Empirical Evidence of Fake News Awareness Levels Among Students

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Abstract. The modern information landscape is flooded with fake and fabricated stories that are designed to mislead. It is especially the proliferation of social media platforms such as Facebook, Twitter, TikTok, etc., that have become breeding grounds for these deceptive narratives. The effect is severe and wide-ranging and may impact individuals, organisations, and communities. It is particularly younger people and students who are susceptible to misinformation as they are known for their heavy social media use. One way to combat the spreading of misinformation and its associated negative consequences is to increase fake news awareness levels. In this study, a fake news awareness measuring instrument was developed to assess the awareness and literacy levels of a selected group of university students. The main objective was to determine whether students could recognise fake news stories. The results of the survey also highlighted information on various other aspects associated with fake news, e.g. the spreading of fake news, guidelines on how to educate people about fake news, general behaviour, and news preferences of students. The study revealed that students are indeed in many cases not able to identify whether a news article is fake or real. A set of recommendations is offered to increase the fake news literacy levels of younger social media users.

Keywords: Information security education · fake news · misinformation · awareness · literacy · social media · survey

1 Introduction

The growth and spread of fake news (or misinformation) on online social media platforms have become a serious concern with wide-ranging negative consequences. Fake news is generally defined as fabricated or misleading information, with no factual basis, and is presented as legitimate material. The intent is often to deceive or manipulate (Barclay, 2018). Serious consequences of the spreading of misinformation have been recorded and examples include the negative impact on companies' image and stock price (Merle, 2017); downplay or minimising of world problems, *i.e.*, COVID-19 (Faherty, 2019); fueling propaganda and hate speech (Gu et al., 2017), *etc.* There are well-known and documented practical examples of the effect of the spreading of fake news. Some of these examples include political cases such as the 2016 US presidential election which

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was influenced by a fake news bulletin that claimed that Pope Francis endorsed Donald Trump for president – this had an impact on how voters perceived the presidential candidates (Guess *et al.*, 2018). Also, the US stock market lost $136 billion when a hacked Twitter account announced that President Barack Obama was injured in an attack on the Whitehouse (Baade, 2018). In the area of pandemics and natural disasters, fake news also had a profound impact. For example, when Hurricane Sandy hit the United States in 2012, fake news about explosions, trapped workers, and closed subways incited panic among many people (Holpuch 2012). During the COVID-19 pandemic, disinformation about 5G cell towers that caused the pandemic, led to widespread attacks on cell phone towers (Faherty, 2019). During the same pandemic, misinformation caused people to believe that the wearing of masks is unnecessary which put many people in danger (Meiping, 2020).

Leeder (2019) rightfully refers to social media as "the lifeblood of fake news" while Klein and Wueller (2017) emphasised the ease with which fake news can be distributed to large numbers of users at a very low cost using social media. Boyd and Ellison (2008) offer a comprehensive definition and discussion on social network sites but in summary, social media can be defined as digital platforms that facilitate and enable user-driven creation, sharing, and exchange of information and ideas in virtual communities and networks. This process promotes interaction and the building of relationships among individuals and brings together people with diverse backgrounds.

A significant number of social media platforms exist from where fake news is distributed, and statistics on the growth and use of these platforms are freely and easily available from several websites that specialise in social media data evaluations. These statistics are overwhelming and indicate the power of social media in the dissemination of misinformation. Some of the 2023 statistics are presented in Table 1 to show the extent of potential fake news carriers.

Table 1. Selected 2023 social media statistics[1]

Social media platform	**Number of users (in billions)**
Total number of social media users	4.95 billion
The top 6 social media platforms (users)	
1. Facebook	3.030 billion active users per month
2. Youtube	2.491 billion users that can be reached per month
3. Whatsapp	2.0 billion active users per month
4. Instagram	2.0 billion active users per month
5. WeChat	1.327 billion active users per month
6. TikTok	1.218 billion users over the age of 18 can be reached per month
A typical social media user spends on average 2 hours and 24 minutes each day on social media platforms	

[1] www.datareportal.com

From the statistics in Table 1, it is clear that social media is indeed the "lifeblood of fake news". Furthermore, at least 23% of American adults admitted that they would share fake news[2] which adds to the problem of spreading misinformation.

