

Conference Paper

Digital Literacy in the Post-Truth Era: Employing Fact-Checking Applications in Adult EFL Reading Classes

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Abstract

The term 'digital literacy' encompasses many skills, which include the ability to evaluate information received through digital technologies, such as internet platforms, social media and mobile devices. Due to the fast spreading of hoax news through digital platforms in this post-truth era, it is urgently needed for this particular skill to be taught in educational settings, and English as a foreign language (EFL) classes are no exception. This study focused on exploring adult EFL students' experiences in using two fact-checking applications (web-based apps) to help identify fake news in reading comprehension classes, and examining their efficacies from the students' points of view. Employing a descriptive statistics approach, the researchers collected the data using an online survey administered to 130 students of a Science and Technology study programme at a university in Medan, Indonesia. The results indicated that in general students had positive attitudes toward the use of two fact-checking web-based apps. Specifically, they reported that the apps were very helpful in raising their awareness of digital literacy and fact-checking prior to reading and sharing digitally spread news. A closer look at the data reveals students' preferences toward one of the two web-based apps. This study recommends the integration of anti-hoax education not only in EFL classes, but also in any other classes to prevent the threats of fake news, particularly to young generations.

Keywords: Digital literacy, fact-checking apps, fake news, hoax, post-truth era

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1. Introduction

Access to technology has allowed internet users to gain information quickly from different places and at any time. In the past, only people working in news organization could write and publish news. Nowadays, everyone can create and share information, for instance through social networking services (SNSs). Despite such advantages, since everyone can become a news publisher these days, there is no guarantee that the information written and shared online by internet users is credible and reliable. Fake

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news or hoaxes are easily created and shared by anyone who can connect to the Internet. As a result, large amount of information can cause confusion among people in that it becomes harder to differentiate credible news from hoaxes. Such condition emerges new term in that we are now living in the “post-truth” era.

The term “post-truth” has been widely used since the 2016 United States presidential election and the Brexit referendum. Even it was claimed as the word of the year by Oxford Dictionary in 2016. According to Illing (2018), shared objective standards for truth are vanished in the post-truth era. Post-truth can be understood as the circumstances in which emotion or personal beliefs are more influential in shaping public opinion than objective facts (Mackey, 2019). The United States and the United Kingdom have experienced the post-truth era, and now Indonesia is also facing the same issue. A study conducted by Suharyanto (2019) reveals that Indonesia was not immune to post-truth era. His study suggested that Indonesia citizens should be familiar with media literacy and fact-checking in order to constrain the negative effects of the post-truth era. Therefore, Indonesia citizen should be digitally literate in the sense that they should not only have the skills to navigate the technology, but also have the skills to evaluate information.

Digital literacy encompasses many skills, including the ability to evaluate information received through digital technologies such as, internet platforms, social media and mobile devices. Digital literacy relates to the ability to find, create and communicate digital content, as well as ability to critically evaluate information (Spires and Barlett, 2012). Since internet allows anyone to share digital information through SNSs and web 2.0 tools, everyone can get wider audience, but at the same time is also vulnerable to hoaxes or fake information. Due to the fast spreading hoax news through digital platforms in this post-truth era, digital literacy skill is urgently needed to be taught in educational settings, no exception in English as a foreign language (EFL) classes. Understanding digital literacy will help English learners consume reliable and credible online sources.

As the most frequently used language in the world, English has been used as a language for global communication (Fithriani, 2018) in that it makes English as the most favourite language to be taught in Indonesia. In regards to digital literacy, the importance of teaching digital literacy has been discussed by many researchers (Paul, et al., 2017; Ribble, 2011), but little attention is given to students’ digital literacy in EFL classroom. Furthermore, the challenge of evaluating fake news has encouraged program developer to create fact-checking applications that help internet users to determine credible information from hoaxes, for instances <https://fakey.iuni.iu.edu/> and

<https://hoaxy.iuni.iu.edu/>. Based on these considerations, the current study focuses on exploring adult EFL students' experiences in using two fact-checking applications (apps) to help identify fake news in reading comprehension classes and examining their efficacies from the students' points of view. The findings of this study are expected to raise EFL students' awareness of digital literacy in the post-truth era.

