



## **Digital Literacy in Education: An Analysis of Critical Thinking Culture for Preventing the Hoaxes**

**Muhammad Nurfazri<sup>1\*</sup>, Ferli Septi Irwansyah<sup>2</sup>, Fahmy Lukman<sup>3</sup>, Mohammad Eisa Ruhullah<sup>4</sup>, Sri Mellia Marinda<sup>5</sup>**

<sup>1</sup>*KEDJATI Foundation, Bandung, Indonesia*

<sup>2</sup>*Chemistry Education Program, Faculty of Tarbiyah and Teacher Training, UIN Sunan Gunung Djati Bandung, Bandung, Indonesia*

<sup>3</sup>*Linguistics Department, Faculty of Cultural Sciences, Universitas Padjadjaran, Bandung, Indonesia*

<sup>4</sup>*International Institute of Islamic Thought and Civilization, International Islamic University Malaysia*

<sup>5</sup>*Kampus Insantama, Bogor, Indonesia*

\**muhammadnurfazri@kedjati.com*

Received: 06 Februari 2024 ; Accepted: 15 Mei 2024 ; Published: 22 Mei 2024

DOI:<http://dx.doi.org/10.15575/jp.v8i1.268>

### **Abstract**

In the 21<sup>st</sup> century, a hoax is one of the biggest problems in the world, especially in Indonesia. The post-truth phenomenon and the ease of disseminating information on social media are the primary triggers for this case. Moreover, this disruption era is marked by a flood of information, rapid change, and high use of internet technology. This research intends to analyze the importance of digital literacy, especially critical thinking (CT) culture, in preventing hoax news. A literature review is employed in this research. This method explains how CT skills can be used in digital literacy. The results underscore several points: a) the urgency of digital literacy is based on a big problem in the digital world in Indonesia, namely hoaxes; b) digital literacy can be applied in tips such as those discussed by Facione (1998) regarding the six CT skills that require technical and theoretical skills; c) emphasize technical skills in assessing account identities or media that produce information by Nagler (2017); and d) there are several opportunities for implementing digital literacy. Hence, this research concludes the importance of instilling CT skills in fighting hoax news or misinformation. Apart from that, if we look at the data regarding the low level of digital literacy in Indonesian society, it is urgent to implement digital literacy methods and CT skills integrated with educational institutions or more formal policies.

**Keywords:** Critical Thinking, Digital Literacy, Education, Hoax, Information

*Abstrak*

*Di abad 21 ini hoax menjadi salah satu permasalahan terbesar di dunia ini, khususnya di Indonesia. Fenomena post-truth dan kemudahan penyebaran informasi di media sosial menjadi pemicu utama kasus ini. Apalagi era disrupsi ini ditandai dengan membanjirnya informasi, perubahan yang cepat, dan tingginya penggunaan teknologi internet. Penelitian ini bermaksud untuk menganalisis pentingnya literasi digital, khususnya budaya berpikir kritis (CT), dalam mencegah berita hoax. Tinjauan literatur digunakan dalam penelitian ini. Metode ini menjelaskan bagaimana keterampilan CT dapat digunakan dalam literasi digital. Hasil penelitian ini menggarisbawahi beberapa poin: a) urgensi literasi digital didasari oleh permasalahan besar dunia digital di Indonesia yaitu hoax; b) literasi digital dapat diterapkan dalam tips seperti yang dibahas oleh Facione (1998) mengenai enam keterampilan CT yang memerlukan keterampilan teknis dan teoritis; c) menekankan keterampilan teknis dalam menilai identitas akun atau media yang menghasilkan informasi menurut Nagler (2017); dan d) terdapat beberapa peluang penerapan literasi digital. Oleh karena itu, penelitian ini menyimpulkan pentingnya menanamkan keterampilan CT dalam memerangi berita hoax atau misinformasi. Selain itu, jika melihat data rendahnya literasi digital masyarakat Indonesia, maka menerapkan metode literasi digital dan keterampilan CT yang terintegrasi dengan lembaga pendidikan atau kebijakan yang lebih formal adalah hal yang mendesak.*

*Kata kunci: Berpikir kritis, Hoaks, Informasi, Literasi Digital, Pendidikan*

## **A. Introduction**

The advancement of information and communications technology (ICT) has brought a new chapter to human civilization, and its expansive reach makes human interaction in the dimensions of space and time increasingly limitless (Nurfazri, 2022). ICT has given birth to many social media platforms for interaction (Aliah & Nurfazri, 2023). Social media has become a mandatory prerequisite in communication for Indonesian society today, especially millennials and Gen Z. Hootsuite (We Are Social) noted that 276,4 million Indonesians are active internet users (Annur, 2023). Unfortunately, the domino effect gives birth to hoaxes intertwined with social media today. Regardless of the season, hoaxes always appear on various social issues, such as politics, economics, and religion. The public may become uncomfortable with the flood of hoaxes on social media, especially if they need clarification on the information circulating without a clear truth. Meanwhile, the Indonesian Ministry of Communication and Information (KOMINFO) has found 800,000 hoax sites spreading in Indonesia (Yuliani, 2017).

On the other hand, social media is chosen for its practicality and speed of sharing information. An American buzzer, Tommaso Debenedetti, bluntly admitted to The Guardian that social media is the most unverifiable source of information in the world but is easy to trust because of its need for the speed of information (Kington, 2012). Also, the most significant factor causing the spread of hoaxes is the lack of digital literacy in the community. Moreover, the results of the 2006 Central Bureau of Statistics (BPS) census showed that 85.9% of the Indonesian population preferred watching television rather than listening to the radio (40.3%) or reading newspapers (23.5%) (Wiedarti et al., 2018). In addition, in the “Most Littered Nation

in the World study by Central Connecticut State University” in March 2016, Indonesia was ranked 60<sup>th</sup> out of 61 countries regarding interest in reading—far below neighboring Singapore, the Philippines, and Thailand (Gewati, 2016). However, the International Education Achievement (IEA) also reported that the reading ability of elementary school students in Indonesia ranked 38<sup>th</sup> out of 39 participating countries, meaning that Indonesia ranks 38<sup>th</sup> out of 39 countries in 2006 (Wiedarti et al., 2018). Meanwhile, the results of the Program for International Student Assessment (PISA) in 2018, announced simultaneously on December 3, 2019, to all participating countries of the Organization for Economic Co-operation and Development (OECD), indicate that Indonesia still holds the lowest position, ranking 74<sup>th</sup> out of 79 countries, with scores for reading, math, and science at 371, 379, and 396, respectively (Azizah et al., 2022). Furthermore, the report from the Ministry of Education, Culture, Research, and Technology (Kemendikbudristek) indicates that Indonesia's cultural literacy score was 57.4 points in 2022, yet the figure is not sufficiently high to create quality resources (Muhamad, 2023). Moreover, Maman Suherman (An Indonesian journalist) evaluates that literacy should encompass three essential aspects: enlightenment, enrichment, and empowerment.