Younger people (18–29 years old) are particularly likely to be exposed to misinformation and may play a significant role in the sharing and spreading of fake news. A 2021 research report (Auxier and Anderson, 2021) found that American people in this age group use social media extensively. For example, 95% of this age group use YouTube, 70% use Facebook, and 71% use Instagram. This age group is also the largest user group of Snapchat, Twitter and TikTok. The age group 18–29 years includes university students, and Kircaburun et al. (2020) report that university students may use the Internet for up to four hours or more daily. It is therefore fair to assume that students are potentially a group of users that will contribute considerably to the sharing and spreading of fake news and other disinformation. This assumption is in line with the many research studies that have been conducted on fake news aspects as it pertains to students and young people. Example contributions in this regard are the work of Bringula et al. (2022), Leeder (2019), and Paglinawan (2020).

Many measures have already been implemented to combat the growing problem of sharing and distributing fake news. For example, different countries have employed various laws and regulations to reduce the impact of fake news (Kraski, 2017; Vese, 2022), while social media companies also engage in developing fake news measures (Iosifidis and Nicoli, 2020). There are also other services and technical measures such as fact-checking facilities available to address the fake news problem (Vo and Lee, 2018). However, one of the most efficient ways of combating fake news and the spread of misinformation is to raise awareness levels of users (and especially younger users). By making users aware of the dangers and consequences of fake news, the impact of the spreading of misinformation can be reduced considerably. Several literature resources deal with the awareness (or information and social media literacy) of fake news which confirms the importance of awareness and literacy approaches. See, for example, the work of Jannana et al. (2021) and Johnstone (2020).

Given this brief introduction to the problem of fake news, this paper aims to evaluate empirically the fake news awareness levels of a selected group of students at a tertiary institution. A measuring instrument is developed, and a survey is conducted to assess the students' levels of fake news awareness and literacy. This study goal can be translated into the following research question: To what extent can fake news awareness levels amongst students empirically be determined?

The remainder of the paper is organised as follows. Section 2 presents a brief literature review of related studies. The methodology of the empirical study is detailed in Sect. 3 while Sect. 4 focuses on the results. A discussion of the empirical results is presented in Sect. 5 and the study is then concluded with final remarks in Sect. 6.

[2] www.demandsage.com

2 Related Studies

The proliferation of fake news and misinformation has garnered substantial scholarly attention, resulting in a rich body of literature encompassing various facets of the disinformation phenomenon. The purpose of this section is to reference only a few of the existing studies to contextualise the present study and to highlight some of the many features of misinformation. Given the study's focus on younger individuals, particular emphasis will be placed on research exploring their fake news awareness levels.

Fake news has been defined by various researchers in the literature. A comprehensive definition was presented in the introduction and interested readers may also consult the work of Baptista and Gradim (2022) and Gelfert (2018) for other definitions. It was also mentioned in the introduction that social media is viewed as the most important vehicle for disseminating misinformation and, as a result, many resources can be found on the association between fake news and social media. For example, Di Domenico et al. (2021) identified five themes related to fake news. *i.e.*, the dissemination process, spreading channel features, outcomes, legitimacy, and attitudes while Azzimonti and Fernandes (2018) studied how the structure of social media networks and the presence of fake news affects the degree of misinformation and polarization in a society (community impact). Naeem et al. (2021) pointed out how fake news is taking over social media and emphasize the need for training people, especially young people, on how to use social media safely.

The sharing of fake news is motivated by different purposes. Sometimes the sharing and creating of fake news are driven by psychological and emotional aspects. For example, some users simply find great enjoyment in fooling others (often anonymously) into believing fictitious false news stories (Armstrong and Forde, 2003). One of the most important motivational factors for creating and spreading misinformation is financial gain. Braun and Eklund (2019) explained how fake news websites deceived online advertisers to make use of their websites which will increase the number of viewers and the income generated. Another popular reason or motivation for fake news is associated with political power – see for example the work of Bovet and Makse (2019) who explained how Donald Trump used the concept of fake news to his advantage. Finally, there are also social media users who are obsessed with celebrities and who believe, and share, everything that is published in the name of a celebrity. A study by Brennen et al. (2020) confirmed this factor and found that celebrities (or their names) were involved in 69% of social media misinformation stories related to the Coronavirus.