2. Literature Review

2.1. Digital Literacy

The rapid development of technology and the Internet has created a new global society connecting people from different places through the digital devices and the Internet. The citizens living in the new digital society are known as digital citizens (Isman and Canan Gungoren, 2014). To survive in the digitalized world, digital citizens should be digitally literate in that they should have the skills to use the technology appropriately. As digital students can access information easily nowadays, teaching digital literacy is imperative to prevent students from creating or sharing hoaxes. Digital literacy was first introduced by Gilster (1997:1), and it was defined as “the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers”. This definition is simply summarized by Gilster (1997) as literacy for digital age. Ribble (2007: 9) includes digital literacy as one of nine digital citizenship elements that should be taught to students at school. He defined digital literacy as “the process of teaching and learning about technology and the use of technology”.

Ribble (2011) explains that digital literacy is not only about knowing how to use technology, but it is also about being able to evaluate digital information. This is emphasized by Roche (2017) who add the word “critical” to digital literacy. Roche (2017: 43) posits that critical digital literacy (CDL) refers to “the ability to access, critically assess, use and create information, through digital media in engagement with individual and communities”. This definition is in line with Hague (2011) who explains that digital literacy relates to skills of using digital tools in order to find, evaluate and convey digital content. From these definitions, it can be concluded that digital literacy encompasses the skills to access, evaluate, comprehend, create information, and then share the digital information to digital society. With technology at their fingertips, students should have digital literacy skill so that they can protect themselves from fake news or hoaxes. More importantly, such skills will prepare learners to participate effectively as good digital citizens in the world of digital society.

Digitally literate citizens should have two components, namely the understanding of basic computer operations, and the ability to critically analyze information (Corbel and Gruba, 2004). These two components are beneficial to develop digital literacy skill in the twenty-first century world (Godwin-Jones, 2000). In assessing someone's digital literacy skill, Son et al. (2011) developed a questionnaire related to computer ownership, ability to operate computers, and computer assisted language learning (CALL). By using the questionnaire, digital literacy skill can be assessed based on digital device ownership and self-assessment of digital skills. In this current study, the questionnaire was adapted to see students' digital literacy skills before and after they use fact-checking apps in their EFL reading classes.

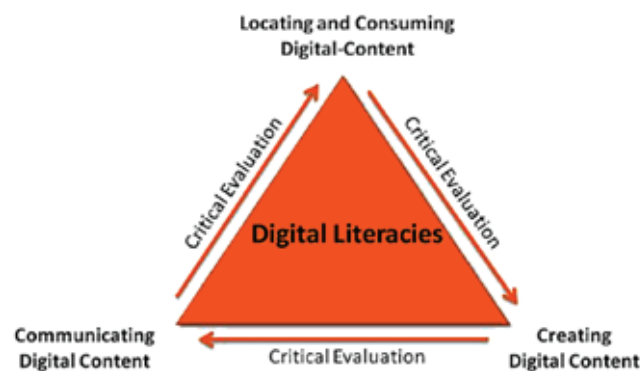


Figure 1: Spires and Barlett's (2012) digital literacies

Although the participants of this study have sufficient skills in navigating technology, it could be a challenge for them to evaluate digital contents, such as news which is often shared through social media. According to Spires and Estes (2002), critical judgment is one factor affecting readers' difficulty to read digital information. They add that some readers might not know how to locate information and decide the reliability and credibility of information. Spires and Barlett (2012) describes digital literacy in the following picture (Figure 1) in that digital literacy consists of critically evaluating activities to locate, create and communicate digital content. In line with Spires and Barlett (2012), Leu et al. (2008) explain that in order to effectively finding and consuming online sources, it is necessary to have the skills to evaluate the accuracy and relevancy of the digital sources. In an attempt to help digital citizens in consuming digital information, apps developers have produced web-based applications in a motivating game-like format to encourage digital citizens in understanding digital literacy. The following section discusses two types of web-based fake-checking apps used by the participants of the current study in their EFL reading classes.

2.2. Fake-Checking Apps

As the Internet becomes daily needs, its popularity has lowered the cost of technology and internet access. This creates opportunities to write and post information on the Internet. However, the increasing interest of creating and sharing digital content can give negative impact toward society. According to Fogg et al. (2001), the large amount of information spread widely and easily accessed on the Internet might be not credible enough to be consumed by digital society. Driver et al. (2000) explain that lack ability of judging credible online sources can become a challenge for digital citizens who are not the experts in the area. Unfortunately, since all digital users can become the content creators and the publishers of online sources, it is expected that some digital users might lack of skills in evaluating the credibility and reliability of information before sharing it online.