On the other hand, the most ironic thing is that hoaxes often affect various groups, except for educated people and people with a good culture of creative and critical thinking (CT): those who can answer questions about digital literacy. Digital literacy is the ability to think critically about information received in the digital era, including social media. This ability is needed in the era of disruption; it is even mandatory now. Hence, digital literacy consists of the ability to receive, process, select, and criticize information. However, many people cannot use digital literacy with CT methods to analyze news or information from various sources. Moreover, CT is not taught separately in Indonesian curricula (Kurniawati et al., 2020). Consequently, the Indonesian communities are easily exposed to hoaxes (Aji in Baiduri, 2017). Hence, this problem must be resolved because increasingly advanced times require strong literacy and CT skills.

Therefore, this research is crucial because the researchers see the extent to which one of the steps of digital literacy is the CT method and its urgency in the era of disruption. The public knows that the era of disruption has three main characteristics: the flood of information, speedy changes, and the massive use of internet technology. These three characteristics are interrelated and are influenced by the development of Internet technology, which plays an important role. Socio-cultural changes are getting faster through the internet because of how easily information can spread to all corners of the world. As a result, this research will reveal the main questions: What and how are hoaxes and CT skills urgently applied in educational institutions in Indonesia?

Several previous studies have been carried out, such as Seung-Hyun Lee (2014) which focused on researching people with little access to digital literacy, including illiteracy. After the digital literacy process was taught, it significantly affected the overall literacy process. Lee added that digital literacy must create equality of learning in the digital world for people who do not have access to it. This case was crucial for realizing digital connection and inclusion (Lee, 2014). In response, the author saw that digital literacy still has steep obstacles regarding the number of internet distribution, especially in Indonesia, which is still very low (Wahyuni, 2018). Therefore, digital literacy will only be internalized to some levels of society if external constraints exist, such as uneven internet connections.

Subsequent research was conducted by Naimatus Tsaniyah (2019), who concluded that digital literacy is closely related to eight essential elements, namely: cognitive (expanding the mind), proactive (creating good things), communicative (ability to connect and network), optimistic and responsible, inventive (doing new things), critical (critical in dealing with content), civil (supporting the realization of civil society) (Naimatus Tsaniyah, 2019). One of these findings is echoed by research conducted by Silvana & Darmawan (2018), which concludes that digital literacy is a solution that the government must implement, and the community and the academic community care about the country's growth. The study begins with the assumption that young people, also known as millennials or digital natives, are the most active social media consumers today (Silvana & Darmawan, 2018).

Furthermore, research on digital literacy and CT methods was conducted by Mardliyah (2019), which found that literacy culture plays a crucial role in developing CT skills. This will impact the readiness of the Indonesian people to face the life of the Industrial Revolution era 4.0 and compete on the global stage (Mardliyah, 2019). This research is essential to reveal one of the crucial factors that led to the proliferation of various internet problems, such as hoaxes and bullying, caused by the development of the Industrial Revolution 4.0. In addition, Pangrazio (2016) mentioned that although CT methods are well established in digital literacy, they need to be further developed in CT methods in the form of critical designs for social media users. Therefore, Pangrazio suggests a 'critical digital design' model, which could be a framework that bridges the gap between the critical literacy model and the newer design-based literacy models (Pangrazio, 2016). The author does not fully agree with the research because, especially for countries with low literacy, the early-level digital literacy method is still more important; if it is successful, advanced digital literacy methods are necessary.

Besides, Hoesin et al. (2022) explored the use of digital literacy as an antidote to Covid-19 infodemic in Indonesia without using CT skills. The results showed that digital literacy is becoming increasingly crucial in increasing awareness of selecting and examining information sources. This involves practicing CT about any information encountered and developing skills

to identify misinformation. In addition, digital literacy plays a crucial role in correcting the widespread infodemic in society.

Last but not least, Gladyshev et al. (2024) investigated the requirement of CT for digital literacy in the current socio-cultural context. The researchers took the standpoint of philosophical practice and philosophy teaching in higher education institutions with the formation of CT in the current sociocultural context. The authors examined the communicative aspect of the contemporary sociocultural context, outline the features of the modern sociocultural process, and highlight how and why CT has emerged as a crucial part of modern people's digital literacy. A thorough description of the real-world experience of teaching philosophy in higher education emphasizes the growth of CT abilities.

Meanwhile, this research focuses on how the CT method is a bridge to the success of the digital literacy process, especially in preventing hoaxes. We assume that the CT method is an element in digital literacy, so CT is not the goal but a prerequisite or step for how digital literacy works. This study examines several possibilities for CT and digital literacy methods applied in several educational institutions as compulsory subjects or subjects. However, before arriving at the discussion, explaining why the digital literacy process must be carried out on hoaxes and the informational society is necessary. Hoaxes in the information society will be the reason for implementing digital literacy. Therefore, CT skills in digital literacy have become an urgent need. These needs will be answered in this research. This research will provide insight, additional knowledge, innovation, and open-mindedness for every reader. Hopefully, this research can contribute to developing digital literacy in Indonesia, especially in education and the public. Thus, this research will bridge individuals involved in the internet world so that various forms of social media crime, such as hoaxes, do not quickly attack them.

## **B. Research Method**

This research used a qualitative approach with a descriptive method. A literature review was chosen as a data collection (Knopf, 2006). It aimed to investigate, analyze, and synthesize previous research related to the topic being researched. This approach could explain how digital literacy with CT cultures can be used to ward off hoaxes in the era of disruption and measure the possibility of integrating digital literacy education in educational institutions. The stages carried out in this research include:

1. Topic identification: Determine the research topic and scope of the relevant literature.
2. Literature search: Conduct a search for related literature using books, notes, newspapers, magazines, scientific journals, electronic databases, and other information sources related to the research subject.
3. Source evaluation: Evaluate selected sources based on their quality, validity, and reliability.

4. Literature analysis: Analyse selected literature by identifying key findings, patterns, and emerging trends.
5. Literature synthesis: Synthesis findings from analyzed literature to comprehensively understand the research topic.
6. Report writing: Compile a literature review report based on the findings and analysis that has been carried out.

After ensuring the data collected was sufficient, the data was analyzed, and finally, the conclusion was made. By using this approach, this research can present an in-depth understanding of the research topic based on existing related literature.