As alluded to in the introduction, fake news and the spreading of misinformation has a significant impact. The impact can broadly be classified as the effect it has on individuals, companies, and communities. Individuals, for example, can be influenced by fake news to trust or distrust brand names (Chen and Cheng, 2019) while companies may face increasing risks such as cyber risks (Petratos, 2021). In communities, misinformation may lead to panic and unrest (Gradon, 2020) as evidenced by the 5G cell towers that were attacked because of the false claim that these towers are responsible for the COVID-19 pandemic outbreak.

The goal of this study is to report on an empirical evaluation of the fake news awareness (literacy) levels of a selected group of students. Several studies exist on how young people perceive and treat fake news and, in this paragraph, a few of these studies

are highlighted to contextualise this study with similar literature resources. One of the most prominent research projects in this domain was performed by Leeder (2019). The study detailed a survey that was conducted with 63 undergraduate students to investigate how students evaluate and share fake news. A correlation was found between accurate identification of fake news stories and specific critical evaluation strategies. A study to determine specific items that can be used to predict university students' susceptibility to fake news was conducted by Bringula et al. (2022). Data obtained from a student survey showed that political posts are of specific importance and play a major role in students' decisions to share or like the posts which then had an impact on the susceptibility of students to fake news. In another study, Johnston (2020) performed a survey with 37 high school students to determine how these students evaluate content on social media platforms such as Twitter and Facebook. Various findings were reported, for example, students do not always trust information from social media; they fail to recognise bias when the post or information relates to political aspects; the students did not verify the accuracy of information; and, the teaching of social media literacy (awareness) should be focussed on critical thinking aspects, rather than following a checklist approach. Reem (2022) also surveyed 100 undergraduate students to determine if a course in social media literacy would have any impact on the ability to detect fake news – the result was that such a course equipped students with scientific and well-reasoned techniques to detect fake news.

In addition to the above references to fake news and young people, interested readers may also refer to the following examples on this topic. Tejedor et al. (2021) – journalism students and fake news; Syam and Nurrahmi (2020) – social media literacy of students; Pilgrim and Vasinda (2021) – elementary students and fake news; Machete and Turpin (2020) – use of critical thinking to identify fake news.

3 Methodology

The study was conducted through an online survey instrument that was developed specifically to assess the fake news awareness levels of students. This formed part of a study of a Masters student (Van Rheede Van Oudtshoorn, 2023). In this section, the development process of the survey instrument (a questionnaire) is described followed by an overview of the participants that took part in the survey.

3.1 The Survey Instrument

The final questionnaire used in the empirical exercise comprises three main sections and a total of 25 questions. Section A of the questionnaire was used to obtain demographic details of the participants *e.g.* age, gender, field of study, and faculty (*e.g.* Natural Sciences). Section B consists of eleven questions and recorded respondents' general behaviour and opinion regarding certain aspects of news and social media sites. Questions in this section refer to participants' preferred news platforms, preferred social media applications, awareness and use of fact-checking tools and techniques, and inclination to share news stories. Section C was the key section in terms of testing the fake news awareness levels of participants. In this section, ten news stories were presented to

participants, and they were requested to identify whether the news story was a fake or a real news story. A series of sub-questions were also asked to determine the reasoning of participants behind identifying stories as real or fake, as well as questions on the believability and trustworthiness of the news story.

3.2 Selection of the News Stories

Ten news stories were presented to participants and were selected from the most popular social media sites which include Facebook, Twitter, Instagram, YouTube, and TikTok, as well as from three other news sites. Seventy percent of the news stories were international news items, and three stories (30%) had South African content as the study participants were all from South Africa. Seven news stories were fake news and three were real news items. The ten stories were presented to the participants who had to rate them as fake or real news stories. The ten news items are summarised in Table 2.

Table 2. News articles presented to participants.

