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What Motivates University Students to Counter Fake News?

Examining Situational Perceptions, Referent Criterion, and New Media Literacy

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Fake news identification has been widely studied in the past, but research on motivating individuals, particularly university students, to fact-check news and disseminate corrective information to counter fake news is lacking. Grounded on the situational theory of problem solving (STOPS), this study aims to examine the situational perceptions and referent criterion that motivate university students to counter fake news through communicative action and examine the influence of new media literacy on the situational perceptions and referent criterion. Based on 528 responses from an online survey, new media literacy is related to all STOPS factors in countering fake news. Situational perceptions are significantly related to situational motivation in countering fake news, while situational motivation and referent criterion significantly influence communicative action. The findings extend the existing literature on countering fake news and are expected to contribute to strategic planning in future anti-fake news intervention campaigns.

Keywords: fake news, new media literacy, situational perceptions, referent criterion, situational theory of problem solving (STOPS)

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Introduction

Efforts to combat fake news are essential. Among the approaches initiated by governments in different countries are law enforcement, fact-checking mechanisms, Internet shutdowns, media literacy initiatives, and government task forces (Funke & Flamini, 2021; Haciyakupoglu et al., 2018). Nonetheless, fake news is still prevalent, and the issue has not been adequately resolved, especially in Malaysia. For instance, the Malaysian Communications and Multimedia Commission (MCMC) saw a drastic increase in the number of complaints about fake news in 2016 (Zainal, 2017). Even with the introduction of the sebenarnya.my information verification portal (Shahar, 2017), the challenge of combating fake news remains if people do not spread the truth to others or correct misinformation shared by others after verification. Chin and Zanuddin (2022) found that 61% of Malaysians believe fake news seen on Facebook and 14% do not; but fewer than 20% of those who do not believe in fake news actually determine for themselves that the news is fake. MCMC also discovered that Malaysians disseminate news that had already been identified as fake when that fact made known to the public via the fact-checking portal (Hassan, 2017). This could possibly result in a situation in which Vosoughi et al. (2018) describe the spread of fake news outpacing that of true news.

University students could be an important segment of the public in countering fake news. However, social media serves as a breeding ground for fake news, causing concerns among experts regarding its impact on university students, who are frequent users of such platforms and often exposed to information from unreliable sources such as fake news (Chin, 2022). Despite the ability of university students to accurately distinguish between factual news and fake news (Khairunissa, 2020), and their efforts to verify news stories on social media by checking with mainstream media (Chandra et al., 2017), previous studies have revealed challenges in their information evaluation skills, particularly in the context of social media. Wineburg et al. (2016) found that students can be easily misled, with over half of them believing partisan site content to be more credible than it is. Leeder (2019) argued that the willingness to share news stories is not related to the accurate identification and evaluation of news credibility. Chen et al. (2015) discovered that over 60% of university students had shared misinformation. This is possibly due to overconfidence in their ability to evaluate information credibility (Wang, 2007). Despite being highly educated and expected to counter fake news by correcting fake news shared by others, previous literature raises concerns about the role of university students in countering fake news.

Fake news identification via cues has been studied in the past (Hinsley & Holton, 2021), but countering fake news does not stop at simply recognising it; it also involves effort from the public to seek information from reliable sources for news verification and to communicate with others about fake news correction. This has drawn attention to information acquisition, transmission, and selection, collectively known as *communicative action,* among the public. Past studies show that communicative actions such as information seeking and forwarding can be part of problem-solving efforts in different contexts, such as gun violence (Hipple et al., 2017) and health communication (Chon & Park, 2021). However, there is limited research on the issue of fake news,

particularly the factors that drive the public to counter it through communicative action. The current study, therefore, applies the *situational theory of problem solving* (STOPS) because the theory suggests situational perceptions and referent criterion that motivate communicative action in problem solving (Kim & Grunig, 2011).

Media literacy has also been studied in association with fake news. Among the topics studied are the relationship between media literacy and the intention to share fake news (González-Cabrera et al., 2019), how media literacy curbs fake news (Simmons, 2018), and the association between new media literacy and fake news detection (Veeriah, 2021). Since media literacy – especially *new media literacy* in which individuals not only understand but also consume and create media content critically – is an essential skill that people should have in this digital age (Chen et al., 2011; Raj, 2019), it is worth uncovering the association between new media literacy and the factors in countering fake news. With that said, the current study aims (a) to examine the situational perceptions and referent criterion that motivate university students in countering fake news through communicative action and (b) to examine the influence of new media literacy on the situational perceptions and referent criterion.