The spreading of fake news or hoaxes in the post-truth era can easily let readers believe in news that is relevant to their personal point of view (Illing, 2018). Without considering the validity of the information, readers with who shared the same beliefs could share the hoaxes to other people through the Internet. In their study, Flanagin and Metzger (2000) reported that readers prefer to consume web-based information even though the information could be false or biased. In another study (Metzger et al., 2003), university students were found to commonly use information from books and the internet rather than from journals or newspapers. Such findings reflect that readers, especially students, can consume and share information without evaluating its reliability or validity first.

Despite having the skills of navigating digital technology and the Internet, students might not be able to use the tools critically (Jones et al., 2010) in that they might not judge the credibility of the online sources that they find from the Internet. In response to such issue, Leu et al. (2015) suggested that it is crucial to teach digital literacy to students so that they cannot only navigate digital tools, but also critically evaluate digital information. Therefore, students are needed to be prepared with sufficient digital literacy skill in order to deal with the opportunities and challenges of consuming digital information.

App developers have created many kinds of apps for educational purposes. This study tries to see students' experiences of using two web-based fact-checking applications, namely <https://fakey.iuni.iu.edu/> and <https://hoaxy.iuni.iu.edu/>. Fakey is a web-based game aimed to teach media literacy and help readers deal with misinformation. This game is created to support a healthy social media experience by raising readers'

awareness to promote information from reliable and credible source. In Fakey, the game-player is presented with news feed with articles from credible source and from low credibility sites that contain misleading reports, clickbait headlines, conspiracy theories, junk science, and other types of misinformation (<https://fakey.iuni.iu.edu/>). The following picture (Figure 2) is the screenshot of Fakey.

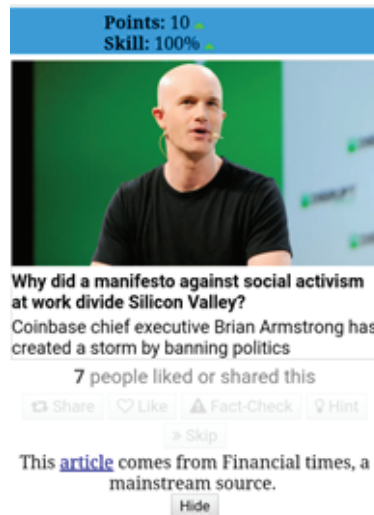


Figure 2: Fact-checking app (Fakey) (Source: <https://fakey.iuni.iu.edu/>)

Fakey asks its players to click “share” or “like” on credible news, or to click “fact-check” for news that seems low credibility and suspicious. The game-players are also allowed to click “hint” or “skip” for news that they are not sure. Fakey scores the decision that game-players take in that the scores inform the points and skills of sharing information from trustworthy sources and spotting articles from low credibility sources.

Besides Fakey, another popular fact-checking app is Hoaxy <https://hoaxy.iuni.iu.edu/>. Hoaxy allows internet users to directly search articles or stories Twitter and visualize the results from the last seven days or search popular topics on Twitter in the last 30 days. Hoaxy can be used to visualize the spread of claims and fact checking. For instance, after selecting the stories on Twitter, readers are able to see how many tweets share links to the selected stories over time. It also includes the animated spreading process of the stories. Hoaxy shows how the selected news or stories spread from one Twitter account to another through retweets, quotes, replies, and mentions. The following image is the screenshot of Hoaxy. As could be observed in Figure 3, the gray line describes the stories from low-credibility sources while the yellow one represents stories from fact-checkers. Meanwhile, the nodes are Twitter accounts. Larger nodes inform that the information has been retweeted more times. To see details about the account and how they contributed to the spread of the stories can be seen by clicking the nodes.



Figure 3: Fact-checking app (Hoaxy) (Source: <https://hoaxy.iuni.iu.edu/>)

In regards to the current study, students of the Science and Technology study programme were asked to use the two fact-checking apps in their reading comprehension classes. After using the apps, an online survey administered to the students in order to explore their experiences of using two apps as well as the efficacies of the two apps from students' perspective.

