Combat Fake News: An Overview of Youth's Media and Information Literacy Education

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Abstract. Media and Information Literacy (MIL) is a global movement responding to the widespread dissemination of fake news and information disorder in this digital era. The lack of MIL competencies and confidence among youth underscores the importance of MIL education. Considering its absence from Malaysia's formal curriculum, this paper presents an overview of MIL education approaches worldwide and proposes future research directions for integrating MIL into cross-disciplinary curriculums to combat fake news. Utilizing an integrative literature review, this article explores the relationship between fake news and MIL education, the current landscape of MIL and pedagogical approaches, and the key techniques and components to enhance MIL skills in youth. MIL education plays a vital role in countering fake news by incorporating constructivism learning methods and promoting active participation. It empowers students to understand media ethics, recognize cognitive biases, develop critical thinking, and fact-checking skills, and engage in content creation. To advance this field, potential future research directions include long-term and integrated approaches, using experiential and engaged learning models, culturally sensitive practices, and the assessment of game-based learning in MIL competencies. This paper contributes to the discourse on MIL education, shedding light on its significance and providing valuable insights for educators, researchers, and policymakers seeking to address the challenges posed by fake news, but acknowledges limitations in relying on existing literature and lacking empirical evidence.

Keywords: fake news, media literacy, information literacy, media education, media and information literacy education, pedagogical approach, youth

1 Introduction

1.1 Background and Importance

The rapid spread and acceleration of online fake news and false information are closely linked to the rise of social media [1]. Excessive consumption of fake news may not only confuse and mislead online users with biased facts [2], but it can also lead to social conflict [3], humanitarian crises, and health emergencies. For instance, the widespread

dissemination of misleading health information on social media during the COVID-19 pandemic [4] has led to what is commonly referred to as an "Infodemic" [5]. The Digital News Report 2018 by Reuters Institute revealed that despite 88.7% of Malaysian citizens being online [6], most Malaysians struggle to differentiate fake news [7]. Meta announced their second quarter 2022 Adversarial Threat Report (pg.18) which revealed that around 600 Facebook and Instagram accounts in Malaysia have been removed due to violating the Coordinated Inauthentic Behaviour (CIB) policy, with most of them are alleged to be part of a "troll farm" used to corrupt or manipulate public discourse [9]. The emergence of Artificial Intelligence (A.I.) chatbots has exacerbated the situation [10], as researchers have expressed concerns about their ability to generate persuasive and deceptive text at a large scale, including the propagation of conspiracy theories and misleading narratives[11].

Various approaches have been employed to combat the fake news problem, ranging from legal control [1] to the use of machine learning algorithms for fake news detection and the enhancement of fact-checking mechanisms [12], [13]. Unfortunately, it is still difficult to distinguish online truthful signals, due to the high variety of content types and formats and the nature of social media [2]. Studies show the role of media education to counter fake news [14]. A long-term and sustainable solution to fake news is to develop media and information literacy (MIL) in education one of the most promising strategies in dealing with this issue [15]–[19].

While youth are enthusiastic and skilled users of electronic and social media, especially for entertainment purposes [20], they often lack motivation and confidence to engage in critical thinking and active participation regarding media content, making them more vulnerable to the influence of fake news [21]. The United Nations [22] and the Department of Statistics Malaysia (DoSM) [23] define youth as persons between 15-24 years, their limited media and information literacy (MIL) skills [15] put them at a higher risk of being exposed to negative or harmful content online [24]. Empowering youths by equipping them with MIL skills to become critical media users and participate in media creation to combat fake news and misinformation is crucial [16].

Malaysia is part of the Global Alliance for Partnerships on Media and Information Literacy (GAPMIL) [25], yet there is no MIL education in formal education curriculum or syllabus regardless of the urgent need for this competency [8], [26], [27]. Thus, the objective of this study is to conduct a literature review on pedagogical approaches of MIL education implemented in other countries. The study aims to explore the various pedagogy approaches employed in MIL education and identifying the key techniques and components used in youth MIL intervention that have proven effective in equipping them to identify and combat fake news. Additionally, the study seeks to review the achievements and challenges associated with specific pedagogy approaches and propose the possible future direction of MIL education in cross-disciplinary curriculums to combat fake news.

The research questions to be answered in this study include: "What is the definition of fake news and how does MIL education address the challenges posed by fake news?"; "What pedagogy approaches have been employed in MIL education in the existing literature?"; "What are the key techniques and components of youth's MIL intervention that contribute to combating fake news?"