Literature review

Fake news

According to Allcott and Gentzkow (2017), fake news can be interpreted as deliberately and verifiably false news articles that can deceive audiences. Tandoc et al. (2018) agree that fake news involves intentional deception. They identify different operationalisation types for fake news, including news satire and news parody, but each differs in terms of the factuality of fake news and the intention of fake news creators to mislead audiences. Finneman and Thomas (2018) add that fake news is different from *media hoaxes,* which are created by professional media actors such as journalists and entertainers, the falsehood of hoaxes will eventually be disclosed as the ultimate motive is to entertain or educate. The researchers further explain that fake news creators are non-media actors who design sensational, but apparently real, communication in order to mislead the public without having had the intention of either revealing their identity or the falsehood. The manipulation can be achieved by distorting the true facts of an issue in favour of a particular party or by providing inaccurate facts that subsequently influence readers' opinions or views on the given topics (Gu et al., 2017).

Unlike the previous definitions that claim fake news is an intentional falsehood, Al-Zaman (2021) attempts to understand the terms *fake* and *news* separately before defining them together. The researcher interprets *fake* as *pseudo* or *camouflaged,* which means emerging as authentic or original but could be either true or false, and *news* is perceived as any information that consists of a narrative body with a context, with considerable value among the public. Hence, he defines fake news as information that intentionally or unintentionally misleads people; this includes *disinformation, misinformation,* and *rumour.* Disinformation is purposely false, while misinformation

is inadvertently incorrect (Jack, 2017). Rumour is mostly defined as information that has not been verified and could be true or false (Difonzo & Bordia, 2007). Likewise, Wardle and Derakhshan (2018), as well as Buschman (2019), also argue that fake news can be spread without realising its falsehood; the debate on fake news often conflates misinformation and disinformation. On the other hand, Zhang and Ghorbani (2020) propose a definition of fake news as "all kinds of false stories or news that are mainly published and distributed on the Internet, in order to purposely mislead, befool or lure readers for financial, political or other gains" (p. 4). After reviewing the past literature, *fake news* in this study includes any incorrect information or distorted fact that is created and spread with or without the intention to mislead.

Situational theory of problem solving (STOPS)

STOPS, a theory extended from Grunig's (1997) situational theory of publics (STP), is used to understand why and how the public is motivated to solve a problematic situation using communicative action (Kim & Grunig, 2011). STOPS has been applied by many researchers in a variety of situations, such as organ donation issues (Kim et al., 2011), health issues (Krishna, 2018), organisational crises (Lee, 2020), and disasters (Liu et al., 2019).

STOPS suggests three perceptual factors or situational perceptions that contribute to situational motivation in problem solving: *problem recognition, constraint recognition,* and *involvement recognition* (Kim & Grunig, 2011). Problem recognition refers to the perception of the gap between what is expected and experienced; the wider the gap, the more problematic the situation is perceived to be; however, there is no instant solution to narrow the perceived gap (Kim & Grunig, 2011). The higher the problem recognition, the more likely people are to take communicative action in problem solving (Kim & Grunig, 2011). In the context of this study, problem recognition can be understood as when people perceive fake news to be detrimental to the harmony of society and country, express their concern about the problems caused by fake news, and think that actions, especially from the authorities, must be taken to overcome them. Those who show greater concern over fake news problems are more determined to communicate with others about fake news, fact-check dubious news, and share the truth with others.

Constraint recognition refers to the perceived barriers that restrict individuals from doing something about a given problem (Grunig, 1997). Individuals are less likely to communicate about a problem when they perceive that there is nothing they can do about it (Grunig & Hunt, 1984). In this study, constraint recognition can be interpreted as when people think that they are unable to change or improve the problematic situation of fake news. Although they do sometimes have ideas and opinions (e.g. suggested ways to stop others from sharing fake news) to improve a given problematic situation, they perceive that there is an obstacle that hinders them from taking action to resolve the fake news issue. The more obstacles the public recognises, the less motivated they are to resolve a problem (Kim & Grunig, 2011). Hence, individuals are less likely to communicate with others about fake news problems when they realise the difficulty of doing something about it.