## **C. Result and Discussion**

### **1. Society of Informational and Hoax**

Maybe the word informational society is still foreign to our ears, but it is ingrained in our daily lives. Manuel Castells, a professor of sociology at the Universitat Oberta de Catalunya (UOC) in Barcelona, Spain, defines a *digital society* as a society in which critical systems and social activities are controlled through information networks and mobile devices (Castells, 1996).

Digital society is synonymous with interacting with new media and through new communication methods in the digital world. This new media allows people from small groups to gather online, share, sell, and exchange goods and information (Tosepu, 2018). For Castells, electronic devices are the key to human activities that give birth to virtual reality. Interaction is supported directly (face-to-face) and indirectly through social media. Although the reality still exists, its role is less critical for 21st-century humans. In addition, Castells also underlined information in this new era. Information becomes a new sale anyone can make for any purpose.

According to journalistic ethics, the freedom to produce this information causes the loss of the main requirements for writing information. These phenomena gave birth to a hoax. Craig Silverman, a journalist and editor at BuzzFeed's Canadian Media, in his work *Lies, Damn Lies and Viral Content*, defines a hoax as a series of intentionally misled information that is sold as truth. In today's networked world, Silverman added that hoaxes are created and spread further and faster than ever before (Silverman, 2015).

Farhad Manjoo, a New York Times technology columnist, said:

"People who skilfully manipulate today's media landscape can hide, distort, exaggerate fake news—basically, they can lie—to more people, more effectively, than ever before" (Manjoo, 2015).

Furthermore, according to Silverman (2015a), there are three indicators of why hoaxes were born in the information society era. First is the information itself. Surprising and exciting information is shared more often than in general news. Some of us rarely share information from mainstream media but prefer to share horrendous or viral information that is not

necessarily true. Second, technology — social media facilitates both real and false news. Technology is just a tool. Technology cannot tell the difference between right and wrong information. This phenomenon is evidence that technology relies heavily on humans as its instructor. The third is the factor of one's knowledge. This impacts individual preferences or beliefs; if the information meets the element of fear or matches what is thought and what is already known, it will reduce scepticism.

In modern times, hoaxes are synonymous with political activities, with the emergence of Donald Trump in 2016 when he accused the media in the United States of using hoaxes to criticize him (Kirtley, 2017). Meanwhile, there were 800,000 hoax-spreading sites in Indonesia based on data from the Ministry of Communication and Information (KOMINFO) (Yuliani, 2017). Apart from that, KOMINFO stated that there were ten times more hoax cases in the current presidential election than in the previous one (Kominfo, 2023). As a consequence, the problem of the spread of fake news or hoaxes has become a problem in many countries.

On the other hand, every country has a dissimilar way in combating hoaxes. For example is Brazil and Finlandia. Brazil has included a media analysis course in its national curriculum to prevent fake news or misinformation (Millenial, 2018). Meanwhile, Finland incorporates CT into its national curriculum to combat false information (Mackintosh, 2019). However, according to Santosa in Andriani (2017), Indonesian students have not yet received instruction in the philosophy of logic and thought patterns. Additionally, the CT lesson is not taught as a separate subject in the classroom (Kurniawati et al., 2020). Hence, the proper way to handle this case is not just to have a system, but it must be done with appropriate teaching methods to prevent someone from committing it and not exposed to misleading news or information. Therefore, the use of CT culture and assessment of news with digital literacy is very urgent to implement.

## **2. Adopting CT and Steps to Identify Fake News or Hoaxes in Digital Literacy**

This part is divided into several subheadings about adopting the CT method and steps to identify fake news or hoaxes in digital literacy. Several sources have worked on developing digital literacy, especially in preventing hoax or fake news (Amaya et al., 2022; M. Andriani et al., 2022; Guess et al., 2020; Loos & Ivan, 2023; McDougall et al., 2019; Niza et al., 2022). However, we quote one of the works put forward by Kiki (2019). In his research, Kiki (2019) created a CT teaching program to develop EFL students' ability to identify fake news. He made a concept for implementing learning with CT culture by P. Facione (1998) and the concept of assessing fake news or hoaxes by Nagler (2017) (See Figure 1).



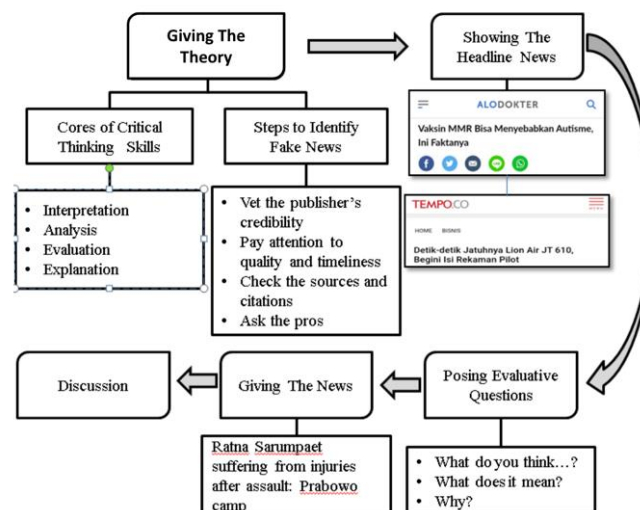


Figure 1. The scheme of teaching CT adopted from Kiki (2019)

Furthermore, an explanation of the parts in this concept can be understood in the following explanation.

### 3. Digital Literacy Through Critical Thinking Method

Implementing digital literacy can be approached in two ways: micro and macro. Micro means individual actors or individuals can apply digital literacy. Meanwhile, at the macro level, digital literacy must be applied by large institutions and social structures. CT is an essential component of digital literacy in dealing with content, news, or information. This factor is significant in warding off hoaxes. CT means more than swallowing knowledge gathered from the internet, including social media and other applications. In practice, internet users are encouraged to remain cynical and critical, especially towards too bombastic, unreasonable, or hateful gestures because the material may contain hoaxes or deceptive facts (Ennis, 1991).

When is criticism-based digital literacy given? This should be started as soon as possible, especially now that it is relatively easy to find children who are used to operating internet-connected devices. Avoiding hoaxes is also a matter of character education. Children should be taught from an early age about the indirectness of receiving information that still needs to be questioned. At that point, the role of teachers and parents becomes crucial.

Advances in technology, especially social media, have changed many patterns of communication and digital information between family members, especially for children growing up in today's digital era. They sometimes use smartphones without parental supervision. As a result, various responses are needed to address this phenomenon: the digital literacy movement. This trend is not just about bringing kids into the virtual world but also about teaching them how to replicate or build on positive material.