3. Research Method

This study focuses on exploring adult EFL students' experiences in using two fact-checking applications (web-based apps) to help identify fake news in reading comprehension classes and examining their efficacies from the students' points of view. This study employed descriptive statistics approach in which the data were collected by using an online survey. The online survey was administered to 130 participants consisted of 80 male and 50 female students of the Science and Technology study programme at a university in Medan, Indonesia.

The online survey consisted of questions adapted from Son et al. (2011). Of several areas discussed by Son et al. (2011), this study only focuses on students' self-assessment of digital skills. The survey was divided into two sections. The first section was used to gain information related to students' demographic data and perceived digital literacy skill. In the first section of the online survey, the participants were asked "how do you perceived your computer literacy skills?", "how do you perceive your internet literacy skills?" and "Do you check the accuracy and credibility of information before sharing it through your social media?". This functions to see students' digital literacy skills, in

the sense of their perceived ability in navigating digital technology and their ability to critically evaluate information (Corbel & Gruba, 2004).

Meanwhile, the second section was used to explore students' experiences of using the two fact-checking apps. The second section of the survey includes questions related to students' perception about the efficacies of the two fact-checking apps, and their current perceived digital literacy skill after using the apps. In the second section of the online survey, the participants were asked "How do you perceive the usefulness of the two fact-checking apps?" and "Do you check the accuracy and credibility of information before sharing it through your social media?"

The collected data were analysed using Magnitude coding to count the frequency of responses in the different categories needed to achieve the objectives of this study. The use of Magnitude coding is because it is appropriate for descriptive qualitative studies that include basic statistical information to indicate data intensity, frequency, direction, presence, or evaluative content (Saldana, 2016).

4. Result and Discussion

This section presents the results of online survey administered to students before and after the use of fact-checking apps to improve students' awareness of digital literacy in reading comprehension classes. First, the participants' information will be presented in section 4.1. Next, the students' attitude toward the two fact-checking apps will be discussed in section 4.2. Finally, section 4.3 will describe students' awareness of digital literacy after the students use the two fact-checking apps (Fakey and Hoaxy).

4.1. Demographic Data

As previously stated, there are 130 participants (80 male and 50 female students) of the Science and Technology study programme who took part in this study. Every participant was asked to fill out an online survey given in their EFL reading comprehension class. Since digital literacy involves the ability to understand computer operations and ability to critically evaluate information (Corbel and Gruba, 2004), the first section of the online survey asked about the participants' perceived computer literacy skill and internet literacy skill. This section presents the participants' information in regards to their perceived digital literacy skills before using the fact-checking apps. The participants were asked "how do you perceive your computer literacy skills?" and "how do you perceive your internet literacy skills?".

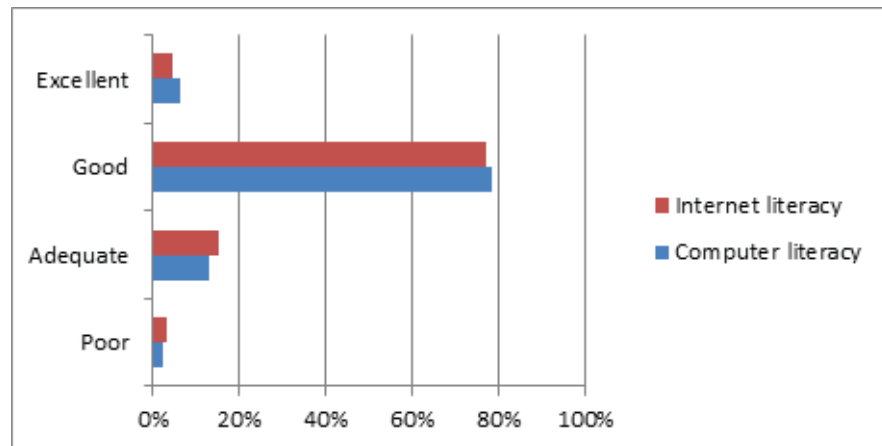


Figure 4: Students' self-assessment of digital skills (N=130)

The results of students' responses as presented in Figure 4 shows that the majority of participants perceived themselves to have good internet literacy and computer literacy skills. Of 130 participants, 102 participants responded that they have good computer literacy skill (78%), 17 participants (13%) perceived to have adequate computer literacy skill, 8 participants reported that they have excellent computer literacy skill, and a small number of students perceived themselves to have poor computer literacy skill. In regards to internet literacy, 100 participants (77%) responded that they have good internet literacy skill, 20 participants (15%) reported that they have adequate internet literacy skill, 6 participants (5%) have excellent internet literacy skill, and only 4 participants (3%) perceived themselves to have poor internet literacy skill.