Involvement recognition refers to the perceived association between individuals and a problem (Grunig, 1997). When individuals have high involvement recognition, they have high problem recognition and low constraint recognition (Grunig & Hunt, 1984). In the context of this study, involvement recognition is triggered when individuals perceive that fake news affects themselves and their loved ones. STOPS suggests that people who think that they are highly involved in a problem are more motivated to take communicative action in problem solving (Kim & Grunig, 2011). With that said, individuals who perceive that they are affected by fake news will have a greater motivation to communicate about the problem.

Other than perceptual factors, the theory proposes the referent criterion as a cognitive factor that influences communicative action in problem solving. It is interpreted as a solution used in past situations being applied in the current problematic situation (Grunig, 1997) and "any knowledge or subjective judgmental system that influences the way in which one approaches problem solving" (Kim & Grunig, 2011, p. 131). When a problem is identified, people will first go for an internal and cognitive search for information based on past experience, which is known as *knowledge activation;* otherwise, they will look for external sources for a solution, also known as *knowledge action* (Kim & Grunig, 2011). When people have more referent criterion, they are more likely to take communicative action in problem solving (Kim & Grunig, 2011). In this study, referent criterion can be understood as follows: when people are confident in their opinion about fake news, have prior knowledge to deal with fake news, and have a clear stance on how fake news should be addressed based on what they have learned from past experience, they are more likely to counter fake news by seeking information to verify news and share the truth about fake news with others.

Situational motivation in problem solving is defined as "a state of situation-specific cognitive and epistemic readiness to make problem-solving efforts–that is, to decrease the perceived discrepancy between the expected and experiential states" (Kim & Grunig, 2011, p. 132). This motivational concept helps the public identify something to be done instead of thinking about what to do (Kim & Grunig, 2011). When the public is highly motivated to solve problems, they are curious about the problem and want to develop a deeper understanding of it (Kim & Grunig, 2011). This motivation variable is usually measured by how frequently people invest cognitive effort into a problem, how interested they are in solving a problem, and how willing they are to learn more about a problem. In the context of fake news, situational motivation is shown when people have curiosity about fake news and would like to have a better understanding of the veracity of the news. When they are motivated to contribute to countering fake news, they often think about the problem and show determination in problem solving.

Communicative action in problem solving explains that when people perceive a situation to be problematic, they tend to solve the problem using communicative behaviour, this includes information acquisition (information seeking and attending), transmission (information forwarding and sharing), and selection (information forefending and permitting) (Kim & Grunig, 2011). STOPS proposes that all situational perceptions influence situational motivation in problem solving, and the motivation

affects communicative action, whereas referent criterion is directly related to communicative action. Below are the hypotheses developed in the fake news context:

H1: Problem recognition has a positive relationship with situational motivation in countering fake news among university students.
H2: Constraint recognition has a negative relationship with situational motivation in countering fake news among university students.
H3: Involvement recognition has a positive relationship with situational motivation in countering fake news among university students.
H4: Referent criterion has a positive relationship with communicative action in countering fake news among university students.
H5: Situational motivation in problem solving has a positive relationship with communicative action in countering fake news among university students.

New media literacy

In general, *media literacy* refers to the "ability of a citizen to access, analyze, and produce information for specific outcomes" (Aufderheide, 1993, p. 6). Buckingham et al. (2005) define the term as the capability to access, comprehend, and produce communications in different contexts. These competencies enhance critical thinking and problem-solving abilities (Varis, 2010). Media literacy is not an independent or isolated skill; it also entails other forms of literacy such as reading and writing skills, audiovisual literacy, digital literacy, and information literacy (Varis, 2010). Literat (2014) asserts that media literacy is applicable regardless of whether it is in new or traditional media.

The media landscape alters when new media technology emerges. New media refers to "all technology-based socio-cultural platforms in which any messages are digitally coded and distributed by any users" (Koc & Barut, 2016, p. 835). Lister et al. (2009) describe that digital interactivity, virtuality, and networkability are the features of new media. Hence, the competencies that a media-literate individual should master are redefined; they should be equipped with the skills to analyse messages and produce contents in various forms, such as texts, visuals, videos and audios and, critically, in multi-dimensional and multi-directional information and communication channels (Eristi & Erdem, 2017).