Parents must proactively promote digital literacy to their children (Sunita & Mayasari, 2018). Parents should spend more time with their children on special days when they use their



devices and the internet. Parents must explain the differences in imaginative habits that can be applied to various aspects of information technology that should be avoided. This includes actively sorting out and choosing which technology features are beneficial to their children and which should be avoided. Therefore, parents should play an active role in enforcing the verification process before sharing information.

Furthermore, on a micro or macro level, such as in educational institutions such as schools, colleges, or even individuals, critical behavior can also be applied by applying concepts experts propose. For example, Facione (1998) in his book "Critical Thinking", explains the core of the CT process (See Figure 2).

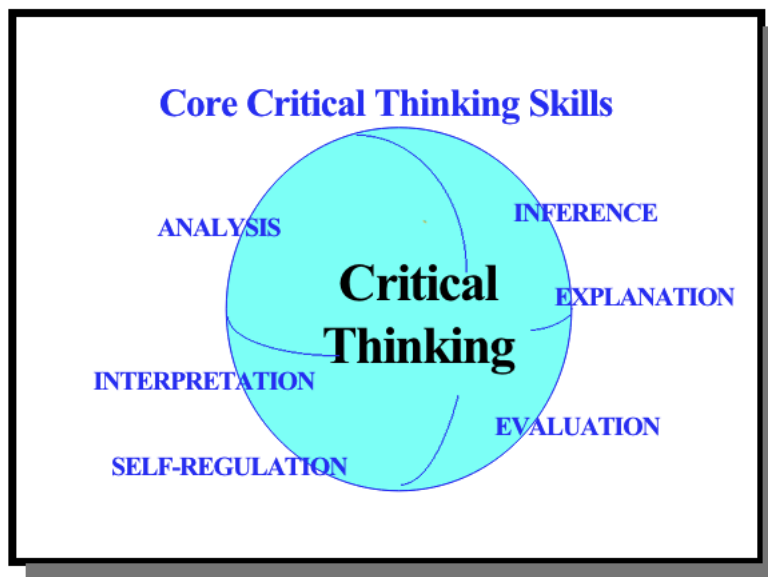


Figure 2. Core of CT skills adopted from P. A. Facione (1998)

First is Interpretation. Interpretation is the ability to understand and express the meaning of various situations, the sense of multiple experiences, data, events, judgments, beliefs, conventions, rules, and criteria (P. Facione, 1998). Facione states that there are several skills that encourage interpretation: categorizing, deciphering meaning, and clarifying meaning.

Social media and internet users can organize the categorization process by sorting or classifying groups, types, and even rankings for hoaxes that often circulate on social media. For example, categories are applied to the content of a news item, which usually contains hoax elements, such as whether the news is reasonable, bombastic, and does not contain elements of hatred. Alternatively, the categorization process is carried out on the media that spread news, including large media with complete addresses, total journalistic principles, or only small media with incorrect journalistic rules. The type of media can also be seen from how far the ideology and affiliation of the media are; if the media is affiliated with a specific mass organization that likes to spread disinformation, the media has likely spread hoax news. This interpretation

process must be supported by the ability to read carefully. This will relate to the second interpretation process, i.e., the decomposition of meaning.

Decoding meaning is the process of detailing the content of each piece of information or news so that it is straightforward. This process is generated after social media users thoroughly read the news in question. Unfortunately, a significant problem for social media users, especially in Indonesia, is not reading them. Many readers only read the title of each piece of information or read only one paragraph. This problem is also reinforced by the proliferation of inappropriate journalistic rules, such as the clickbait phenomenon or news titles that do not match the content. Therefore, it is essential to interpret the contents of the news thoroughly, not to rush to conclusions, and to criticize it. Finally, the process of interpretation is the clarification of meaning. Clarification of meaning is the process of readjusting the meaning that the reader has concluded. This meaning classification relates to extracting information from other media sources with the same content context. A simple example that social media users can do to clarify meaning is to read the comments of experts or institutions related to the theme of the news being conveyed. When there is information that offends a particular religion, the user can compare the information by reading the news issued by the religious party. This is done so that a balance of meaning is obtained, does not widen the meaning, and does not cause further misperceptions.

The second is analysis. According to Facione, analysis can identify inferential relationships between statements intended to express beliefs, judgments, experiences, reasons, or information. The analysis process is carried out by checking ideas. Examining ideas is to investigate the ideas in news or information messages. Every news item contains a message element where the message must be informative and open up the reader's horizons. However, a lot of information or news provides insight and propagates the reader. This context is usually carried out by hoax newsmakers who deliberately insert elements of public propaganda with specific goals, such as politics. This problem must be solved by detecting the arguments. Detecting arguments proves a fact, whether it is accurate or just made up. If the facts described in the information are doubtful and its whereabouts are unclear, readers or social media users must be vigilant and not provoked to spread it to other parties. Finally, the analysis process must be carried out by analyzing the arguments. If ideas and facts have been found and can be believed to be authentic, they need to be concluded comprehensively. The decision-making process must also be carried out from multiple perspectives. Readers or social media users must be able to compare one point of view with another, such as religious, social, political, cultural, and economic points of view. Analytical skills usually relate to one's experience finding facts and reading in detail. It takes a long time to get used to the habit of analysis when reading news or information.

The third is evaluation. Evaluation is the ability to assess the credibility of a statement or representation of a person's perception, experience, situation, judgment, belief, or opinion (P. A. Facione, 1991). The evaluation process is a digital literacy activity based on a subjective assessment. This means that the subjectivity of readers or social media users plays a crucial role in the news evaluation process. This is primarily related to assessing claims or the facts presented by certain media or opinions on social media. Therefore, Facione emphasizes that the analytical process provided comes from one institution or actor and must elaborate on both. In other words, people should be wiser to make decisions (P. A. Facione, 1990).

Fourth is an inference. The definition of inference is "to recognize and gather the elements required to formulate conjectures and hypotheses, to draw reasonable conclusions, to evaluate pertinent data, and to infer the implications arising from statements, facts, evidence, judgments, opinions, concepts, questions, or other forms of representation." The experts list questioning the data, speculating about alternatives, and drawing conclusions as sub-skills of inference.

Fifth is an explanation. The explanation is the ability to clarify the results of one's reasoning, verify arguments in context, and seek a deep understanding of that reasoning (P. A. Facione, 1990). The explanation process is the last method that Facione offers when applying CT systems. This process is more about the ability of the reader or social media user to re-present the news or information read. This means that this process reflects on a news item and then internalizes it in life by rereading or simplifying information to be disseminated to others. When a piece of news is read, understood, and believed to be accurate, the reader can pass it on to other parties in a simplified way. This explanation process must also go through a procedure of justification or re-checking of information carried out in the previous stages. The end of the CT process is to present arguments and construct them positively to provide broad insight.

