PROMOTING CRITICAL THINKING THROUGH THE NEWSPIRACY PROJECT: INSIGHTS FROM GREECE

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Abstract

In the context of increasing misinformation, this study explores how digital learning platforms can foster critical thinking and media literacy among educators. The research aims to evaluate the effectiveness, usability, and pedagogical value of the NEWSPIRACY platform and its Truth-Track tool. A mixed-methods approach was employed, combining Likert-scale survey data with thematic analysis of open-ended responses from 207 participants in Greece. Findings indicate that interactive, multimodal environments enhance users' analytical awareness, decision-making, and digital autonomy. The study contributes to understanding how educational design supports the development of informed and resilient digital citizens.

Introduction

The digital age has transformed the ways in which information is consumed and disseminated, granting users rapid access to vast digital content. While this democratization of knowledge is beneficial, it has also enabled the proliferation of fake news—deliberately misleading content disguised as legitimate journalism (Lobnikar et al., 2025; Zhang et al., 2022). Addressing the issue of fake news requires not only technical solutions but also educational strategies that promote media literacy and critical thinking. Citizens today act not only as consumers of information but also as distributors. The ability to critically evaluate information is essential for fostering informed and democratic participation. Critical thinking, paired with media literacy, allows individuals to examine claims, assess sources, and resist manipulation. Education plays a crucial role in promoting digital discernment and civic responsibility (Polizzi, 2025).

Critical Thinking and Media Literacy: Tools to Combat Fake News

Fake news tends to spread more rapidly than accurate news, driven by emotional appeal and novelty (Zhang et al., 2022). Vosoughi et al. (2018) found that false information on certain sites was significantly more likely to be shared. This phenomenon is linked to confirmation bias and motivated reasoning, which lead individuals to accept information that aligns with pre-existing beliefs (Bayrak et al., 2025; Pennycook & Rand, 2021). The "illusory truth effect" plays a significant role in the spread of misinformation; repeated exposure to falsehoods increases their perceived credibility (Fazio et al., 2015). Additionally, algorithmic content filtering worsens this problem by creating echo chambers that limit exposure to diverse viewpoints (Polizzi, 2025). Moreover, sharing fake news often serves social functions, such as signaling group loyalty, regardless of the content's accuracy. Therefore, effective interventions must address cognitive biases along with the emotional and social motivations behind dissemination of misinformation. Education is a powerful tool in combating fake news.

Educational Interventions for Digital and Critical Literacy

Zhang et al. (2022) demonstrated that multimedia-based media literacy programs significantly improve individuals' ability to identify fake news. By integrating digital literacy, learners can decode and challenge manipulative content (Lobnikar et al., 2025). Mihailidis (2018) argues that news literacy is a core civic skill that empowers learners to navigate the media landscape critically. Hobbs (2010) advocates for the integration of digital and media literacy across various subject areas, employing inquiry and problem-solving to develop critical media consumers. This educational model increases learner agency, fosters debate, and cultivates informed skepticism.

Digital literacy encompasses both functional skills and critical awareness. Polizzi (2025) introduces the idea of strategic disengagement, emphasizing the intentional avoidance of harmful digital content as a vital digital competency. Buckingham (2007) stresses the importance of understanding media production and its institutional context. This meta-cognitive layer of awareness is essential for resisting manipulation and participating ethically in digital environments. Sarmiento et al. (2025) found that learners with high levels of digital competence were significantly more accurate in distinguishing between reliable and misleading content. Digital competence includes recognizing bias, understanding algorithms, managing privacy, and engaging respectfully in online communication.

Critical Thinking and Reflective Engagement

Critical thinking is essential for resisting misinformation. It involves not only logical reasoning but also emotional intelligence and open-mindedness (Ennis, 1993; Facione, 1990). When applied to media content, critical thinking encourages learners to assess the intent, context, and reliability of information. Reflection-based strategies can enhance critical awareness; however, they must be carefully designed to avoid reinforcing biases, especially when identity is strongly tied to belief (Bayrak et al., 2025). Education systems should encourage diverse perspectives and foster intellectual humility, allowing learners to navigate complexity without resorting to oversimplified or polarized viewpoints.

Effective media literacy requires the integration of curricula and the use of multimodal pedagogical approaches. Zhang et al. (2022) highlight the benefits of visual and interactive content in enhancing memory retention and engagement. Educators must receive training in media pedagogy, and institutions should ensure that learners have equitable access to digital resources (Polizzi, 2025).

Scholars such as Buckingham (2007), Hobbs (2010), and Mihailidis (2018) advocate for inquiry-based, participatory learning strategies that empower learners to challenge dominant narratives, question sources, and engage in democratic discourse. At the policy level, it is crucial to address the digital divide. Without access to digital tools and education, marginalized communities remain vulnerable to misinformation. National and international collaboration can support inclusive and scalable media literacy initiatives, as well as teacher training.