2   Methodology

To conduct this integrative literature review, a systematic search was conducted using various academic databases, including Google Scholar, Web of Science, Scopus, and ERIC. The search was conducted using a combination of keywords and phrases such as "media and information literacy education, "media literacy", "media literacy education", "fake news," "youth," "education", "pedagogy", and "media education learning approach". Through iterative refinement, certain keyword combinations were found to yield the most relevant results, including: "combat fake news" AND "media literacy education" AND "youth"; "digital literacy education" AND "fake news detection" AND "youth"; and "information literacy education" AND "misinformation" and "disinformation" AND "youth". The inclusion criteria for this review were studies published between 2006 and 2022, written in English, and found in peer-reviewed journals, the most recent information is deemed most important due to its relevance and timeliness.

Throughout the review of the literature, three distinct themes emerged. First is the definition of fake news phenomena and the pivotal role of MIL education in equipping individuals to tackle it. Second, MIL education landscape and various pedagogical strategies used to teach youth MIL skills in others country. Lastly, the key techniques and components in MIL intervention for identifying fake news. This article will elaborate on these themes to answer the three research questions with a conceptual framework and provide insights into future research and development in MIL education, particularly in Malaysia context.

3   Finding and discussion

3.1   Definition of fake news and the role of MIL education

Fake news is defined as news articles that are purposefully and verifiably false and could mislead readers [19]. However, scholars hesitate to use the term "fake news" as it has always been manipulated by politicians or governments against journalists and news organizations who disagree with their perspectives [2], for instance, U.S. former president Donald Trump tampered with social media [28], the term "fake news" gained popularity during the 2016 U.S. presidential election and made Trump's victory [29]. Hence, researchers would often replace the term "fake news" with "Information Disorder" [30], which includes: (1) Misinformation: false information without the intention of causing harm; (2) Disinformation: false information deliberately created to harm a person, social group, organization, or country; and (3) Mal-information: real information deliberately caused harm to a person, organization, or country.

Fake news and misinformation are skillfully designed to appears authentic, making it difficult for readers to identify their deceptive nature. These false narratives are intentionally crafted to mislead, deceive, or advance specific agenda [16]. Addressing fake news is a complex task as it stems from broader trends in politics and media [1],

[31], especially when it comes to epistemology. The "filter bubble" or "echo chamber effect" in the social media contributes to people believing and filtering information based on their preferences and biases [32]. While humorous content provides an escape from gloomy news and fosters community spirit [33], it has detrimental impact on youth who heavily rely on social media for entertainment and communication [34] with less critical thinking skills [35], [36].

According to the UNESCO [37], individual belief, perception, and attitudes are significantly influenced by the quality of information they consume and engage with. Media and Information literacy (MIL) serves as a framework and equips individual necessary skills to actively shape their opinions and interpret information from diverse sources, including media, libraries, individuals, and the internet [16]. MIL education enables young people to build media awareness, enabling them to evaluate, analyse, and process mass media content, thereby reducing the negative impact of misinformation and disinformation [38], [39].

MIL education which consists of media literacy and information literacy combined by UNESCO in 2011 to MIL indicator and Curriculum for teachers [40] and is synonyms with digital literacy [41]. Local scholars later modified into 6 modules in a guidebook for Media and Communication students in Malaysia Media and Information Literacy [27], which includes: (1) A world without MIL; (2) Information disorder and echo chamber; (3) Cognitive biases; (4) Media institutions and their influences on the society; (5) Fact-checking skills and (6) Building a safe media space for all. This is an important reference guide, but it has not been generalized and integrated into cross-disciplinary curriculums.

Overall, MIL education plays a vital role in fostering a media-literate society, equipping individuals, particularly young people, with the necessary skills and awareness to navigate complex media landscape, identifying fake news, and mitigate the negative effects of misleading information.