Sixth is a self-regulation. Self-regulation, according to the experts, is "self-consciously monitoring one's cognitive activities, the elements used in those activities, and the results educed, particularly by applying skills in analysis, and evaluation to one's own inferential judgments with a view toward questioning, confirming, validating, or correcting either one's reasoning or one's results." Self-examination and self-correction are the two subskills in this case. For example? Easy — to evaluate one's views on controversial issues by noting the possible influence of personal bias or self-interest, separating personal opinions and assumptions from the author or text, reviewing by recalculating figures, varying reading speed and methods according to the type of material and purpose of reading, reconsider interpretations or judgments based on further analysis of the facts of the case, revise answers based on errors discovered in their work, and change conclusions because they realize that people have misjudged the importance of certain factors in making previous decisions.

Apart from the core CT capabilities, it is necessary to add evaluative questions. In this context, evaluative questions are essential to effective learning and teaching. The type of questions, "What do you think? What does that mean? and Why?" can be believed to capture students' attention, arouse curiosity, reinforce important points, and encourage active learning.

### ***Digital Literacy Through Fake News or Hoax Identification***

In this section, apart from CT, hoaxes can also be warded off by directly identifying hoax news. The difference between the CT process and the identification of hoaxes lies in the skills used. If CT requires a long and comprehensive thought process, then identifying hoaxes is more about the technical skills of how the user uses digital media and technology directly. However, both end goals are to prevent hoaxes and educate social media and internet users.

Apart from Facione, Christina Nagler introduced the digital literacy process in her work, which was widely cited by scholars who focus on digital research (Nagler, 2017). Nagler introduces four core points on how social media and internet users can identify immediately whether the news presented is accurate or just a hoax.

#### **a. Checking publisher credibility**

This capability can be done by identifying and tracking publishers or media that provide information. The publisher's or trusted media's credibility always prioritizes responsibility, accountability, and compliance with the rules. Thus, is that enough to build trust? It is not enough, but it must be followed by a public mission, both as a public spokesperson, defending the public, or as a frontline of the public. If the media is packed with internal and external elements, it will gain legitimacy or fall into the trusted category.

First, the internal dimension can be divided into journalistic and non-journalistic categories. The media or journalistic elements can be trusted if their journalism is high quality. In addition to maintaining integrity and adhering to a journalistic code of ethics, journalists and editors must have analytical skills and expertise in journalism or outside journalism to produce quality work. Having scientific and non-scientific insight is also relevant. In addition, internal aspects, such as management, are not related to journalism. This aspect relates to the media (press) as a company. In addition to adhering to a good and healthy corporate management system, carrying out the functions of a modern company for profit, and adhering to the principles of corporate social responsibility, managers or owners of media companies must also be aware of the nature of the press, its functions, and the principles and principles of media norms.

Second, there are external factors to consider. Externally, the media's reputation is mainly measured by its ability to respond to various public problems in the political, economic, social, and other fields. This response cannot be limited to being a reporter, conveying information, investigating, or providing criticism or interpretation under certain circumstances or times.

This again raises problems regarding the credibility of accounts on social media. This case is not without reason, as social media is often associated with anonymity or anonymous and

irresponsible accounts (Fakhruroji, 2011). Social media is a form of public journalism where anyone can be a reader and produce information. This further strengthens social media as a source of hoax news. In dealing with this, Luo et al. (2020) explain several ways to identify social media to measure the extent of the account's credibility.

First, see if social media accounts are privately locked or not. Social media as an account with a private or public policy has two dimensions. On the one hand, if social media accounts are privatized, it will impact security protection from data theft or irresponsible profiteering of content. However, on the other hand, if the account is private, it cannot be fully viewed by the public. This can lead to a stigma that private accounts are not responsible. It is better if social media accounts are not private if it is still possible. Concerning the account verification process to avoid hoax news, it is also necessary to see whether the social media account is private. The account is likely anonymous and cannot be accounted for if it is private. Therefore, it is vital to avoid sharing content through private accounts.

Second, identify posts that have been published on social media accounts. In addition to accounts in private or not, it is also essential to look at the digital footprint of the extent to which a particular account disseminates content. This content trail is necessary to see the consistency of the news or information published, whether most news is accurate, incitement, post-truth, or even propaganda. If one piece of news comes out of an account with a digital footprint, the content is mostly propaganda, and then it should be watched out for and handled wisely. That is why the reader is not exposed to fake news.

Third, categorize account owners as individuals or communities/institutions. In addition to the privatization of accounts and posts, the last step to check how far an account on social media is credible is to see the account's owner. This usually applies to whether the account holder is an individual or an institution. If it is an individual, then it has the characteristics of a private account and presents propaganda content accompanied by the absence of a clear identity; the account certainly needs to be recorded in the dangerous account category. Assessing the account of an institution or institution is more accessible, and this can be done by checking the official website of an institution. If an institution's official website has a social media address that matches the real account, it can be ascertained that the account on the social media is appropriate. In analyzing social media accounts by looking at this ownership, what needs to be underlined is the official identity of the account owner. Matching the identity data will make it easier for each user to check the clarity of a particular social media. This is important to facilitate the process of identifying news or hoax information.

#### **b. Pay attention to quality and timeliness**

The second technique is that internet and social media users must pay direct attention to the quality of the content or information. This way will relate to two essential questions: 1) Are

there spelling errors, lots of ALL CAPITALS, or dramatic punctuation? 2) Is the news current or recycled? The first question focuses on spelling errors and the inappropriate use of capital letters. This is common in hoax news, where hoax news makers prioritize emotional or public propaganda, so they are not careful in writing news. Similarly, they use capital letters that do not fit in place. Capital letters are synonymous with efforts to dramatize an issue (read: fry the problem) so that many visitors read the news. This is, of course, very dangerous if many are consumed by seduction or enter the emotions of the maker of the hoax news. At the same time, the second question is related to repetition or data fabrication efforts. If the data and news are repeated without a clear purpose and idea, then a hoax can be said to be hoax news. In addition, the context of the repetition of this news is also closely related to actual events. In this case, readers or social media users must be careful about news or information often associated with hot events; even though the news or information has been happening for a long time, it is brought back up again because of the similarity of events. This is also included in the dangerous hoax news.