Fake news poses complex educational challenges. A robust response must include critical thinking, media literacy, and digital competence, all fostered through inquiry-based and reflective education. Evidence indicates that multimedia and interactive learning environments effectively promote responsible digital engagement. Equipping learners with these skills enhances personal discernment and strengthens broader democratic resilience. As digital environments continue to evolve, education systems must remain committed to nurturing informed and critical citizens (Polizzi, 2025; Sarmiento et al., 2025; Zhang et al., 2022).

Methodology

This study aimed to evaluate the effectiveness, usability, and pedagogical impact of the NEWSPIRACY digital learning platform and the Truth-Track evaluation tool. As part of the Erasmus+-funded NEWSPIRACY project (2022–2025), coordinated by the University of Maribor in collaboration with partners such as the University of the Aegean, the University of Rijeka, and Valahia University of

Targoviste, this initiative promotes digital and media literacy among both pre- and in-service educators, particularly in addressing misinformation through education.

A descriptive mixed-methods approach (Cohen et al., 2017) was adopted to examine participants' perceptions after engaging with the platform. The study focused on three research questions formulated as follows:

(1) How effective is the NEWSPIRACY learning platform in promoting users' understanding of fake news mechanisms and strategies to identify and counter them?
(2) To what extent do interactive digital tools, such as the Truth-Track evaluation environment, enhance users' critical thinking and decision-making when exposed to questionable news content?

(3) What are the perceived strengths, limitations, and usability challenges of the platform and the Truth-Track tool as reported by student teachers and educators?

The study adheres to ethical standards, ensuring voluntary participation, anonymity, and General Data Protection Regulation (GDPR) compliance. The sample comprised 207 student teachers and educators in Greece who used the platform and completed a comprehensive post-intervention survey. Quantitative data were collected using Likert-scale items to assess users' understanding of misinformation, confidence in evaluating content, and satisfaction with platform features. Descriptive statistics were employed to analyze response patterns and trends (Cohen et al., 2017). For example, items such as "I understand the mechanisms behind fake news" and "The Truth-Track tool helped me think critically" were used to capture relevant insights. Qualitative data were derived from open-ended survey questions that asked participants to reflect on their experiences and suggest improvements. Thematic analysis identified key themes, including accessibility, media richness, interactivity, and challenges related to navigation and content overload. These insights enhanced our understanding of user engagement and transformation. This aligns with frameworks for developing reflective judgment and critical dispositions (Bayrak et al., 2025; Mihailidis, 2018).

Findings

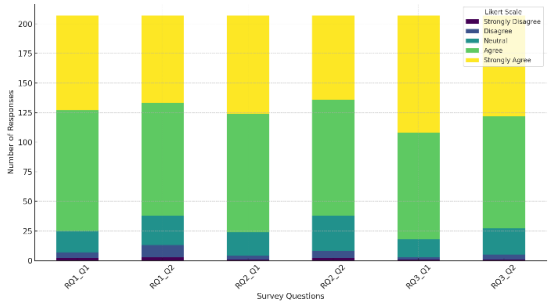
As shown in Figures 1 and 2, the NEWSPIRACY platform significantly enhanced users' competency in understanding fake news, critical thinking, and familiarity with its use, as evidenced by the relatively high mean scores.

Research Question 1: How Effective is the NEWSPIRACY Learning Platform in Promoting Users' Understanding of Fake News Mechanisms and Strategies to Identify and Counter Them?

Participants responded positively to statements measuring their understanding of fake news mechanisms, with mean scores of 4.2 and 4.0 on a scale of 5 (where 5 = strongly agree) for items related to comprehension and confidence. This suggests that the platform effectively enhanced users' foundational awareness of misinformation and its dynamics.

Figure 1

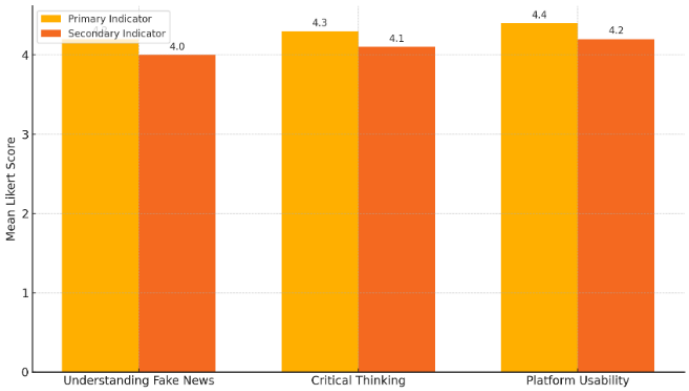
Distribution of Responses across Research Questions



Qualitative responses revealed that users experienced shifts in their interpretation and responses to online content. Several participants highlighted emotional manipulation and algorithmic bias as concepts they had not previously considered. One participant noted their unawareness of how headlines appeal to emotions, while another shared that the training encouraged them to examine who shared content and the motivations behind it. Reflections such as "I realized that I've been manipulated more often than I thought" highlight behavioral and cognitive changes.