3.2   MIL education landscape and pedagogical approaches

MIL has been integrated into the educational systems of Western countries like the U.S., Europe, and Russia [40], [42], encompassing school curriculum, university syllabus, and training programs. In contrast, MIL education in Asia and developing countries has evolved differently due to diverse socio-cultural factors, digital coverage, and contextual considerations [34]. (Refer to Table 1)

Most of the program in developing countries was first supported by international NGOs such as UNESCO [40] and UNICEF [34], to strengthen the young students' MIL competence, sharpen their critical attitude towards information from various media platform to participate in content-creating in human right approach [42]. For instance, the Little Master's Program in China and the Young Journalist (YOJO) group in Vietnam empower students to develop media skills and advocate children's [34]. In, India, The Cybermohalla program promote media production and critical engagement through project-based learning and community-based. However, these approaches face

challenges related to commercialization, excessive protectionism, inadequate technical condition, and sustainability issues. [34]

Germany public state-owned international media organization DW Akademie (Deutsche Welle Akademie) has launched a long-term project in various developing countries such as Burundi, Cambodia, Palestine and Uganda. These projects involve integrating MIL into school syllabus with the support of local and international partners, school administrations, and education ministries [42].

While Singapore has comprehensive conceptual guideline, modeling programs and instructional material from their Ministry of Education (MOE) to integrate information literacy into a different level of school curricula [43], there is a lack of attention and implementation of media literacy. Despite the sufficient focus on information literacy, media literacy has not received the same level of attention from local authorities, leading to a lack of guidelines and implementation in Singapore's education system[44]. In Hong Kong, a distinctive network model strategy was employed to promote MIL education. This strategy involved the formation of a voluntary grassroots community movement that encompassed multiple sources and aimed to foster the development of MIL education [45].

Overall, the MIL education landscape in Asia highlights the importance of cultural sensitivity needed when implementing the MIL training or intervention across different countries based on their unique socio-cultural contexts and digital landscape. Various pedagogy approaches, including constructivist learning [46], creative learning [32], participatory learning [47], humanistic approach to learning and customised learning [42] have been utilized in MIL. Additionally, pedagogical methodologies such as problem-based learning [43], cooperative learning [45], team teaching, production-based learning [34], reflective practice, and experiential learning are suggested to foster MIL key techniques and skills development [46].

Table 1. MIL education and learning approach in different countries and regions.

Program name/ Region	Key aspect and strategies	Pedagogical approaches	Achievement	Criticisms/ Challenge
Little Master's Programme, China [34]	Specialized training in writing, gather information, editing, design, and photojournalism.	Situated learning, active participation.	Empower student reporters to create their own story in both traditional and new media.	Allow targeted advertising to children.
Cybermohalla, India [34]	Animation, booklets, broadsheets, HTML, soundscapes, photo stories, words, audio.	Project-based learning, situated learning, community-based learning.	Provide underprivileged youth access to emerging technologies.	Protective actions from denying others visits.

YOJO, Vietnam [34]	Reporting in gathering information, produced radio programme and articles.	Situated learning, experiential learning.	Develop and inculcate children's rights via print-based and radio media.	Youth doubt of skills and commitment.
The media and me, Burundi [42]	Analyzing media, reflect own media consumption, learn to make radio broadcasting.	Situated learning, experiential learning.	MOE discussed MIL in schools with a local media organization,	N/A
Media Literacy Project, Cambodia [42]	Information and media, social media and Facebook, and photograph and photojournalism.	25-day workshop training.	Integrating MIL into the ICT education curriculum of the MOE.	Poor technical condition.
Speak up! Palestine [42]	Promoting students' concern and issues via the school intercom and wall magazines.	Project-based learning, experiential learning.	Widespread access to simple technical equipment needed boosted students' self-esteem and confidence.	Program for training MIL trainers needed.
Let's talk about it, Uganda [42]	Technical training, mentored at the radio stations and developed journalism and ethics.	Situated learning, experiential learning.	Youth citizen reporters utilize ordinary phones to produce reports, live interviews, and phone-in shows.	N/A
Singapore [43], [44]	Media literacy and information literacy in all levels of school curricula.	Problem-based learning, project work, active learning.	Information literacy had integrated into different level of school curricula.	Low media literacy and less attention from local authority.
Hong Kong [45]	Media and information literacy	Social network model, community learning.	Organizations interact with each other to form an informal network of media education.	Need more input from the information literacy.

3.3   Key techniques and components in youth MIL intervention to combat fake news

Various studies have employed different pedagogical strategies to enhance MIL skills which in turn contribute to combat fake news by empowering youth with the necessary fact-checking skills and knowledge to navigate the complex information landscape [27].