### **c. Check sources and citations**

The third technique focuses again on the content presented, so this will relate to several questions, namely: 1) How did users find the article/news?; 2) Who (or not) were quoted, and what did they say?; 3) Is the information available on other sites?. The first question relates to the first source from which the recipient or social media user got the news. This can be obtained with two possibilities: the first possibility through instant messaging social media such as WhatsApp or Telegram or public social media such as Facebook, Instagram, and YouTube, and the second possibility through websites or websites on search engines. If the reader gets the news first, especially if it is "continuous," then you must be careful with that information. Moreover, it does not include a URL link to the official news website. Likewise, if the reader gets news from Instagram and YouTube that does not include the original URL link, the news most likely cannot be accounted for. The reader needs to watch out for originality, including video content on YouTube, if the reader loads videos that insult, bully, or clickbait. The second question relates to the references cited by the news writer or information content creator. Users or readers should pay attention to whether the author cites a relevant source or not. Do the readers quote experts or figures who have recognized scientific knowledge or not? If this is done, it is also important to check directly with the experts or figures quoted so that when quoting the person or expert, the newsmaker is just making it up.

Meanwhile, the last question relates to the availability of news or information on other sites or websites. This is evidenced by how the media compete to present information as quickly as possible to avoid losing reader momentum. So, if a news item is published in one media A, it is likely that it will also be published in media B. Thus, this is an advantage for the reader or user to compare news ideas from one media. As a result, hoaxes can be seen with the naked eye

if only one piece of information is exclusively available in certain media without the support of correct facts and rules.

#### d. Ask a professional/expert

Finally, the technical effort that users or newsreaders can take on the internet and social media is to clarify or directly ask an expert or a professional in their respective field. This solution is the final solution for users or newsreaders on the internet. This seems complicated because of experts' limitations, including communication problems. Experts cannot confirm all news because the relationship between users and experts has limitations. However, the advantage in today's era of disruption is that many experts are also an essential part of the fast pace of information. Experts are competing to present content on social media to combat the flood of information. For example, legal experts are Refli Harun and others, health experts are Dokterpedia and others, economic experts are Gita Wirdjawan and others, and many Ustaz and Kiai are religious experts who enter social media. Finally, the experts provided information that readers could consider even without being asked. This can undoubtedly keep social media users away from the dangers of hoaxes and other fake news.

Thus, efforts to tackle hoax news, according to Nagler, can be illustrated in the following picture:



Figure 3. The Nagler concept in identifying the news.

The picture above explains that readers and social media users must carry out the hoax identification process in a cycle or sequence. However, if the user prefers the identification process starting from point three or so on, it is perfectly permissible. What is certain is that the process must be carried out in its entirety if the reader wants to be sure of the news or information they read and know the truth. Similarly, Parsons (2013) explains that in the social structure of society, there needs to be a balance (equilibrium) of each of these supporting elements. One element must work hand in hand to help other aspects stay balanced. This process must continue, even when a component of life fails to adapt to another. This illustrative example



from Parsons is in large social structures, such as economic, social, religious, and political. If one element, such as the economy, experiences a decline, other elements, such as religion, society, and politics, must help the economy get back on track. For Parsons and his followers, this process must be carried out so that the goals of a society's life are stable. In the context of identifying hoax news, all steps must be taken and cycled slowly so that information can be checked and authenticated. Readers may be fooled and consume hoax news if even one verification step is heeded.

#### **4. Opportunities for Digital Literacy Implementation in Educational Institutions**

In addition to targeting the public, hoaxes attack educated people such as university and senior high students. In fact, in the macro-formal sphere, many efforts have been made by the government and NGOs to promote digital literacy. This includes the government through the KOMINFO, which collaborates with various organizations and establishes digital literacy.id., which presents several digital books, videos, infographics, and articles to statistical data that the millennial generation can access as a means of fulfilling insight and knowledge (Kurnia et al., 2021).

However, the problem of hoaxes should also be included in formal educational institutions (Zhang et al., 2019). This problem is marked by lacking digital literacy education, mainly CT, in the school curriculum (Kurniawati et al., 2020). In this era of disruption, everyone can disseminate and search for information quickly. Information can also influence the mindset of every community, without the exception of students in the realm of education. The reason is that children aged 13-17 have dominated as the most internet users (Anderson & Jiang, 2018). If students' reading interest is still low, students will swallow the information they get regardless of the source, analyze it, and conclude. In addition to a lack of interest in reading, CT is another problem that afflicts students. In this era of disruption, students must think critically as a fundamental skill. CT is not about being more intelligent but creative, innovative, and communicative (Akkaya, 2012). Another essential goal of CT is to develop students' thinking potential so that they can apply it in their social lives and make students more capable of solving problems. Additionally, CT has been identified as an essential thinking skill mastered by students in the 21st century (Foo, 2021); most educators agree that developing students' CT is one of the main goals of formal education (Vita Putri Mona Sari et al., 2021). Moreover, teaching CT to students can help them think logically (Marinda et al., 2024).

Several opportunities for implementing CT methods in educational institutions can be described in the following points: First, independent learning is a policy. The policy of independent learning requires students to solve problems and study independently. Freedom to learn frees students to explore learning media to increase their knowledge. Following the theme of independent learning, namely creative learning, the learning process is carried out in and outside the classroom to find the information needed. Students can become creative thinkers

(Kurniawati et al., 2020). The policy of independent learning is an essential breakthrough for achieving the goal of equitable education and opening new knowledge opportunities that are very important for the nation's digital literacy. Likewise, Minister of Education and Culture Nadiem Makarim said that "adaptation of technology is the obligation of the millennial generation to face changing times, one of which is through appropriate policies that can stimulate students to think outside the box" (Fahlevi, 2021).

Second, using the internet in various circles, including students, stimulates curiosity. The phenomenon of the internet entering schools opens vast opportunities for students to become significant players in the digital world. Digitization at school or campus, where the internet has provided unlimited storage space (big data), is also fundamental. If digital literacy manages to enter schools well; as a result, students will ask some critical questions, such as:

- a. How did this event happen?
- b. Where did this problem come from?
- c. Who created this information?

Third, ICT lessons at school. As part of a society living in an era of disruption, various means of supporting sending and receiving information are more accessible for everyone to find and have. The advancement of technology marks this from time to time. In education, technology has become common in developing the learning process. It is easier for teachers and students to find subject matter with technology. Because all information is already available on the internet, for example, the Google search engine, this is an integral part of learning computer science that has been taught since the 2006 KTSP curriculum (Education Unit Level Curriculum). This subject is a bridge that connects the digital literacy learning process for students at school because it is very identical to the world of digital technology (Bona, 2018).

#### **D. Conclusion**

This research underscores several vital points; the urgency of digital literacy is based on a big problem in the digital world in Indonesia, namely hoaxes. The development of hoaxes is intertwined with the increasingly steady development of the informational society as part of the era of disruption. A profoundly rooted solution is needed both micro-individually and macro-structurally to tackle the hoax phenomenon. The right solution to be applied in both domains is the CT method. This method is not used to achieve digital literacy but is a prerequisite for successful digital literacy. Individually, this digital literacy can be applied in tips such as those discussed by Facione regarding the four CT skills that require technical and theoretical skills, including the subjectivity of using these methods. However, Nagler added that efforts to prevent

hoaxes, including digital literacy, must still emphasize technical skills in assessing account identities or media that produce information.

