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Utilization of Chatbots for Novice Voters as An Alternative Tool to Help Verify Hoaxes

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Abstract. Social media users, especially youth netizens or novice voters, do not feel comfortable showing their political expressions and connecting with political issues through their social media. They have a strong attachment to social media but low to political awareness. This condition makes them vulnerable to exposure to false news on social media. This situation can make them targets with dirty political intentions. This study aims to develop a chatbot that can be used to prevent young netizens from being exposed to hoaxes, especially political hoaxes. This research was carried out through five stages, namely literature study, needs analysis, system design, system testing, and ending with documentation and report creation. The proposition in this study is that Chatbot can be used as an alternative effort to prevent youth netizens from being exposed to political hoaxes by using news verification technique features such as check the source, check the fact, check the images and check the date. The research suggestion is that Chatbot still has many limitations in its features so that further researchers can develop existing features specifically and comprehensive.

Keyword: Chatbot, Hoax, Novice Voters, Alternative Tool

Introduction

Indonesia's Digital Literacy Index in 2022 increased to 3.54 compared to the previous year, the index increased by 0.05 points compared to 2021 which was still at 3.49. Measurement with the 2022 Digital Literacy Index Framework uses four pillars, namely Digital Skills, Digital Ethics, Digital Safety, and Digital Culture (Kementerian Komunikasi dan Informatika, 2022). However, the increase in accessibility to the internet has not been accompanied by an increase in critical thinking skills and ethics in media literacy, thus increasing the risk of exposure to hoaxes in Southeast Asian society (Ambardi et al., 2024).

Figure 1. Indonesia's Digital Literacy Index in 2022
(Source: https://survei.literasidigital.id, accessed on July 30, 2024)

A ten-year systematic review (2009-2019) on digital literacy shows that digital literacy is defined as the public's skills in using and criticizing content in digital media. This review was conducted using an approach called protectionist, an approach that considers media literacy essential to be carried out in order to reduce the negative impacts of the media (Limilia & Aristi, 2019). Digital literacy has two major challenges to face, namely the rapid flow of information and negative content. Here literacy plays a role in selecting information that is in accordance with reality or hoax information, aka lies (Bahri, 2021). In addition, another challenge is the inability of individuals/society to determine the validity of the information obtained (Isabella, Iriyani, & Puji Lestari, 2023). With digital literacy, it is hoped that people can produce messages or information and be selective in searching for the information they need (Fitriarti, 2019). On the other hand, digital literacy which is always applied in life can encourage the progress of community development (Ginting, Arindani, Lubis, & Shella, 2022). In fact, the government has made various efforts to increase digital literacy, but these efforts have not been optimal, so other efforts are needed to support increasing digital literacy (Putra, Samad, & Mulyadi, 2024).

This research focuses on discussing the Digital Skill pillar in the Digital Literacy Index. The digital skills in question are measurements of internet users' skills in using computers or gadgets, uploading/downloading data, rechecking information from the internet, and so on (Nurhanisah & Syaifullah, 2023). This research focuses more on digital skills in the context of rechecking information from the internet to prevent the spread of hoaxes. Based on the analysis of the dimensions of content, form, and attitude of all examples of hoaxes that have been studied, it is clear that the hoax content that spread in Indonesia during the election period carried the idea of attacking one of the candidates (Utami, 2018).

Another focus is digital literacy in young netizens or novice voters because social media users, especially young netizens or novice voters, who have a strong attachment to social media but low political awareness. They do not feel comfortable showing their political

expression and connecting with political issues through their social media, thus showing that they are vulnerable to fake news on social media. This situation can make them targets with dirty political intentions (Lailiyah, Yuliyanto, & Pradhana, 2018). Through political literacy, it is hoped that dirty politics can be prevented (Iswandi & Efendi, 2020). Low political literacy is exploited by irresponsible individuals to spread incorrect information. For this reason, it is important to carry out political literacy because there is a positive contribution from political literacy to handling hoax information, and there is an influence between political literacy and controlling hoax information (Anshori, Rudianto, & Izharsyah, 2023). In addition, hoaxes pose a threat to democracy by triggering division, distrust, and prejudice in society. By manipulating public opinion and exploiting existing tensions, disinformation campaigns undermine the principles of informed decision-making, transparency, and accountability, which are essential to a healthy democratic system (Jalli & Idris, 2024).