Web 2.0 tools such as social networking sites and photo sharing sites enable and encourage the creation of user-generated content and promote participation in this new media environment (Oberhelman, 2007; Selwyn, 2007). Unfortunately, new media not only appears as a convenient platform for users to obtain updated information, but also becomes one of the main sources of fake news (Rohman et al., 2018). Thus, individuals require new media literacy to navigate the new media environment. Chen et al. (2011) reveal four dimensions of new media literacy: *functional consumption* (FC), *critical consumption* (CC), *functional prosumption* (FP), and *critical prosumption* (CP). FC refers to the competency in the use of the new media and understanding of the media content,

whereas CC looks at the ability to analyse, synthesise, and evaluate media content. FP is another dimension that considers the ability to produce and disseminate media content, while CP focuses on the ability to create media content and to participate critically in a new media environment. The notion of *new media literacy* proposed by Chen et al. (2011) is adopted in the current study.

Media literacy has been associated with efforts to combat fake news. Past studies explain that high media literacy enables people to discern fake news (Kahne & Bowyer, 2017; Simmons, 2018). McDougall (2019) suggests adopting media literacy in education to prepare the younger generation to cope with fake news. Media literacy is also found to influence one's perceptions, such as the perception of biased reporting in media (Vraga et al., 2009) and the perception of media credibility (Vraga et al., 2012). Varis (2010) adds that media literacy can enhance critical thinking and problem-solving capabilities. Past studies support the relationship between media literacy and fake news identification. However, the connection between new media literacy and the perception of fake news as a problem remains unclear, which leads to the following research question:

> **RQ1(a):** What is the relationship between new media literacy and problem recognition in the context of countering fake news among university students?

Self-efficacy, a concept close to constraint recognition (Kim & Grunig, 2011), is an evaluation reflecting the belief of oneself in performing something with the skills they have (Bandura, 1977). It is also defined as people's perception of their ability to distinguish fake news through verification and to avoid spreading disinformation (Chen & Cheng, 2020). There are limited studies associating constraint recognition with new media literacy, but literature on self-efficacy and media literacy was found. For instance, Hofstetter et al. (2001) suggest that media literacy can enhance self-efficacy among media consumers. Prior et al. (2016) found that digital literacy boosts self-efficacy to carry out and assess digital actions in resolving problems in daily tasks. Past studies have also found that self-efficacy is positively related to problem solving (Kohen et al., 2019; Parto, 2011). Hence, the following research question was formulated:

> **RQ1(b):** What is the relationship between new media literacy and constraint recognition in the context of countering fake news among university students?

Consuming media content can induce and shape one's perception of risk or possible harm (Früh, 2017). In the context of fake news, individuals perceive that fake news exerts negative impacts on society including themselves (Lee, 2021), reflecting their recognition of their involvement in the fake news problem. Risk perception does not always imply the actual risk of encountering fake news, but educated people, particularly those with media literacy skills, are more concerned about false information and feel vulnerable to the risk of being fake news victims (Knuutila et al., 2022). When people believe or perceive that media messages could influence both themselves and others (Baek et al., 2019), they tend to develop a shared interest in and potentially support censorship (Neuwirth & Frederick, 2002) and fake news regulation (Baek et al., 2019). The support for the

connection between new media literacy and involvement recognition in fake news contexts is still scarce in existing literature, which prompts the formulation of the following research question:

> **RQ1(c):** What is the relationship between new media literacy and involvement recognition in the context of countering fake news among university students?

Maksl et al. (2015) assert that media-literate teens are more knowledgeable about current events. Kean et al. (2012) claim that people who have a high level of media literacy do not easily accept or believe in the media content they see; instead, they compare the content they meet with their existing knowledge to form an opinion on the accuracy and relevancy of that content. Wagner and Boczkowski (2019) add that people rely on experience and knowledge accumulated to determine the truthfulness of news. The following research question is developed to understand the connection between new media literacy and the use of past experiences and knowledge in the fake news context.

> **RQ1(d):** What is the relationship between new media literacy and referent criterion in the context of countering fake news among university students?

Methodology

Sampling

This study adopted an online survey by distributing questionnaires in Google Forms to target respondents. The sample size was determined using G*Power analysis, as it is recommended for research that employs structural equation modelling for analysis (Hair et al., 2017). To obtain a medium effect size, i.e. 0.15 and a power of 0.95, at least 119 samples are required for three predictors. According to Comrey and Lee (1992), multivariate studies require large samples, and they suggest that 500 samples are very good. With all the considerations on the sample size, this study aimed for a minimum of 500 responses to achieve a sample size deemed very good, as recommended, while also meeting the minimum sample size suggested by G*Power analysis.

