most people have very little education. Having few facts at their fingertips, being widely lacking in knowledge, and not having the ability to become aware of what is happening outside of their small circles…*" (source: comment extracted from Quora). A noncritical approach to information, neglecting the verification of sources and consumption of information from suspicious sources, puts internet users at risk. Failure to critically assess information sources on social media leads to algorithms on these platforms supporting such an environment. Social media is configured so that users get only information that corresponds to their preferences and beliefs. This leads to creating conditions in which the same information is shared by different people who form close communities around a limited number of topics (the so-called echo chambers). Users confined within these communities tend to be exposed only to confirmatory information, which gets accepted even if it contains deliberately false claims [1].

4.2 Constrains

Apart from affordances, the manually collected comments from Reddit, Quora, and Lemmy also highlighted constraints. In total, 12 sub-themes related to the concept of constraints were identified. This paper focuses on the most frequently occurring sub-themes.

The primary sub-theme emerging from the data, indicated by more than half of internet users (55%), concerns the development of critical thinking and media literacy. These skills include a conscious choice of information sources. Internet users should have a clear understanding of the importance of choosing legitimate sources of information with a good reputation. This not only helps prevent individuals from engaging with fake news but also limits its spread on social media.

The next sub-theme is a critical attitude to incoming information in terms of its reliability. Users also emphasized in their comments the importance of fact-checking skills, which involve comparing multiple sources to verify suspicious information. Additionally, users shared strategies for checking information, underlining the importance of turning to authoritative sources (e.g., scientific papers), and being aware of the main characteristics of fake news (e.g., sensational headline, suspicious source, excessive appeal to emotions).

As an additional sub-themes, the call for specials educational programs and awareness-raising for adult students to teach them how to spot fake news and counter the spread of fake news through fostering better critical thinking skills was highlighted: "*I like that it's a critical thinking subject, but it would be much better if you taught generic critical thinking, and used "recognizing fake news" as one of the applications for critical thinking.*" (source: comment extracted from Lemmy); "*It is very important for young people to be taught critical thinking skills.*" (source: comment extracted from Quora) "*…go back to teaching critical thinking in schools. go back to teaching civics in schools. go back to teaching reading skills in school. (for example, if you are telling the news, you don't use words like 'blow out' and 'unhinged' etc.) don't get your information from social media*" (source: comment extracted from Quora).

4.3 Pedagogical Applications

The analysis of the most frequently discussed topics by Internet users, related to the concepts of affordances and constraints, showed that the lack of media literacy and the need to develop it are key issues. The deficiency in media literacy is especially relevant in the context of university education, where certain educational practices may help address this issue. These educational practices should emphasize students' active engagement with fake news.

Below are the main educational pillars derived from the analysis of the theoretical base and empirical data. These pillars may be built into lectures and seminars in the field of communications and

journalism aimed at developing students' critical thinking, analytical thinking, and media literacy. The proposed trajectories were divided into two sections: theory and practice.

Theoretical block:

(1) It is important to analyze the term "fake news" to understand how it differs from other types of disinformation (e.g., hoaxes, rumors, deepfakes, cheapfakes). It can help provide a basis for understanding the concept of fake news by highlighting its structure and key properties. For example: "*Fake news is a piece of disinformation that can be entirely or partially false, often based on real events but created to mislead or manipulate a target audience. To appear more credible, fake news adopts the style of real journalism, including exaggerated or sensational headlines and a main text that lacks solid evidence, such as official documents or reliable data. While fake news may not always include multimedia elements like photos or videos, these are often used to enhance its impact. The topics chosen for fake news are often selected to resonate with specific audience interests, increasing their chances of going viral. Additionally, fake news often takes advantage of cognitive biases, reinforcing existing beliefs and hindering critical thinking*" [11].

Regarding the inherent characteristics of fake news, it is crucial to show students all the main features of fake news. These include: 1) the lack of evidence base (fake news does not have a systematic, coherent, and well-structured evidence base regarding the claimed topic); 2) suspicious and unverified primary sources (the origin of fake news is difficult to determine; fake news can appear on suspicious news sites, or on sites that imitate real, authoritative media); 3) the importance of the topic for a certain segment of the society (fake news' topic concerns the interests and values of a specific part of the audience in order to create a viral effect of the message); 4) intense emotional connotation of the message and emotional response of the audience (fake news tends to exude strong opinions, emotions, attitudes, and sentiments.); 5) simplified language and style of fake news (a text is written in simple language); 6) conscious intent to deceive or mislead the audience (fake news is created and spread for selfish purposes, as it is based on the author's desire to deceive the audience); 7) presence of sensational headline of fake news (typically, fake news headlines are false and outrageous, having exaggeration, sensationalism, and even violence in common) [11].

After discussing these characteristics, it is essential to show several examples of fake news. Students may independently identify the previously mentioned characteristics and compare them with real examples of fake news. Such a strategy not only reveals the nature of fake news but also increases the level of student engagement through interaction with real examples from practice.

(2) Next, it is necessary to consider the external and internal mechanisms behind the dissemination of fake news. For a full understanding of the external mechanisms, it is important to focus on social factors such as social media algorithms, the echo chamber effect, and decreasing trust in traditional media, which provoke online users to consume fake news [9]. Internal mechanisms refer to the psychological characteristics of Internet users and explain why individuals consume, believe, and share fake news. It may help to demonstrate the relationship between various psychological dimensions - cognitive (e.g., different types of biases), emotional (e.g., heightened emotionality and emotional state), and personal (e.g., various personality traits, educational level, social practices) attributes.