News item	Source	Fake/Real
1. A post claiming that the death rate for COVID-19-vaccinated people is higher than that of unvaccinated people	Instagram	Fake
2. A video claiming that after receiving the COVID-19 vaccine, you will be unable to donate blood or plasma	TikTok	Fake
3. An article that announces that Japan will dump contaminated water into the sea	The Guardian	Real
4. An article that announces that a woman received a life sentence in prison for murder witnessed by a parrot	New York Post	Real
5. A post claiming that marijuana can increase the risk of schizophrenia and psychotic disorders	Twitter	Real
6. A video claiming Durban metro police were seen stealing looted goods and driving off during the Durban protests	YouTube	Fake
7. A video claiming that dolphins returned to the canals in Venice during the COVID-19 pandemic lockdown period	Twitter	Fake
8. An article stating that Rory McIlroy (Golfer) was attacked by a hawk protecting a golf ball that bounced into the hawk's nest	The Onion	Fake
9. A news video featuring the South African Minister of Social Development who claims that South Africa is ranked number one in the world in the murder of women	YouTube	Fake
10. A post claiming that South Africa's late Zulu King, Goodwill Zwelithini, received an annual salary of R71.3 million	Facebook	Fake

The news items in Table 2 were the final chosen items following a pilot study which is described in the next paragraph.

3.3 Pilot Study

A pilot study was conducted to ensure that the planned methodology is effective. A total of 21 university students were invited to participate in the pilot study and they successfully completed an Internet-administered version of the proposed questionnaire. The survey took approximately 10–30 min to complete and was available for one week in an online environment. The age range of the participating students was 19 to 32 years (average of 21.57 years) and five different fields of study were represented, *i.e.*, Economic and Management Sciences (38.1%), Law (23.8%), Natural Sciences (14.3%), Education (14.3%) and Humanities (9.6%). The gender distribution was 38.1% female and 61.9% male.

The respondents classified 55% of the fake news articles correctly as fake news and 67% of the real news stories were classified correctly as real news items. However, the main aim of the pilot study was to evaluate the measuring instrument in terms of length (is the questionnaire too long?), clarity (are questions clear?), and complexity (are fake news articles presented in the questionnaire too simple and too easy to identify?). Feedback was also solicited on how the questionnaire could be improved. Based on the responses received, the questionnaire was improved in terms of clarity (questions were changed to be easier to understand) and complexity (some of the news articles were replaced by more difficult-to-classify articles). Following these improvements, the news stories to be classified were finalised as shown in Table 2.

The pilot study proved to be beneficial and offered an opportunity to rectify potential problems and to ensure that the survey instrument complies with all the requirements. The improved measuring instrument was then used in the actual empirical exercise and distributed to a larger sample of students. The actual survey and the larger sample of participants are detailed in the following paragraph.

3.4 The Actual Survey and Participants

To ensure that a representative sample of participants was obtained, the participant recruitment process followed a combination of a probability (each member of the population has an equal chance of being selected) and a non-probability (probability of being selected is unknown) sampling technique.

As a first step, a stratified sampling technique (probability technique) was utilised to split the target population into eight different applicable strata. The eight strata represented the eight faculties of the university where the study was conducted and include Economic and Management Sciences, Education, Engineering, Health Sciences, Humanities, Law, Natural and Agricultural Sciences, and Theology. The second step in the sampling process comprises a non-probability sampling technique called snowball sampling. A small number of students in each of the eight strata (faculties) were invited to participate. They were requested to identify and recruit other students within their faculty who were again asked to recruit other students, and so on. This approach resulted in a total of 191 participants of which 183 responses were usable. This sample size is in line with other similar studies, *e.g.* the study by Leeder (2019) had a sample size of 63.

The questionnaire was distributed via email messages that provided a link to the questionnaire and was available to participants for two months. Responses were captured and stored electronically.

The age range of the 183 respondents was 18 to 45 (average age of 22.7 years and mode of 20 years). The gender distribution was 59 (32.2%) female and 121 (66.1%) males while 3 (1.6%) preferred not to respond to the gender question. Participants were recruited from only seven of the eight strata and there were no participants from the faculty of Theology. Representation from the remaining faculties was as follows: Natural and Agricultural Sciences (25.1%), Economic and Management Sciences (20.8%), Engineering (14.8%), Education (13.7%), Health Sciences (10.9%), Humanities (10.9%) and Law (3.8%).

4 Results

The results of Section A (demographic details of participants) of the questionnaire were discussed in the preceding section. As explained earlier, Section B of the questionnaire deals with participants' news preferences, behaviour, and opinions regarding fake news. Table 3 presents a synopsis of the opinion and behaviour results.

Table 3. Summarised results of opinion and behaviour of respondents.