University students can be an important part of the public who evaluate the credibility of information and contribute to countering fake news (Seo et al., 2021). Nonetheless, past studies have found that they also share false information with others (Chen et al., 2015). This study targeted university students to test the relationships in the theoretical model. Three public universities located in the Klang Valley area, the urban conglomeration in Malaysia where most of the public universities are situated (StudyMalaysia.com, 2020), were randomly selected, namely the University of Malaya, Universiti Putra Malaysia, and The National University of Malaysia. Volunteer sampling was employed in which all students in the selected universities received an email containing a link to the online questionnaire in Google Forms and were invited to

participate in the survey. The participation was voluntary; the entire data collection process took approximately six months from July 2020 to December 2020 until the desired number of samples was reached. A total of 528 usable questionnaires were collected for analysis.

Measurement

The survey had five sections. The first section was demographic information, including gender, age, ethnic group, and program studied. Age was measured with an open-ended question, while others were measured using a closed-ended question.

The second section was about new media literacy. The 35 items from Koc and Barut (2016) were chosen and adapted because they measure the four dimensions of new media literacy, aligning with the focus of the current study. Firstly, items that measure Functional Consumption included "I know how to use search tools to get information needed in the media" and "It is easy for me to use various media to access information". Secondly, Critical Consumption was measured using items such as "I can compare news and information across different media" and "It is easy for me to determine the accuracy of media messages". Thirdly, the Functional Prosumption section comprised items such as "I can give comments on media content shared by others" and "I am good at sharing digital content and messages on the Internet". Lastly, items like "I manage to influence others' opinions through social media" and "I can produce media content containing my own reviews on current matters from different perspectives (e.g. social, economic, ideological, etc.)" were to measure Critical Prosumption.

The third section was situational perceptions and referent criterion. The authors employed five items for each factor: problem recognition (e.g. "The government should take action to combat fake news"), constraint recognition (e.g. reverse-coded item, "I can make a difference in the problematic situation of fake news"), involvement recognition (e.g. "I can see how fake news affects me"), and referent criterion (e.g. "Past experience has provided me with guidelines for dealing with fake news"). All items were adapted from the original STOPS scale (Kim & Grunig, 2011).

The fourth section measured situational motivation in countering fake news. Similarly to the previous section, this was measured using five items adapted from Kim and Grunig (2011). One of the items was "I am willing to expend any amount of effort to stop others from spreading fake news". A 5-point Likert scale where "1 = strongly disagree" and "5 = strongly agree" was utilised from the second to the fourth section.

The last section measured communicative action in countering fake news. A total of 30 items adapted from Kim and Grunig (2011) were used. All three domains of communicative action, such as information acquisition, transmission, and selection, were covered in this section. Respondents were required to rate their agreement on a 7-point Likert scale ranging from "1 = strongly disagree" to "7 = strongly agree". Examples of items included "I search for information about fake news from any source that is available to me", "I share the truth about fake news with others", and "I know where to go when I need updated information regarding fake news".

The bilingual questionnaire (English and Malay) was given to experts in the communication field for validation. After that, it was sent to a Malay language expert to be proofread, and revisions were made to ensure the accuracy of the translation.

Results

Characteristics of the sample

According to Table 1, of the total of 528 university students, females (73.9%) were more willing to take part in the survey than their counterparts. People aged 18 to 25 (65.5%) predominated the respondents in this survey, and Malay (69.7%) appeared to be the most common ethnic group compared to the others. Lastly, undergraduate respondents (55.9%) outnumbered postgraduates.

Table 1:
Demographic information of respondents

Demographic information	Frequency	Percentage (%)
Gender		
Male	138	26.1
Female	390	73.9
Age		
18 to 25	346	65.5
26 to 30	80	15.2
31 to 35	51	9.7
36 to 40	19	3.6
41 to 45	20	3.8
46 and above	12	2.3
Ethnic Group		
Malay	368	69.7
Chinese	99	18.8
Indian	26	4.9
Sabah and Sarawak Natives	13	2.5
Other	22	4.2
Program		
Undergraduate	295	55.9
Postgraduate	233	44.1

Source: Authors' original research findings.

Model estimation

This study adopted SmartPLS to analyse the data using structural equation modelling (SEM). There were two model analyses conducted, i.e. measurement model assessment and structural model assessment (Hair et al., 2017). Measurement model assessment analyses the internal consistency reliability, convergent validity, and discriminant validity of the items, whereas structural model assessment examines the relationships between the constructs and the model's predictive capabilities (Hair et al., 2017).