The participants' responses in regards to information as seen in Figure 5 revealed that the majority of participants do not check the accuracy and credibility of information before sharing it on the internet. Of 130 participants, 90 participants (69%) reported that they do not check the credibility of information before sharing it online, 30 participants (23%) responded that they check the credibility of information, and 10 participants (8%) are not sure.

From the findings, it can be understood that the students of the Science and Technology who participated in this study have learned digital basics related to computers and the internet. However, they were not taught about digital literacy specifically in their study programme. It can be seen from the participants' self-assessment of information literacy skill. Therefore, information literacy skill such as, evaluating online resources to determine the accuracy and trustworthiness of digital content is still new to them.

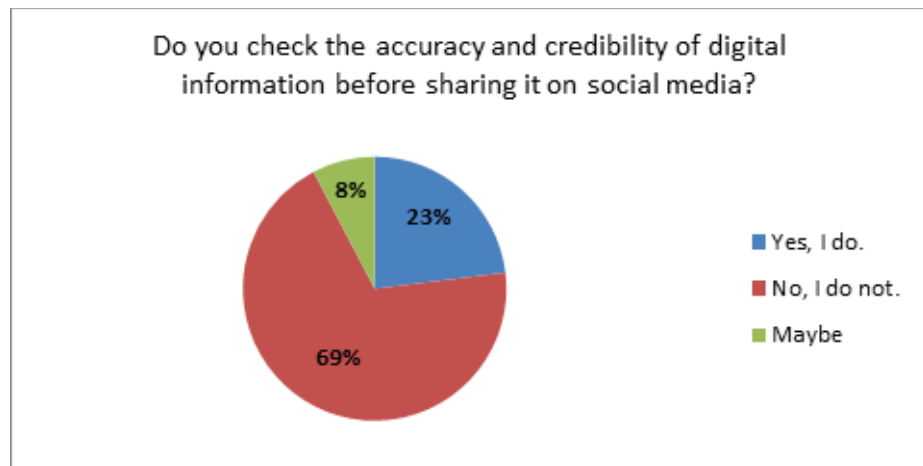


Figure 5: Students' self-assessment of information literacy

4.2. Students' experiences of using the fact-checking apps

This section presents and discusses students' experiences of using the two fact-checking apps and their efficacies from students' point of view. The second section of the survey asked the participants to inform their perception about the efficacies of the two fact-checking apps and their perceived digital literacy skill after using the apps. The students were asked "How do you perceive the usefulness of the two fact-checking apps?" and "Do you check the accuracy and credibility of information before sharing it through your social media?". The findings are described in Figure 6.

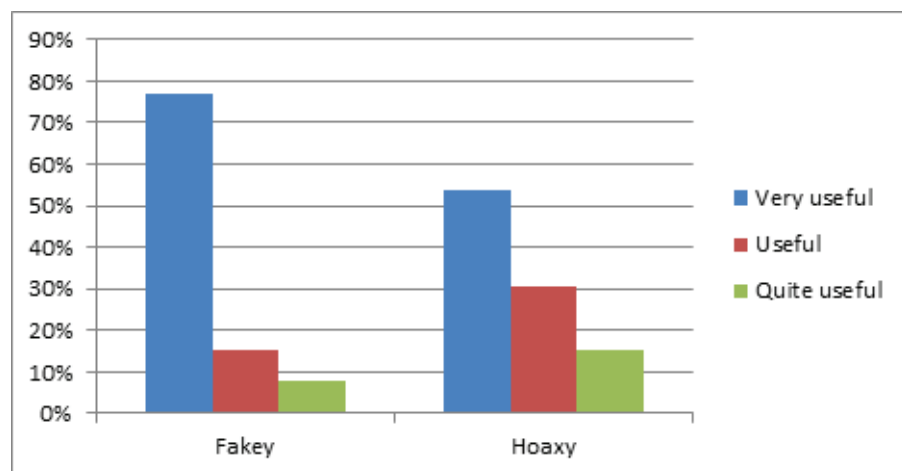


Figure 6: Students' experiences of using fact-checking apps

The result of data analysis indicates that in general students have positive attitudes toward the use of two fact-checking web-based apps. In the chart above, of 130 participants, 100 participants (77%) perceived Fakey as very useful to raise their awareness in evaluating digital information, 20 participants (15%) thought that the app

was useful while 10 participants (8%) reported that the app was quite useful. Meanwhile, 70 participants (54%) reported Hoaxy as very useful to raise their awareness of digital literacy, 40 participants (31%) responded that the app was useful, and 20 participants (15%) perceived the app as quite useful.