By examining the technological, emotional, psychological, and social factors that influence susceptibility to fake news, students may develop a greater degree of awareness in their perception and consumption of social media content.

Practical block:

(1) The ability to identify fake news and develop fact-checking skills in students should become a key element in the educational process. Practical exercises should include the following types of activities:

(a) Students are divided into groups. The task is to find the original source of the news item and explain the search process – how students checked the information, and what search queries they entered. This exercise is aimed at developing data verification skills and the ability to work with cross-references.

(b) A teacher prepares several news items: two fake news and one true news. These news items are shown to students. In the first stage, students can be asked to reflect – which news items, in their opinion, are fake and which are real. In the second stage, students individually verify the news to confirm their accuracy.

(c) Students are divided into several groups. This time each group creates several news items. For example, three news items may be fake news, the other two – true news. Groups present their work, and their classmates identify which news items are fake and which are true. Afterwards, students discuss the main techniques used in creating fake news, such as sensational headlines or relevance

to peers. Understanding the mechanisms of creating fake news from the inside is also necessary in the process of their identification.

(2) Project-based analytical activity: students work in groups to develop a guideline or a mind map on media literacy. It should summarize the studied features of fake news and take the form of a checklist. Such exercise may help to consolidate knowledge and develop critical and analytical thinking. The following questions can be used as a starting point for discussion and analysis:

a. What is the source of this news? How reliable is it?
b. Is the source or website suspicious?
c. Does the news contain a provocative or sensational headline?
d. What emotions does this news evoke? Could these emotions be deliberately provoked?
e. Can the information be confirmed by other independent sources?

5. Discussion

This research showed that social media both facilitates and constrains the spread of fake news. Based on the analysis of internet users' comments, the most frequently discussed affordances included the prevalence of false and manipulative sources, as well as a low level of media literacy. Regarding constraints, users emphasized the importance of developing critical thinking, improving fact-checking skills, and promoting media literacy education. These empirical findings indicated the need for comprehensive educational programs for universities. Within these programs, students should master several competencies that are aimed at developing analytical skills, critical thinking, and a conscious choice of information sources, including the identification of fake news.

This paper focused on some tasks that can be introduced into the educational process at universities. The study was a logical continuation of existing works that also understand the process of using fake news in the educational process [15], [21], [23], [22], [19]. The novelty of this research is that it offers comprehensive guidance on how fake news can be used as an educational tool for developing students' media literacy. The study was structured around two blocks: theoretical and practical. Within the theoretical block, it was important to consider the theoretical basis for understanding the nature of fake news, as well as to consider the technological, emotional, psychological, and social factors and mechanisms for providing students with an understanding of how fake news is created and why people consume it. The practical block included some tasks that may be used by teachers to develop analytical and critical skills in students through direct interaction with fake news.

However, one limitation of this research is that the proposed activities have not been empirically tested in a classroom setting. Future research is expected to test the proposed tasks to determine the level of student engagement, as well as to capture key moments in students' reflections on the fact-checking strategy. An additional focus is also to expand the types of disinformation and their involvement in the educational process. Alongside fake news, deepfakes and cheapfakes can also be used as educational tools.

6. Conclusion

This study explored the educational potential of fake news as a tool for enhancing university students' media literacy. The research was grounded in a two-stage qualitative strategy. In the first stage, the qualitative content analysis of 150 user comments from blogs and forums (Reddit – 50 comments, Quora – 50 comments, and Lemmy – 50 comments), focusing on fake news. The analysis identified both affordances and constraints that contribute to or limit the spread of fake news on social media. Within affordances, the following sub-themes emerged: false and manipulative sources, and a low level of critical thinking and media literacy. As for constraints, the next sub-themes were identified: the development of critical thinking and media literacy, fact-checking skills, and providing people with an education program on media literacy. In the second stage, based on the findings, a set of educational activities involving fake news was designed to improve students' media literacy.

The key results of this research indicated that the lack of media literacy remains a significant issue for online users. According to selected comments, many individuals struggle to evaluate information critically, select reliable sources, and verify incoming data. The deficiency of these competencies should be addressed in the education system, primarily at universities. Consequently, a series of educational activities was proposed, focusing on developing students' critical and analytical skills, including the acquisition of fact-checking strategies.

The implications of this study are profound. The research contributes to the existing literature on media literacy. Despite the growing interest in fake news disseminated on social media, current

research focuses mainly on the issues of why people consume and accept fake news. Hence, the users' perspective on the logic of fake news dissemination remains underexplored in academic literature. This study draws on content analysis of blog and forum comments to analyze how ordinary people perceive the role of social media in either enabling or limiting the spread of fake news. Understanding these aspects can be used in the development of media literacy strategies for use in educational contexts.

The research has certain limitations. Suggested activities have not yet been empirically tested in a classroom setting. However, they are grounded in analytical reasoning and supported by current theoretical frameworks. Additionally, other forms of disinformation—such as deepfakes and cheapfakes—may also be integrated into educational activities.

Future research should empirically evaluate the proposed activities on fake news, with particular attention to assessing student engagement and identifying key patterns in their reflections on fact-checking strategies.

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