Thus, the purpose of writing this research is to prevent young netizens or first-time voters from being exposed to hoaxes through the use of Chatbots. This research uses Chatbots because Chatbots have the ability to understand what users say and can select or generate responses based on the user's current input and in the context of the conversation (Rahman, Mamun, & Islam, 2017). In addition, the use of Chatbots is in order to improve the fact-checking process (Purnama, 2024).

Research Methods

This research uses a Research and Development (R & D) model, on a product that is developed and then tested for effectiveness (Sugiyono, 2021). This research adopts and modifies the research method on Chatbot applications at one of the state universities in Indonesia (Wanda, 2022). This research was carried out through five stages, namely literature study, needs analysis, system design, system testing, and ending with documentation and report preparation, which are explained in detail as follows:

1. Literature study is the initial stage in this research, which is to find research gaps from previous studies sourced from scientific articles, books, and other relevant sources.
2. The needs analysis stage involves taking inventory of the needs for making a Chatbot, especially the content/substance needs.
3. System design starts with the design of the main page and the features presented in the Chatbot, especially the news verification technique feature.
4. The testing stage for the Chatbot using the Black Box Testing method. This type of functional testing focuses on the requirements and specifications of user needs without paying attention to the structure or implementation of the software. This research conducts Black Box Testing by creating a table containing a description of the tests carried out, the expected results, the status of the test results, and whether the feature is operating properly (Florensia, Nur Safa, Patimah, Priskila, & Pranatawijaya, 2024).

5. The final stage is documentation and preparation of reports in the form of scientific articles or similar.

This research developed a chatbot based on the Smojo.ai website because the website has several features that are suitable for use in this study, namely Template Matching, Natural Language Processing (NLP), Dialogflow Integration, and Deployment (Wicaksono, Salim, & Almeyda, 2024). With the help of the Smojo.ai platform, developer can create interactive, creative and interesting learning media that is easily accessible on various website browsers (Ardiansyah, 2023). In addition, the use of Smojo.ai as a learning medium has been widely applied in various educational institutions, such as learning about nature (Siti Nuraini, Aeni, & Nugraha, 2023), education about light and its properties (Mahya & Setiawan, 2024), learning media about the solar system (Alam, Alifandra, Wijirahayu, & Yuliani, 2023), and the development of teaching materials about the human circulatory system (Alam et al., 2023).

Result and Discussion

Classification and Verification Techniques

Based on data from First Draft, there are seven types of problematic content in the information ecosystem. All parties play an essential role in this ecosystem, every time you passively receive information without double-checking or sharing posts, images, or videos before verifying them, it adds to the noise and confusion. The seven types of content in question are Satire or Parody (containing satire on certain parties, personal/group criticism in responding to an issue), Misleading Content (containing misleading information and manipulation of facts to cover up an issue), Fake Content (using the names of figures or institutions to obscure the facts)¸ Fake Content (incorrect information, deliberately created and designed to deceive and harm people), Wrong Connection (there is no connection between the title, image, and caption, an example of clickbait), Wrong Context (the original content is matched or linked to a context containing incorrect information), and Manipulated Content (edited results of credible media or original images are deliberately manipulated to deceive the public) (Wardle, 2017).

The digital public space is often filled with fake news aimed at weakening political opponents (Allcott & Gentzkow, 2017). The forms of fake news or disinformation can vary, from fabricating information to manipulating some aspects of the information, such as sources, context, dates, or quotes (Finneman & Thomas, 2018). To check hoax content, this research adopts and develops the results of research on news verification techniques proposed by Fahrudin and Billah, namely check the source, check the fact, check the images and check the date. Fahrudin and Billah's research was conducted as an effort to prevent black campaigns and fake news related to politics (Fahrudin & Billah, 2023).