Opinion and behaviour aspects	Response
Preferred primary news platforms	Most participants prefer social media as the preferred news platform while magazines are the least preferred news source.
Preferred social media applications	The three most preferred social media applications are Facebook, YouTube, and Whatsapp. The least preferred applications are Rumble and MySpace.
Awareness of fact-checking tools and techniques	Participants are in general not aware of fact-checking facilities. Most respondents indicated that they sometimes check the source of the news story; they sometimes check the date of the news item; and they sometimes cross-check or verify with an expert the contents of a news story ("Sometimes" was one of 5 response options available: Never, Rarely, When in doubt, Sometimes and Always).
Sharing of news items	The news subjects that are mostly shared include Weather, Internet memes, Sports, Crime, and Politics.
Reasons for sharing news items	Most popular reasons for sharing news items include 'to inform my friends', 'to entertain myself', and 'to bring something to the attention of the community'.

The results in Table 3 are also available per faculty which indicate some significant differences between participants within different study areas. These details are not reported in this paper.

Section C of the questionnaire focuses on the main issue of whether participants would be able to identify a news item as being fake or real news. As explained earlier, ten news stories (7 fake and 3 real – see Table 2) were presented to participants for classification. Table 4 presents the overall classification results.

Table 4. Fake news awareness/literacy results.

News item	Fake or Real	Number of correct classifications	Percentage of correct classifications
1. The death rate for COVID-19-vaccinated people is higher than that of unvaccinated people	Fake	149	81%
2. After receiving the COVID-19 vaccine, you will be unable to donate blood or plasma	Fake	150	82%
3. Japan will dump contaminated water into the sea	Real	136	74%
4. A woman received a life sentence in prison for murder witnessed by a parrot	Real	91	49%
5. Marijuana can increase the risk of schizophrenia and psychotic disorders	Real	86	47%
6. Durban metro police were seen stealing looted goods and driving off during the Durban protests	Fake	46	**25%**
7. Dolphins returned to the canals in Venice during the COVID-19 pandemic lockdown period	Fake	73	40%
8. Rory McIlroy (Golfer) was attacked by a hawk protecting a golf ball that bounced into the hawk's nest	Fake	97	53%

(*continued*)

Table 4. (*continued*)

News item	Fake or Real	Number of correct classifications	Percentage of correct classifications
9. The South African Minister of Social Development claims that South Africa is ranked number one in the world in the murder of women	Fake	39	**21%**
10. South Africa's late Zulu King, Goodwill Zwelithini, received an annual salary of R71.3 million	Fake	127	69%

The results show that in 50% of the news items, less than half of the participants were able to correctly classify the news item as a fake or a real news item – see news items 4, 5, 6, 7, and 9 in Table 4.

The responses were also recorded per faculty and in some cases considerable differences were noticed. Two examples are presented here. The real news story number 4 (A woman received a life sentence in prison for murder witnessed by a parrot) was rated correctly as real by only 40% of the students from the Education faculty as opposed to 75% of Law students who rated the story correctly as a real news story. News story 5 (Marijuana can increase the risk of schizophrenia and psychotic disorders) which was also a real story, was rated by more than half (53%) of all respondents incorrectly as a fake news story. The faculty breakdown shows that 88% of Law students classified the story incorrectly as fake news while only 38% of students from Natural Sciences incorrectly classified the story.

Another interesting observation was that two of the South African (where the survey was conducted) news stories were incorrectly classified by a large majority of respondents. News article 6 (Durban metro police were seen stealing looted goods and driving off during the Durban protests) was a fake story, however, 75% of all respondents classified it as real news. Some of the participants stated that in the current political situation in South Africa, they do not trust the South African police and expect them to engage in criminal activities. Participants were also misled by the quality of the news video which appears to be a professional presentation. The second South African news item was number 9 (The South African Minister of Social Development claims that South Africa is ranked number one in the world in the murder of women). Almost 80% of the participants rated this news item incorrectly as a real news story while it was in fact a fake news story. This makes news item 9 the most incorrectly classified news article in the survey. In line with this incorrect classification, the overwhelming majority (80%) of respondents also indicated that the news story appears to be trustworthy and believable. A further interesting result was that these two South African news stories were indicated as the two stories that would be shared by most respondents with other

students – 37% of participants would share news item number 6 while 34% would share news story number 9. This is an important finding as it appears that news stories that are related to a respondent's country or community, and which are not easily recognised as fake news, are more frequently shared – this makes them good candidates for spreading misinformation and fake news.

The results are further discussed in the next section and a set of specific recommendations is offered based on the survey results.