Dame Adjin-Tettey's research [16] examined the impact of a 2-hour online MIL intervention on university student's ability to identify fake news and their sharing intentions. The training covered essential MIL skills, including identifying credible websites, recognizing indicators like bylines and grammar or punctuation errors, evaluating article sources, utilizing fact checkers, and conducting reverse image searches. The study found that while the training reduced participants' inclination of share fake news, but one-off online session was insufficient to enable them to determine information authenticity [16]. This highlights the need for longer and integrated MIL education within mainstream curricula to enhance awareness and competency in spotting fake news. Buckingham [48] discussed the difficulties of teaching media literacy in the "post-truth" era [48], he agreed MIL education with teaching internet literacy and critical thinking skills to young people as an alternative solution for information disorder. However, it should not solely focus on identifying fake news. Instead, it should encompass recognizing bias in all sources of information. To achieve this, concepts such as objectivity, impartiality, fairness, and balance are explored within the context of MIL education [31].

Experiential learning approaches and project-based learning have been successfully employed in various studies to improve students' MIL skill [34], [42]. For example, the project involved leading workshops for high school students on 1) Deconstructing news, evaluating sources; 2) Balance, fairness, bias; 3) Truth, and verification to enhance media literacy and news literacy among university students. However, despite the positive impact on identifying credible sources and deconstructing news, the students' knowledge of different media methods, source reliability evaluation, and fairness and balance assessment remained at a relatively low level [49]. Nevertheless, student reflections emphasized the importance of media and news literacy lessons, highlighting the significance of combining engaged learning models with media and news literacy frameworks. Resonate with research in Jordan [39] to examine the critical thinking skills of educational students after a semester-long MIL course. The study utilized various media contents on social networking sites to assess students' abilities to understand and criticize media content, including hate speech and offensive content. The findings indicated an acceptable level of critical thinking skills among students, particularly in analyzing content that explicitly offends individuals and institutions. However, interpreting media messages with linguistic errors and content involving satire proved more challenging.

MIL education promotes active student participation in media production, fosters their analytical skills in dealing with media information, creative and argumentation skills. It encourages a tolerant society through collective decision-making and diverse

perspectives and ethics [50], [51]. The concept of "prosuming" refers to the combination of consuming and producing media [52], empowering individuals to express their overlooked opinion [34]. The creative participation model [53] stands out as an innovative approach, emphasizing active engagement and knowledge construction. It aligns with the concept of "participatory culture" [47], promoting collaborative project work, and interactive methods for learning. The preliminary finding of GamiLearning project [54] conducted with 9-to 14-year-old students in Texas and Portugal (2015- 2018) suggest that the development of videogames can effectively promote MIL skills based on constructivist and project-based theoretical framework approach. The study showed significant differences in critical media literacy and others related skills such as operational skills, editorial skills, digital identity skills. However, it is important to note that the use of pre-post questionnaires for assessment relies on self-reported data, which may not fully reflect the true skill level of the participants.

Some scholars and educators used game-based learning to engage students and improve their critical thinking to detect fake news, however the evidence for their effectiveness was not always promising [18], [21], [55]. The "Bad News" game has shown the initial evidence for improving people's ability to spot and resist misinformation after gameplay [55]. However, testing the game in higher education contexts has found no significant effects on combating fake news [18], [21], [35]. In a study on sustainable educational for future communicator role-playing game in Romania [35], the game experience highlighted the importance of 1) Teamwork; 2) Strategy experimenting with manipulating audience; 3) Content production and editing; 4) Critical thinking and 5) Understanding media message. All students showed interest and enthusiasm for the game experience, but additional strategies and targeted interventions are needed in formal and informal settings to enhance critical thinking and genuine MIL skills.

Effective pedagogical approaches are crucial for strengthening students' competencies in utilizing digital media and information[32]. However, there are the challenges associated with MIL education programs and interventions, including the limitation of one-off campaign model [16], [42] , difficulties in assessing MIL education [56], the lack of explicit outcome definitions and framework [49], time-consuming and complex development processes [55], and the limitations of self-assessment surveys in measuring true skills [39].