Figure 2

Participants' Perceptions by Thematic Area



These reflections are directly linked to theoretical models of media literacy that emphasize reflexive understanding and contextual analysis. Rather than merely echoing content, participants internalized media analysis skills by applying them to real-world behaviors. This connection between theory and application reinforces the value of experiential learning models advocated by Buckingham and others.

Participant remarks on algorithmic awareness and message framing highlight an evolving understanding of the underlying digital structures, supporting the model of critical digital literacy (Polizzi, 2025). This development also reflects conceptions of civic agency within media literacy education (Mihailidis, 2018). Learners have progressed from merely understanding what fake news is to critically examining how and why misinformation operates within media environments.

Emotional and cognitive engagement reported by participants indicates a metacognitive shift, aligning with the disposition-oriented definitions of critical thinking proposed by Ennis (1993) and Facione (1990). Quotes referencing "surprise," "realization," and "reflection" provide evidence that users began to question their prior assumptions, signaling the development of cognitive flexibility. Participants' positive responses to case-based learning underscore the importance of grounding media literacy activities in real-world contexts (Zhang et al., 2022). Several individuals provided concrete examples of behavioral changes following the training, reinforcing the notion that authentic, multimodal tasks facilitate lasting transformation. They developed cognitive and emotional habits that foster skepticism, reflection, and judgment. The data support the claim that structured, example-rich platforms can effectively translate media theory into critical practice.

In summary, this research demonstrates that users did not merely learn about fake news. They cultivated cognitive and emotional habits that promote skepticism, reflection, and judgment, which are essential components of digital citizenship (Buckingham, 2007; Mihailidis, 2018; Zhang et al., 2022).

Research Question 2: To What Extent do Interactive Digital Tools, Such As the Truth-Track Evaluation Environment, Enhance Users' Critical Thinking and Decision-making When Exposed to Questionable News Content?

Participants reported that the Truth-Track tool significantly improved their decision-making and critical thinking skills, achieving average Likert scores of 4.3 and 4.1 on key items. These results were further supported by open-ended feedback, which highlighted increased reflection, a tendency to hesitate before sharing content, and enhanced confidence. One participant noted that they paused to consider the motivations behind an article, while another recognized their susceptibility to confirmation bias. Several participants emphasized how the tool's questions prompted them to engage in internal questioning. These reflections indicate that the platform did not merely present information but actively encouraged users to interrogate their own reasoning processes. This outcome aligns well with cognitive theories of reflection and correction. When participants engaged in critical self-examination, they demonstrated the type of reflective learning that Bayrak et al. (2025) associate with accuracy in assessing fake news. The structure of the tool facilitated real-time critical evaluation, consistent with the framework for media literacy interventions (Zhang et al., 2022).

Participant behavior also demonstrated strategic disengagement from harmful content, a core concept in digital literacy (Polizzi, 2025). Reports of users double-checking sources or slowing down their decision-making processes indicate that they engaged in deliberate disengagement based on their growing digital awareness. This behavior represents more than mere learning; it reflects the application of critical judgment. Their learning was not passive; it involved active monitoring and adjustment of their behavior. Formative feedback loops allow users to examine and refine their thinking, thereby reinforcing the metacognitive development outlined in educational theory (Cohen et al., 2017).

What emerges from the data is not merely a change in opinion but a transformation in the relationship between learners and information. Participants began to view themselves as evaluators rather than passive recipients. The platform served not only to inform but also to empower users to become active agents in the digital sphere. This shift supports conceptions of media literacy as a form of civic empowerment (Hobbs, 2010; Mihailidis, 2018). The patterns observed in user feedback align directly with theoretical models that prioritize engagement,

reflection, and cognitive autonomy as core learning outcomes. Essentially, this research question demonstrates that critical thinking was not merely taught but also actively exercised. These patterns support learning models that emphasize engagement, reflection, and autonomy within digital environments (Bayrak et al., 2025; Cohen et al., 2017; Hobbs, 2010; Mihailidis, 2018).

Research Question 3: What are the Perceived Strengths, Limitations, and Usability Challenges of the Platform and the Truth-Track Tool as Reported by Student Teachers and Educators?

Participants responded positively to the platform's usability, scoring 4.4 for navigability and 4.2 for the usefulness of multimedia. Comments highlighted the logical layout, visual clarity, and the value of multimedia content. Participants appreciated the ability to work at their own pace and revisit material as needed. One user noted how easy it was to return to earlier sections, while others remarked on the accessibility of various media formats and how video and visual elements clarified complex ideas. These responses align with learning design principles that emphasize cognitive load reduction and universal design.