Furthermore, several opportunities for implementing digital literacy, especially CT methods, are often found in educational institutions, so digital literacy education should become compulsory. This is evidenced by the policy of independent learning, internet access to schools, big data, and ICT subjects as standard technology and computer science subjects. It is essential to carry out the following research process, especially looking at the effectiveness of government policies in implementing digital literacy. However, these findings suggest further research to adopt other CT aspects, especially in integrating with digital literacy.

## References

- Akkaya, N. (2012). The Relationship Between Teachers Candidates' Critical Thinking Skills and their Use of Reading Strategies. *Procedia - Social and Behavioral Sciences*, 47, 797–801. <https://doi.org/10.1016/j.sbspro.2012.06.737>
- Aliah, A. R. H., & Nurfazri, M. (2023). *TikTok as a Media for Self-Existence among Gen Z in the Middle of the Covid-19 Pandemic*. <https://doi.org/10.23917/sosial.v4i1.1706>
- Amaya, D., Rivera-Rogel, D., & Carrión-Salinas, G. (2022). Media literacy as a strategy to counter fake news. *2022 17th Iberian Conference on Information Systems and Technologies (CISTI)*, 1–7.
- Anderson, M., & Jiang, J. (2018). Teens, social media & technology 2018. *Pew Research Center*, 31(2018), 1673–1689.
- Andriani, M., Kalsum, A. F., & Elloianza, G. N. (2022). Social Discourse of Fake News in French and Its Digital Social Media Literacy. *Lingua Cultura*, 16(1), 105–115.
- Andriani, R. D. (2017). *Penting Anak Berargumentasi dan Berpikir Kritis Sejak Dini*. Tempo.Co.
- Annur, C. M. (2023). Pengguna Internet di Indonesia Tembus 213 Juta Orang hingga Awal 2023. *Datadoks*. <https://databoks.katadata.co.id/datapublish/2023/09/20/pengguna-internet-di-indonesia-tembus-213-juta-orang-hingga-awal-2023>
- Azizah, Z., Mariya, S., Gistituati, N., Ananda, A., Negeri Padang, U., & Author, C. (2022). Comparison Of Teacher Recruitment And Development In Indonesia And England. In *International Journal Of Humanities Education And Social Sciences* (Vol. 1, Issue 6). <https://ijhess.com/index.php/ijhess/>
- Baiduri, M. N. I. (2017). *Generasi Milenial Paling Rentan Hoax*. Tempo.Co.
- Bona, M. F. (2018). Sempat Dihapus, TIK Kembali Diajarkan pada 2019. *Beritasatu.Com*. <https://www.beritasatu.com/news/508445/sempat-dihapus-tik-kembali-diajarkan-pada-2019>

- Castells, M. (1996). *The Information Age Economy, Society, and Culture* (Vol. 98). Oxford Blackwell Publishers.
- Ennis, R. (1991). Critical thinking. *Teaching Philosophy*, 14(1).
- Facione, P. (1998). Critical thinking. *L Lea d Er Sh Ip*, 104.
- Facione, P. A. (1990). *The California Critical Thinking Skills Test--College Level. Technical Report# 1. Experimental Validation and Content Validity*.
- Facione, P. A. (1991). *Using the California Critical Thinking Skills Test in Research, Evaluation, and Assessment*.
- Facione, P. A. (1998). Critical thinking: What it is and why it counts. Millbrae. *California Academic Press. Haziran, 13, 2009*.
- Fahlevi, F. (2021). Nadiem Beberkan Profesi Baru di Era Perkembangan Teknologi Digital, dari Youtuber Hingga Influencer. *Tribun News*.  
<https://www.tribunnews.com/nasional/2021/01/24/nadiem-beberkan-profesi-baru-di-era-perkembangan-teknologi-digital-dari-youtuber-hingga-influencer>
- Fakhruroji, M. (2011). Islam Digital. *Bandung: Segi Arrasy*.
- Foo, S. Y. (2021). Using EASY framework to facilitate economics students' critical thinking in asynchronous online discussions. *Asia Pacific Education Review*, 22(4), 637–654.
- Gewati, M. (2016). Minat Baca Indonesia Ada di Urutan ke-60 Dunia. *Kompas.Com*.  
<https://edukasi.kompas.com/read/2016/08/29/07175131/minat.baca.indonesia.ada.di.urutan.ke-60.dunia>
- Gladyshev, V., Milyaeva, E., & Rezvushkina, S. (2024). El pensamiento crítico como requisito para la alfabetización digital en el contexto socio-cultural actual. *Haser*, 15, 121–152. <https://doi.org/10.12795/HASER/2024.i15.04>
- Guess, A. M., Lerner, M., Lyons, B., Montgomery, J. M., Nyhan, B., Reifler, J., & Sircar, N. (2020). A digital media literacy intervention increases discernment between mainstream and false news in the United States and India. *Proceedings of the National Academy of Sciences*, 117(27), 15536–15545.
- Hoesin, C. F. I. S., Poplavskaya, N. V., & Hossain, B. (2022). Цифровая грамотность как средство от инфодемии Covid-19 в Индонезии (Digital Literacy as an Antidote to Covid-19 Infodemic in Indonesi). *Jurnal Cita Hukum*, 10(3).  
<https://doi.org/10.15408/jch.v10i3.30010>
- Kiki. (2019). *Fostering Indonesian EFL students' ability to identify fake news through teaching of Critical Thinking in critical reading class: A case study at the third-semester students of English Education Department UIN Sunan Gunung Djati-Bandung*. State Islamic University Sunan Gunung Djati Bandung.