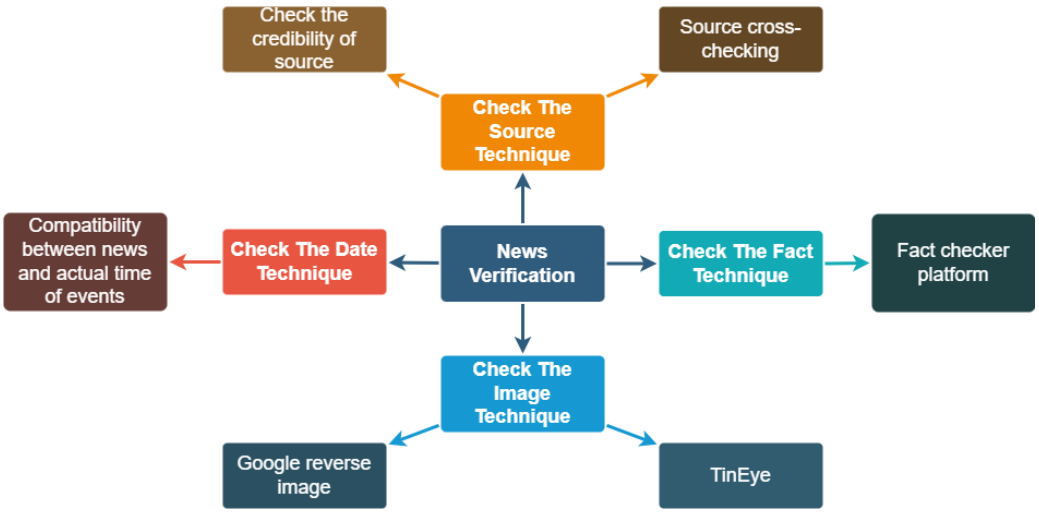

Figure 2. News Verification Model to Prevent Hoax and Black Campaign
(Source: adopted from Fahrudin & Billah, 2023)

In this research, the above model will be implemented on Chatbot. However, first, testing is carried out using Black Box Testing to ensure that the Chatbot is functioning correctly or not. The test results of the Chatbot that has been created can be seen in the table below.

Table 1. Chatbot Test Results

No	Testing	Expected Results	Status
1	Opening Chatbot via website	Users can access the main page of Chatbot.	Succeed
2	Select the “Belajar Literasi” button	The chatbot responds by displaying a “Belajar Literasi” page consisting of several selected features.	Succeed
3	Select the “Teknik Verifikasi Berita” button	The chatbot responds by displaying the “Teknik Pemeriksaan Sumber”, “Teknik Pemeriksaan Fakta”, “Teknik Pemeriksaan Gambar”, and “Teknik Pemeriksaan Tanggal” buttons.	Succeed
4	Select the “Teknik Pemeriksaan Sumber” button	The chatbot responds by displaying a page consisting of a “Pemeriksaan Kredibilitas Sumber Berita” button and “Pemeriksaan Silang Sumber” button	Succeed
5	Select the “Teknik Pemeriksaan Fakta” button	The chatbot responds by displaying a page consisting of a “Google Fact Check Tools” button and a “Google Fact Check Tools User Guide” button	Succeed
6	Select the “Teknik Pemeriksaan Gambar” button	The chatbot responds by displaying a page consisting of a “Google Reserve Image” button and a “Tin Eye” button.	Succeed
7	Select the “Teknik Pemeriksaan Tanggal”button	The chatbot responds by displaying a page consisting of a “Simak selengkapnya” button to obtain complete information about news verification techniques.	Succeed

Source: processed by author

Chatbot Implementation

Artificial Intelligence (AI) technology today has the potential to solve much more complex problems. In the future, people in various industries will apply AI to solve the most complex and globally essential problems. The latest in AI today is in chatbots, which allow humans to collaborate and communicate with computers. The use of chatbots to solve real-world problems is one of the most advanced technologies in the AI era (Mihova, Petev, & Nikolova-Aleksieva, 2024). In this research, the Chatbot used is the Chatbot sobat literasi (https://app.smojo.org/yusad/sobat_literasi) which can be developed in Smojo.ai. Smojo.ai is a coding platform created and released by Terra Weather Pte. Ltd, especially AI4IMPACT. Terra Weather Pte. Ltd is a global AI community that has a mission to help the general public, especially nonprogrammers, learn to build real-world AI applications (Aisah & Suwartane, 2023).