In addition, the findings above also reveal the efficacies of the apps in that it describes the participants' preferences toward one of the two web-based apps. From the chart above, it can be seen that there are the majority of participants reported Fakey as very useful (77%). This percentage is lower than the participants who responded Hoaxy as very useful (54%) to raise their awareness of information literacy. This reflects that the participants prefer using Fakey than Hoaxy as fact-checking apps.

4.3. Students' self-assessment of digital literacy skill after using the fact-checking apps

This section describes students' awareness of digital literacy after using the two fact-checking applications (Fakey and Hoaxy). In the second part of the online survey, the students were asked "Do you want to check the accuracy and credibility of digital information before sharing on social media?" in order to know their perceived information literacy skill. The following chart informs students' self-assessment of their information literacy skill after using the fact-checking apps.

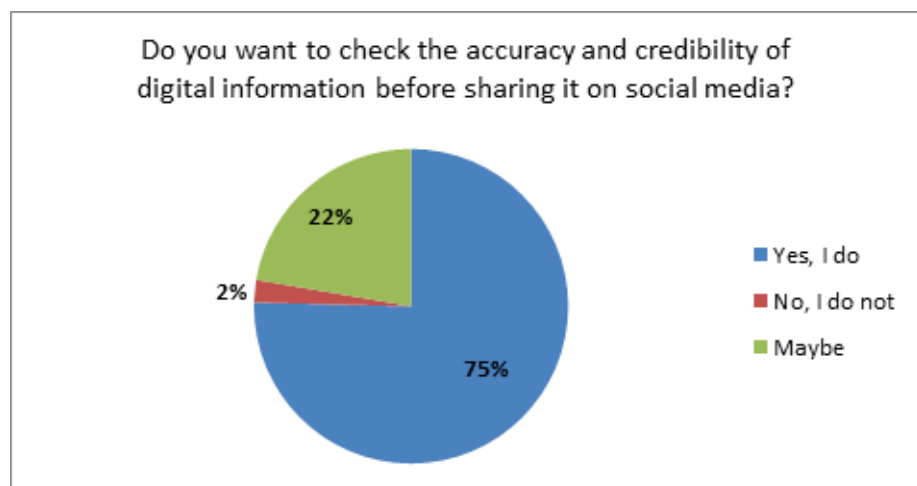


Figure 7: Students' self-assessment of information literacy

Figure 7 shows that out of 130 participants who have used the two fact-checking apps in their reading comprehension classes, 98 participants (75%) want to check the credibility of digital information before sharing it on social media, 29 participants (22%) are not sure, and 3 participants (2%) do not want to. These findings reflect that using

the two apps has raised the participants' awareness of information literacy in that the majority of participants want to check the accuracy and credibility of digital information prior reading and sharing digitally-spread news.

5. Conclusion

The rapid development of technology has given digital citizens the opportunities to receive information quickly, create and share information on social media. Although these opportunities have allowed digital citizens to become the content creator and the publishers of their own digital information, these can have negative effects toward the digital citizens themselves. Since anyone is able to write and share information in this post-truth era, fake news and hoaxes can be easily spread by anyone. Therefore, in response to such issue, digital literacy skill is urgently needed to be taught to students.

This study has explored adult EFL students' experiences in using two fact-checking applications to help them identify fake news in reading comprehension classes. After analysing students' responses, the findings of this study indicate that students have positive attitudes toward the two fact-checking apps. The majority of students considered Fakey as very useful to raise their awareness of information literacy. Students' self-assessment of information literacy skills after using the apps informs that the apps are beneficial to raise students' awareness of fact-check prior reading and sharing digital information. From these findings, the study recommends the integration of anti-hoax education not only in EFL classes, but also in any other classes to prevent the threats of fake news, particularly to young generation.

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