Measurement model assessment

Reflective measurement model

This section reports the indicator loading, average variance extracted (AVE), Cronbach's Alpha and composite reliability (CR). Indicators with a loading of 0.708 or above were accepted (Hair et al., 2019). Most of the indicator loadings were above the threshold value except for five indicators: two in problem recognition (0.678 and 0.693), one in constraint recognition (0.661), referent criterion (0.652), and situational motivation (0.663). However, indicators with loadings below 0.708 can still be retained as long as AVE achieves 0.5 (Ramayah et al., 2018). As shown in Table 2, all AVEs were above the threshold value. In addition, Cronbach's Alpha and CR for all constructs also achieved the minimum threshold of 0.7 (Hair et al., 2019).

Table 2:
Reflective measurement model

	Cronbach's Alpha	CR	AVE
Problem Recognition (PR)	0.800	0.861	0.555
Constraint Recognition (CR)	0.842	0.889	0.616
Involvement Recognition (IR)	0.865	0.902	0.648
Referent Criterion (RC)	0.799	0.861	0.555
Situational Motivation (MO)	0.816	0.871	0.576
Communicative Action (CA)	0.853	0.891	0.580

Source: Authors' original research findings.

Discriminant validity of the constructs was assessed through Fornell–Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio of correlations. Table 3 shows the output of the Fornell–Larcker criterion in which the square root of AVE on the diagonal is higher than the correlation on the off-diagonal for all reflective constructs, indicating sufficient discriminant validity (Fornell & Larcker, 1981). As for HTMT, all values shown in Table 4 were less than 0.85 (Kline, 2015) and 0.90 (Gold et al., 2001), indicating that discriminant validity is established.

Table 3:
Discriminant validity using Fornell and Larcker's (1981) criterion

	CA	CR	IR	MO	PR	RC
CA	**0.762**					
CR	−0.450	**0.785**				
IR	0.424	−0.288	**0.805**			
MO	0.635	−0.437	0.398	**0.759**		
PR	0.251	−0.252	0.244	0.355	**0.745**	
RC	0.500	−0.541	0.309	0.457	0.415	**0.745**

Source: Authors' original research findings.

Table 4:
Discriminant validity using heterotrait-monotrait (HTMT) ratio of correlations

	CA	CR	IR	MO	PR	RC
CA						
CR	0.528					
IR	0.486	0.330				
MO	0.753	0.504	0.469			
PR	0.289	0.298	0.285	0.417		
RC	0.596	0.647	0.361	0.555	0.532	

Source: Authors' original research findings.

Formative measurement model

Multidimensional new media literacy can be treated as a single construct when examining its overall effect (Yildiz Durak & Saritepeci, 2019). This study aims to examine the influence of new media literacy as a whole, rather than its individual dimensions, on situational perceptions and referent criterion. Thus, new media literacy is a formative second-order construct containing four dimensions: functional consumption (FC), critical consumption (CC), functional prosumption (FP), and critical prosumption (CP). In a two-stage approach, the four dimensions became the indicators of new media literacy. Formative construct was assessed using the indicators' weights and variance inflation factor (VIF). As shown in Table 5, the weights of all formative indicators ranged from 0.218 to 0.473 and were statistically significant at t-value greater than 1.96, and all VIF values showed acceptable values, i.e. below 3.3 (Diamantopoulos & Siguaw, 2006), indicating that there was no multicollinearity problem among the indicators.

Table 5:
Measurement properties for formative construct

Construct	Indicators	Weights	VIF	t-value weights	Sig
New Media Literacy	FC	0.221	2.258	2.462	0.007
	CC	0.473	2.269	5.195	0.000
	FP	0.218	1.822	2.645	0.004
	CP	0.302	1.596	3.280	0.001

Note: 5000 bootstrapping procedure used.
Source: Authors' original research findings.

Structural model assessment

Structural model involves examining the collinearity issues, path coefficient (β), coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2) (Hair et al., 2017). The study chose a 5000 resample bootstrapping procedure with a one-tailed

test option to test the hypotheses and find answers to the research questions. The results were illustrated in Figure 1 and reported in Tables 6 and 7.