Some participants noted challenges, such as scrolling fatigue and delays on slower connections. Others expressed interest in incorporating more interactive or social components. These remarks reflect limitations identified in existing research. Concerns about limited interactivity and feedback echo warnings regarding the risk of disengagement in digital learning environments (Lobnikar et al., 2025). User concerns about the absence of peer engagement highlight the view that literacy must incorporate social and emotional dimensions (Mihailidis, 2018).

Participant responses also indicate a demand for multimodal and flexible platforms (Buckingham, 2007). The appreciation for pace control and ease of access aligns with his model of differentiated learning environments. Similarly, the emphasis on accessibility and clarity is echoed in the satisfaction users expressed regarding the platform's structure and media support (Hobbs, 2010). Participants had the freedom to choose how and when to engage with information rather than simply receiving it passively. This autonomy is central to critical literacy. The platform created a space for active, self-directed learning, and the emphasis on autonomy aids in interpreting participant reflections on pacing and navigation (Polizzi, 2025).

Users directly linked comprehension to the availability of infographics and multimedia, reinforcing the pedagogical strength of integrating such content. These features not only facilitated understanding but also aided learners in retaining and applying information. Participant responses clearly supported the notion that retention is enhanced through effective visual design (Zhang et al., 2022). The feedback from participants mirrors the theoretical consensus: effective media

education tools must be clear, flexible, and socially responsive. The voices of the participants indicate that the platform largely succeeded in creating an accessible and meaningful digital learning environment. In summary, the data show that the platform's usability features were not neutral; they shaped how participants engaged with content and navigated their learning journey. This aligns closely with theories on multimodal literacy, learner autonomy, and inclusive design (Buckingham, 2007; Hobbs, 2010; Polizzi, 2025; Zhang et al., 2022).

Conclusions

The analysis of all three research questions reveals several important insights into the design and educational value of digital learning platforms aimed at enhancing critical media literacy. Participants consistently reported high levels of engagement, increased confidence, and perceived improvements in their ability to evaluate misinformation, particularly through the use of interactive elements and structured multimedia resources. These findings underscore the necessity of pedagogically sound, learner-centered digital environments in developing informed and resilient digital citizens (Hobbs, 2010; Mihailidis, 2018).

The value of interactivity and feedback-rich design is justified. Multimedia and branching scenarios are effective tools for stimulating cognitive engagement and improving knowledge retention (Zhang et al., 2022). When participants were exposed to simulations and real-world scenarios, they not only became aware of misinformation techniques but also honed their evaluative and reflective judgment (Bayrak et al., 2025; Facione, 1990). These outcomes support that experiential and inquiry-based learning promote higher-order thinking skills (Buckingham, 2007).

A second significant conclusion pertains to the role of usability and accessibility. High mean ratings for navigational clarity and instructional design confirm findings from Cohen et al. (2017), who note that intuitive design is crucial for maintaining learners' focus and motivation. When platforms align effectively with user expectations and provide autonomy in learning, they foster greater user satisfaction and sustained engagement (Polizzi, 2025; Sarmiento et al., 2025). Moreover, the emphasis on multimodal delivery proves that effective digital literacy education must accommodate diverse learning styles (Hobbs, 2010).

Thirdly, the findings reinforce the importance of fostering metacognitive awareness and digital self-regulation. Participants frequently reported greater reflection on their media consumption and a more cautious approach to sharing and evaluating online content. This development echoes Mihailidis' (2018) conception of civic media literacy, which posits that learners must cultivate both critical consciousness and ethical judgment to navigate the emotionally and ideologically complex digital

landscape. Such reflective capabilities are essential for individual digital behavior and for promoting democratic resilience at the societal level (Polizzi, 2025).

However, some limitations must be acknowledged. The study relied on self-reported, post-intervention data. Additionally, participants represented a single national context, which may limit the generalizability of the findings. Future research could expand this scope with longitudinal or comparative designs.

Overall, the evidence supports that digital platforms designed with interactive, reflective, and user-responsive features can significantly strengthen learners' ability to identify and resist misinformation. These platforms support individual cognitive development and contribute to the broader educational aim of fostering digital citizenship (Hobbs, 2010; Sarmiento et al., 2025; Zhang et al., 2022). As media landscapes continue to evolve, educators must also adapt their pedagogical strategies. By grounding digital learning in robust theoretical frameworks, such as critical pedagogy, user-centered design, and experiential learning, educators and policymakers can create inclusive and adaptable tools that empower learners to thrive in complex digital environments (Bayrak et al., 2025; Buckingham, 2007).

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