5 Discussion

The results presented in the previous section have led to specific findings. However, as the purpose of this paper is to evaluate and comment on the awareness and literacy of fake news levels among students, the set of recommendations in this section is mainly focused on awareness aspects and ideas to improve fake news awareness among students.

Due to the apparent low levels of fake news literacy, as evidenced by the result of the survey, the primary recommendation of the study is that regular fake news awareness campaigns, focussed on students, should be conducted amongst younger people. The objective of such an awareness campaign would be to equip students with the tools and confidence to actively evaluate information, promoting a culture of responsible news consumption and informed decision-making.

The following set of recommendations, based on the results of the survey, may help transform students from passive consumers to active fact-checkers, fostering a critical approach to online information.

- More emphasis should be placed on popular *social media* applications that are perceived as news sources, *e.g.* Facebook, Whatsapp, and YouTube. Traditional news magazines and printed news media are not popular news sources for younger people.
- A student audience should be made aware of how to *recognise* fake news. To achieve this, the following aspects may be considered for inclusion in an awareness program. The existence of fact-checking web sites or other online facilities should be emphasised; students should be encouraged to check the source of a news item as most reliable and valid news sources are easily recognisable; when in doubt about the validity of a news item, it is important to read the news article in its entirety and not just the headline to draw a conclusion; other reputable news sites may be checked to see if the same news articles are reported there – news articles that are published by more than one trustworthy news outlet are likely to be real news stories; experts should be consulted when in doubt – especially before sharing a news story; be aware of catching videos and pictures that are used to add credibility to a news story – also, watch out for original pictures that may have been tampered with; and finally some of the general aspects that are important include looking out for sloppy writing, check the "about us" and "contact us" pages, check the website's URL, logos *etc.*
- Certain *behavioural* aspects are important and should be included in a student fake news awareness program. Some of these aspects include an awareness of the basic technical options in most social media applications where personal settings can be set to maximum privacy to protect a user from fake news and dubious news websites; an awareness of the availability of reporting facilities of social media applications;

students should be encouraged to follow different news sites as a more diverse group of people and sites will help create a more balanced view of fake news articles; and more generally, the awareness campaign must encourage students to remain sceptical over news stories – when in doubt, news items should be investigated using the tools and techniques recommended in the previous bullet on how to recognise fake news articles.
- News stories that are related to their *communities* and that fit students' narratives or *beliefs* should get special attention in a fake news awareness campaign. The survey has clearly shown that 'own community' stories and stories that fit one's own beliefs are easily seen as real stories and are normally candidates for sharing and spreading of misinformation. Recall, for example, news stories 6 and 9 which were both local stories with content in which students have a strong pre-determined belief over the actors in the story, *e.g.* the negative assumptions and beliefs towards the police and politicians. These 'own community' fake news stories were mostly incorrectly classified as real news stories. A general information security awareness program, focusing also on fake news, should caution students that their believability and trustworthiness opinions are not always accurate, and care should be taken before these news items are shared.

The above recommendations are based on the survey conducted and do not make provision for further important recommendations that may be associated with additional stakeholders who may also play a role in the creation and spreading of fake news.

6 Conclusion

The rise of social media platforms has coincided with an increase in the spread of misinformation and fake news. Younger generations, who tend to be heavy users of these platforms, may be particularly vulnerable to this phenomenon. This study answers the following research question: To what extent can fake news awareness levels amongst students empirically be determined? To achieve this, a measuring instrument was developed, and a survey was conducted among university students to assess their level of awareness regarding fake news. Results have shown that there may indeed be a lack of sufficient knowledge in areas such as the recognition of fake news items (how to recognise fake news) as well as in behavioural issues (how to protect against fake news and the spreading of it). Furthermore, an important finding was that fake news stories that are related to 'own communities' and that fit people's pre-determined narratives, are generally inaccurately classified as real stories, and this may contribute to the sharing of misinformation.

The study has contributed by investigating specific behaviours, opinions, and knowledge regarding fake news among students. The investigation has resulted in a set of recommendations that would be useful to consider in a fake news awareness campaign as part of a wider information security educational endeavour. The results of the study provide empirical evidence of the fake news literacy levels of younger people and as a future research opportunity, the measuring instrument may be extended to include other misinformation aspects and then presented to a larger audience and different age groups.

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