The use of Chatbot sobat literasi in this research because this Chatbot is based on a web platform. The results of a systematic review over a period of about 10 years (January 2011 to April 2021) show that most Chatbots can be accessed via a web platform, and fewer Chatbots are available on mobile and desktop platforms. This choice can be explained by the flexibility offered by the web platform because it has the potential to support many devices, including laptops, mobile phones, etc (Kuhail, Alturki, Alramlawi, & Alhejori, 2023). For this reason, this research uses the Chatbot sobat literasi because it can be accessed via a web platform using either a computer/laptop or mobile. This is in line with the characteristics of young netizens or novice voters who are included in the Generation Z (Gen Z) category. Alvara's study results found that eight out of ten people in Indonesia currently access the internet. The younger, the higher the internet penetration. This is shown from the research findings that all Gen Z have accessed the internet. In addition, Alvara's study results also show that Gen Z's communication patterns prefer visuals to narratives (Hasanuddin Ali, Purwandi, Halim, Nugroho, & Anastasia W. Ekoputri, 2022). With this communication pattern, this Chatbot is designed by considering visual communication design according to the characteristics of Gen Z.

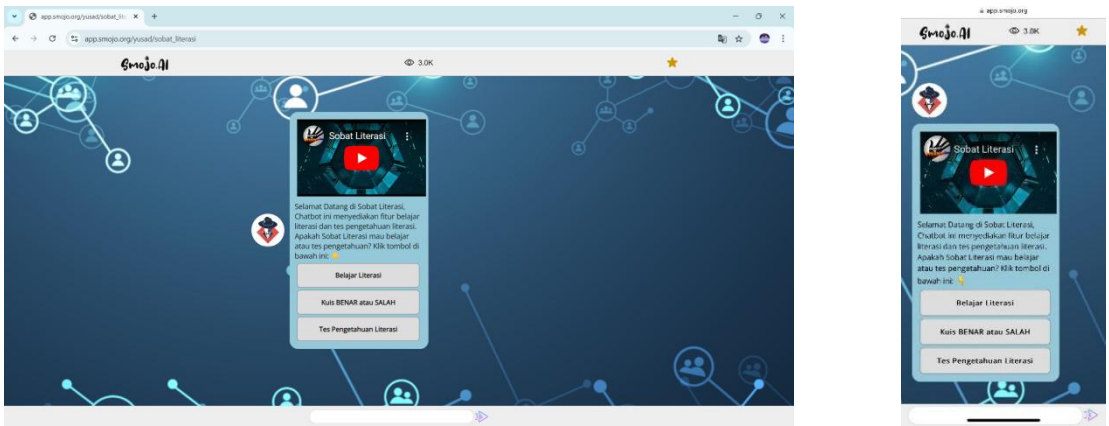

Figure 3. Chatbot Home Page desktop version (left) and mobile version (right)

(Source: https://app.smojo.org/yusad/sobat_literasi, accessed on October 8, 2024)

If the Chatbot user wants to access the news verification technique feature, then first click the "Belajar Literasi" button and then click the "Teknik Verifikasi Berita" button. After that, buttons will appear that say "Teknik Pemeriksaan Sumber", "Teknik Pemeriksaan Fakta", "Teknik Pemeriksaan Gambar", and "Teknik Pemeriksaan Tanggal".