In conclusion, MIL education plays a crucial role in equipping individuals with the skills to critically analyse and interpret information, enabling them to differentiate between true and false content. Secondly, constructivism learning method and active participation such as situational learning, problem-based learning and project-based learning are widely employed in effective MIL education programs. Moreover, key techniques and components of MIL, including critical analysis of media content, cognitive biases, understand media roles and ethics, fact-checking skill, active engagement, and creative involvement, empower youth to effectively combat fake news by applying their MIL knowledge.
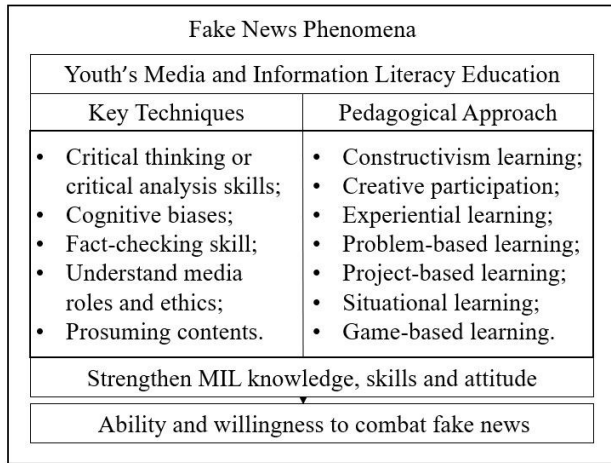
Fake News Phenomena

Youth's Media and Information Literacy Education	
Key Techniques	Pedagogical Approach
• Critical thinking or critical analysis skills; • Cognitive biases; • Fact-checking skill; • Understand media roles and ethics; • Prosuming contents.	• Constructivism learning; • Creative participation; • Experiential learning; • Problem-based learning; • Project-based learning; • Situational learning; • Game-based learning.

Strengthen MIL knowledge, skills and attitude

Ability and willingness to combat fake news

Fig. 1. Conceptual framework of MIL education to combat fake news.

4   Conclusion and recommendations

Fake news or information disorder is an unavoidable phenomenon and brings serious consequences in this digital age. MIL education takes a crucial role to enhance youth critical thinking in consuming media information and empower them to active participation in combating fake news with media production. This paper presents an overview of MIL education and insight into the direction of Malaysia's MIL education context.

According to the literature review, several potential future research directions for MIL education could be culturally sensitive, long-term, and integrated, experiential, and engaged learning models, and assessment of game-based learning in MIL competencies.

First, a sustainable and integrated MIL education is to address the insufficient of short-term or one-time off programme [16] to develop the essential skills to perform critical thinking and fake news detection. Future research could investigate the effectiveness of long-term and integrated MIL education programs by continuous keep track of MIL skills across different subjects and grade levels [42].

Second, experiential and engaged learning models such as creative participation model [53] collaborative problem-based methods, and hands-on group activities. Media literacy skills enhancement has been shown as the benefits of experiential learning approaches, and higher-order skills of students could be explored [49]. This could help in designing and effectively evaluating pedagogical methodologies on student's abilities to deconstruct news, evaluate source and critically analyse media content.

Third, culturally sensitive MIL education. The review highlights the variations in MIL education approaches across different races and religions [34], [42]. To effectively

suit specific socio-cultural backgrounds, understanding the unique challenges and opportunities associated with MIL education in different cultural settings and developing context-specific interventions is required. With that future research could analyse the implementation of MIL education in diverse cultural contexts and explore the adaptation of pedagogical strategies.

Finally, assessment of game-based learning in MIL competencies. Game-based learning in improving critical thinking to identify and combat fake news has shown mixed results on effectiveness [18], [21], [55], also the review mentions the need for comprehensive assessment measures to evaluate students' MIL competencies effectively [56]. Future research could focus on developing reliable and valid assessment tools to assess students' critical thinking, and their ability to recognize bias, analyse sources, and critically evaluate information. These assessments should go beyond knowledge recall and focus on further abilities, which could provide insights into effective approaches when design and implementation of game-based interventions that specifically target the development of MIL skills.

This paper contributes valuable insights to the ongoing discussion on MIL education addressing the challenges of fake news and providing guidance for educators, researchers, and policy makers. However, it is important to acknowledge the limitations of this article. While it offers a comprehensive analysis of existing literature, empirical studies evaluating the effectiveness of different MIL education approaches are lacking. Future research should prioritize evaluating the various MIL education approaches, considering the current dearth of empirical evidence. Additionally, this paper suggests future research directions but does not extensively explore specific research gaps or identifying potential challenges and barriers that may hinder the implementation of MIL education in cross-disciplinary curricula. It is crucial to recognize that the findings and recommendations presented in here are based reviewed literature and may not universally apply to all educational contexts. Different cultural, social, and educational settings may require tailored approaches to MIL education.

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