First, no collinearity issue was detected, as all VIF values were less than 3.3. Second, problem recognition (β = 0.215, t = 6.036, $p < 0.001$) and involvement recognition (β = 0.256, t = 5.382, $p < 0.001$) were positively related to situational motivation in problem solving, whereas constraint recognition (β = −0.309, t = 6.625, $p < 0.001$) was negatively related to situational motivation, indicating that H1 to H3 were supported. The analysis also yielded significant results for positive relationships between referent criterion (β = 0.265, t = 6.375, $p < 0.001$) and situational motivation (β = 0.514, t = 13.616, $p < 0.001$) with communicative action, supporting H4 and H5.

Third, evaluate the predictive accuracy of the model using R^2. Table 6 shows that both R^2 scores had substantial explanatory power as the scores are above 0.26 (Cohen, 1988), exhibiting that problem recognition, constraint recognition, and involvement explained 31.3% of variance in situational motivation, while referent criterion and situational motivation explained 45.9% of variance in communicative action. Despite the significant relationships, the fourth step examining f^2 showed that only situational motivation reported a substantial effect size on communicative action, while others reported a small effect size (Cohen, 1988). Lastly, Q^2 assessment is to measure the model's predictive power or predictive relevance. Both Q^2 scores obtained (0.174 and 0.260) were above 0, indicating predictive relevance (Hair et al., 2017).

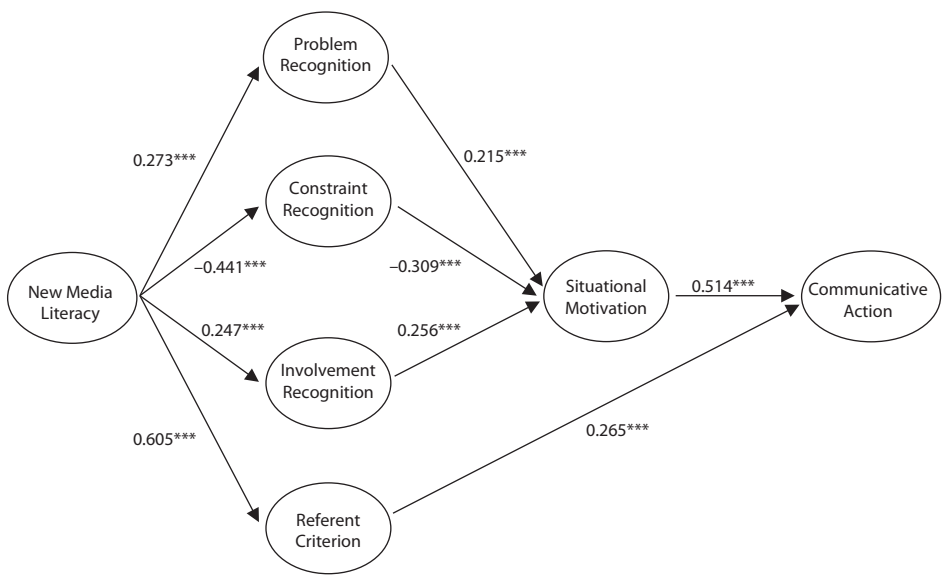

Figure 1:
Results of the proposed model
Source: Authors' original research findings.

Table 6:
The structural model's outcome for hypotheses

Hypothesis	Relationship		β	t	f^2	VIF	Result
H1	Problem Recognition →	Situational Motivation	0.215***	6.036	0.061	1.106	Supported
H2	Constraint Recognition →	Situational Motivation	–0.309***	6.625	0.123	1.134	Supported
H3	Involvement Recognition →	Situational Motivation	0.256***	5.382	0.085	1.129	Supported
			R^2 = 0.313, Q^2 = 0.174				
H4	Referent Criterion →	Communicative Action	0.265***	6.375	0.103	1.265	Supported
H5	Situational Motivation →	Communicative Action	0.514***	13.616	0.385	1.265	Supported
			R^2 = 0.459, Q^2 = 0.260				

Note: *** p < 0.001

Source: Authors' original research findings.