- Kington, T. (2012, March 30). Twitter hoaxer comes clean and says: I did it to expose weak media. *The Guardian*.  
<https://www.theguardian.com/technology/2012/mar/30/twitter-hoaxer-tommaso-de-benedetti>
- Kirtley, J. E. (2017). Getting to the Truth: Fake News, Libel Laws, and Enemies of the American People. *Hum. Rts.*, 43, 88.
- Knopf, J. W. (2006). Doing a Literature Review Knopf. In *Political Science & Politics* (Vol. 39, Issue 1). <http://hdl.handle.net/10945/50674>
- Kominfo. (2023). *Menkominfo: Isu Hoaks Pemilu Meningkatkan Hampir 10 Kali Lipat*.  
[https://www.kominfo.go.id/content/detail/52570/siaran-pers-no-422hmkominfo102023-tentang-menkominfo-isu-hoaks-pemilu-meningkat-hampir-10-kali-lipat/0/siaran\\_pers](https://www.kominfo.go.id/content/detail/52570/siaran-pers-no-422hmkominfo102023-tentang-menkominfo-isu-hoaks-pemilu-meningkat-hampir-10-kali-lipat/0/siaran_pers)
- Kurnia, N., Astuti, S. I., Monggilo, Z. M. Z., Prananingrum, E. N., Kusumastuti, F., & Adikara, G. J. (2021). *Ringkasan Eksekutif Seri Modul Literasi Digital*. Direktorat Aptika Kementerian Komunikasi & Informatika.
- Kurniawati, N., Sugaryamah, D., & Hasanah, A. (2020). Proposing a model of critical literacy program for fostering Indonesian EFL students' critical thinking skills. *Journal of Education and Learning (EduLearn)*, 14(2), 234–247.  
<https://doi.org/10.11591/edulearn.v14i2.15084>
- Lee, S.-H. (2014). Digital Literacy Education for the Development of Digital Literacy. *International Journal of Digital Literacy and Digital Competence*, 5(3), 29–43.  
<https://doi.org/10.4018/ijdlc.2014070103>
- Loos, E., & Ivan, L. (2023). Using media literacy to fight digital fake news in later life: a mission impossible? *International Conference on Human-Computer Interaction*, 233–247.
- Luo, M., Hancock, J. T., & Markowitz, D. M. (2020). Credibility perceptions and detection accuracy of fake news headlines on social media: Effects of truth-bias and endorsement cues. *Communication Research*, 0093650220921321.
- Mackintosh, E. (2019). *Finland is winning the war on fake news. What it's learned may be crucial to Western democracy*. CNN.  
<https://edition.cnn.com/interactive/2019/05/europe/finland-fake-news-intl/>
- Manjoo, F. (2015). Right to be forgotten'online could spread. *New York Times*.
- Mardiyah, A. A. (2019). Budaya Literasi Sebagai Upaya Peningkatan Keterampilan Berpikir Kritis di Era Industri Revolusi 4.0. *Prosiding SNP2M (Seminar Nasional Penelitian Dan Pengabdian Masyarakat) UNIM*, 1, 171–176.

- Marinda, S. M., Hayati, N., & Kurnia, R. (2024). Proposing a Model of Impression Learning Program to Foster Elementary Students' Mathematics Skills in an Islamic Context. *KEDJATI Journal of Islamic Civilization*, 1(1), 1–19.
- McDougall, J., Brites, M.-J., Couto, M.-J., & Lucas, C. (2019). Digital literacy, fake news and education/Alfabetización digital, fake news y educación. *Culture and Education*, 31(2), 203–212.
- Millennial. (2018). *Lawan Hoaks, Sekolah di Brasil Punya Mata Pelajaran Analisis Media*. Kumparan. <https://kumparan.com/millennial/lawan-hoaks-sekolah-di-brasil-punya-mata-pelajaran-analisis-media-21dM5TZOOU>
- Muhamad, N. (2023). Nilai Budaya Literasi Indonesia Naik pada 2022, Ini Trennya Empat Tahun Terakhir. *Databoks*. <https://databoks.katadata.co.id/datapublish/2023/10/04/nilai-budaya-literasi-indonesia-naik-pada-2022-ini-trennya-empat-tahun-terakhir>
- Nagler, C. (2017). *Tips for Spotting a Fake News Story*. Harvard Division of Continuing Education.
- Naimatus Tsaniyah, K. A. J. (2019). LITERASI DIGITAL SEBAGAI UPAYA MENANGKAL HOAKS DI ERA DISRUPSI. *Jurnal Dakwah Dan Komunikasi*, 4(1), 121–140.
- Niza, I. H., Mawarpury, M., Sulistyani, A., & Rachmatan, R. (2022). Critical thinking ability and information literacy in identifying fake news on social media users. *Jurnal Psikologi Terapan Dan Pendidikan*, 4(1), 1–14. <https://doi.org/10.26555/jptp.v3i2.21893>
- Nurfazri, M. (2022). *Teaching critical thinking to foster EFL students' ability to distinguish from factual and fake news: Process and result*. UIN Sunan Gunung Djati Bandung.
- Pangrazio, L. (2016). Reconceptualising critical digital literacy. *Discourse: Studies in the Cultural Politics of Education*, 37(2), 163–174.
- Parsons, T. (2013). *The social system*. Routledge.
- Silvana, H., & Darmawan, C. (2018). Pendidikan literasi digital di kalangan usia muda di kota bandung. *Pedagogia*, 16(2), 146–156.
- Silverman, C. (2015a). Journalism: A Tow/Knight Report." Lies, Damn Lies, and Viral Content. *Columbia Journalism Review*.
- Silverman, C. (2015b). Lies, damn lies and viral content. *Columbia*.
- Sunita, I., & Mayasari, E. (2018). Pengawasan orangtua terhadap dampak penggunaan gadget pada anak. *Jurnal Endurance: Kajian Ilmiah Problema Kesehatan*, 3(3), 510–514.

- Tosepu, Y. A. (2018). *Media Baru dalam Komunikasi Politik (Komunikasi Politik I Dunia Virtual)*. Jakad Media Publishing.
- Vita Putri Mona Sari, D., Damayanti, F., Handayani, T., & Nurokhman, A. (2021). Review: BERPIKIR KRITIS PADA PESERTA DIDIK. *PROSIDING SEMINAR NASIONAL PENDIDIKAN BIOLOGI 2021*.  
<http://proceedings.radenfatah.ac.id/index.php/semnaspbio>
- Wahyuni, H. I. (2018). *Kebijakan Media Baru Di Indonesia:(Harapan Dinamika Dan Capaian Kebijakan Media Baru Di Indonesia)*. Ugm Press.
- Wiedarti, P., Laksono, K., & Retnaningsih, P. (2018). *Desain induk gerakan literasi sekolah*.
- Yuliani, A. (2017). Ada 800.000 Situs Penyebar Hoax di Indonesia. *Kominfo*.  
[https://www.kominfo.go.id/content/detail/12008/ada-800000-situs-penyebar-hoax-di-indonesia/0/sorotan\\_media](https://www.kominfo.go.id/content/detail/12008/ada-800000-situs-penyebar-hoax-di-indonesia/0/sorotan_media)
- Zhang, C., Gupta, A., Kauten, C., Deokar, A. V, & Qin, X. (2019). Detecting fake news for reducing misinformation risks using analytics approaches. *European Journal of Operational Research*, 279(3), 1036–1052.