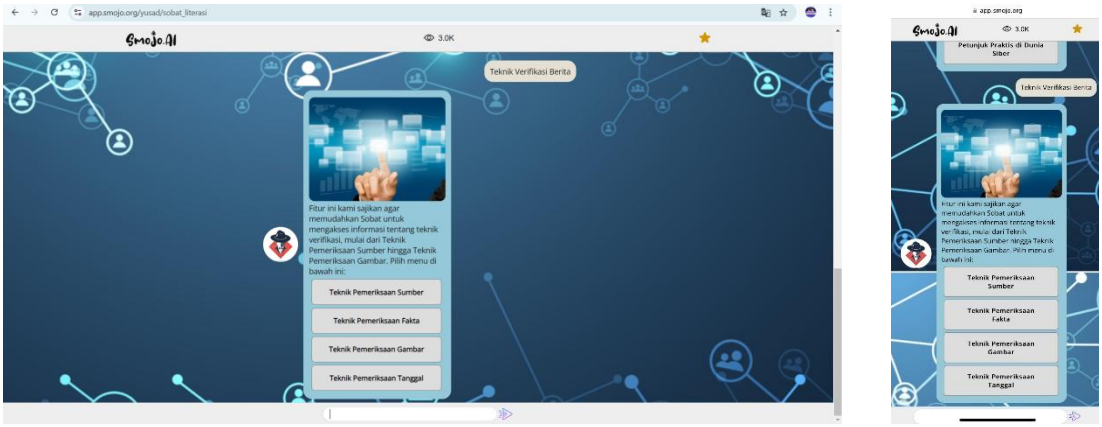

Figure 4. Chatbot Page about News Verification Techniques
(Source: https://app.smojo.org/yusad/sobat_literasi, accessed on October 8, 2024)

Based on the verification technique proposed by Fahrudin and Billah, in the “Teknik Pemeriksaan Sumber”, there are two methods, namely checking the credibility of news sources and cross-checking sources. Then in the “Teknik Pemeriksaan Gambar”, there are two search engines that can be used such as Google Reverse Image and Tin Eye. From the various features available, users can explore each verification technique according to the information needs that they want to verify based on the classification that has been explained previously.

This chatbot can be used to detect problematic content classifications. For example, checking the type of Wrong Connection content (there is no connection between the title, image, and description) can utilize the "Teknik Pemeriksaan Gambar" feature to find the truth or connection between the image and the title or description, this feature can utilize Google Reverse Image or Tin Eye or even both. In addition, checking Manipulated Content (there is no connection between the title, image, and description) can utilize the "Teknik Pemeriksaan Sumber" feature and then specifically check the content on the "Google News" portal provided in the "Source Cross-Check" feature.

This chatbot has advantages in terms of various aspects. First, the flexibility aspect of verification techniques, the developed Chatbot sobat literasi is able to accommodate various verification techniques, both for text and images. This shows that chatbots can be a versatile tool in helping users evaluate the credibility of information. Second, the integration aspect with external verification tools, Chatbot sobat literasi does not work in isolation, but optimizes existing verification tools such as Google Reverse Image and

Tin Eye. This shows that chatbots can be a kind of "bridge" that connects users with various more sophisticated verification sources. Third, focusing on problematic content types, Chatbot sobat literasi is designed to detect types of content that are often problematic in the digital world, such as misleading, manipulative, or hoax content. This shows that chatbots can be a suitable tool in combating the spread of hoaxes. Finally, the potential as a learning tool. In the context of digital literacy, chatbot sobat literasi can teach users how to critically evaluate information.

Based on this, the results of this research are in line with research on the use of chatbots for matters related to literacy, which allows the learning process to be carried out anytime and anywhere (Al Husaeni, Haristiani, Wahyudin, & Rasim, 2024). Specifically, this research also supports research on the fact-checking process (Purnama, 2024). This research shows that the use of Chatbots is an alternative to improve the fact-checking process from a method aspect.

Conclusions

The use of the Sobat Literasi Chatbot can help young netizens or novice voters avoid being exposed to hoaxes. Users of this Chatbot can utilize the features in the news verification technique, both in terms of checking sources, facts, images and date checking. Chatbots have great potential to be an effective tool in improving people's digital literacy. The ability of chatbots to facilitate the information verification process, both for text and images, as well as their flexibility in adapting to various types of problematic content, makes chatbots a promising alternative solution in facing increasingly complex information challenges in the digital era, especially in verifying facts. Thus, in general, it is hoped that this Chatbot can prevent young netizens or novice voters from being exposed to hoaxes while increasing the digital literacy index, especially the digital skills index. This research supports the findings of a number of previous studies related to the use of chatbots for fact checking in the context of digital literacy, like research about improve digital literacy to strengthen national resilience against hoaxes.

In order to maximize the potential of this Chatbot, various efforts need to be made such as optimization through providing formal or informal training to young netizens or novice voters both in cities and villages that have internet access. On the one hand, this Chatbot has other features that can be used to learn literacy such as personal data security literacy, and website security literacy. In fact, users can play quizzes by selecting the literacy knowledge test feature and true-false quizzes. On the other hand, this chatbot still has many limitations in other features, so further research is needed to develop existing features. Further researchers can develop it from the research method aspect, such as adding research subjects in the form of experts and participants to get responses from chatbot users.

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