As for RQ1(a) to RQ1(d), the path analysis shown in Table 7 without collinearity issue reported that new media literacy was significantly and positively related to problem recognition (β = 0.273, t = 10.387, $p < 0.001$), involvement recognition (β = 0.247, t = 5.608, $p < 0.001$), and referent criterion (β = 0.605, t = 21.021, $p < 0.001$), while negatively related to constraint recognition (β = –0.441, t = 5.573, $p < 0.001$). New media literacy explained the variance in all the situational perceptions and referent criterion to different extents: weak (problem recognition and involvement recognition), moderate (constraint recognition), and substantial (referent criterion). Likewise, effect size was small for problem recognition and involvement recognition, medium for constraint recognition, and substantial for referent criterion. Finally, new media literacy has been reported to have good predictive relevance for all situational perceptions and referent criterion.

Table 7:
The outcome of the structural model for the research questions

RQ	Relationship		β	t	R^2	Q^2	f^2	VIF
1(a)	New media literacy →	Problem Recognition	0.273***	10.387	0.075	0.038	0.081	1.000
1(b)	New media literacy →	Constraint Recognition	–0.441***	5.573	0.195	0.117	0.242	1.000
1(c)	New media literacy →	Involvement Recognition	0.247***	5.608	0.061	0.037	0.065	1.000
1(d)	New media literacy →	Referent Criterion	0.605***	21.021	0.366	0.198	0.578	1.000

Source: Authors' original research findings.

Discussion and conclusion

This study aimed to examine the situational perceptions and referent criterion that motivate university students to counter fake news and to examine the influence of new media literacy on the situational perceptions and referent criterion. A model based on STOPS with the inclusion of new media literacy was formed to test the hypotheses and answer the research questions.

In line with the assumptions of STOPS, all three situational perceptions were significantly related to situational motivation in countering fake news. Problem recognition and involvement recognition were positively related to situational motivation, whereas constraint recognition was negatively related to situational motivation, consistent with the findings of past studies (Jiang et al., 2019; Liu et al., 2019). Motivation in countering fake news is triggered when university students are worried about the impacts of fake news on society. It would be more effective if they were to relate the problem of fake news to themselves or their loved ones. However, the findings showed that constraint recognition is the best predictor of situational motivation in countering fake news because students who are defeated by their perceived obstacles in dealing with a problem will then have a low or no tendency to contribute to problem-solving efforts. Hence, being empowered in problem solving is crucial in tackling fake news. When students can reduce their perceived barriers, they are more likely to expend effort in stopping others from spreading fake news.

Situational motivation was positively related to communicative action in countering fake news. Motivated problem solvers tend to engage in information behaviors such as searching for information to fact-check dubious news to reduce their uncertainty about the truthfulness of the news. Besides, they stop people from circulating fake news by sharing the truth of the news with others. This is supported by past studies (Chon & Park, 2021; Krishna, 2018; Shin & Han, 2016). Similarly, referent criterion was found to be positively related to communicative action. This is consistent with the studies by Ouyang et al. (2020) and Chen et al. (2017), who demonstrated that people with prior knowledge or experiences related to an issue tend to forward and share information with others.

As for the research questions of this study, new media literacy was significantly related to problem recognition, constraint recognition, involvement recognition, and referent criterion. The result showed that new media literacy appeared to be the greatest predictor of referent criterion. A possible explanation for this is that new media literacy involves critical thinking, which can be a way to activate an individual's existing knowledge through reflective thinking (Aloqaili, 2012; Norris & Phillips, 1987). In the current context, when university students are capable of understanding and evaluating media content, they can refer to and compare it with their prior knowledge and experience if they come across dubious news. On the other hand, new media literacy had a negative relationship with constraint recognition, suggesting that students with high new media literacy are more likely to have low constraint recognition. Consistent with Prior et al. (2016), who discovered the positive relationship between digital literacy

and self-efficacy, the findings of the current study could be explained that media-literate students can always access media for information and solution, they believe in their capability in dealing with fake news; hence, the perceived barriers that hinder them from overcoming fake news are reduced or minimized.

This study discovered that new media literacy was positively related to both problem recognition and involvement recognition, suggesting that students with new media literacy can detect fake news as a problem and believe that fake news can affect themselves and those they care about. Critical thinking in new media literacy enables individuals to comprehend information thoroughly. Likewise, students with this competency tend to identify fake news as a problem because they recognize the possible impacts of fake news on society. This is supported by Garrison et al. (2001), who explain that problem identification is part of the critical thinking process. Without the capability to understand fake news from different perspectives, individuals might not be able to relate to a problem themselves. Since critical thinking plays a key role in new media literacy, people do not stop at a general understanding of an issue but analyze the extent to which the problem could affect them.

This study adds to the present knowledge by offering a number of contributions. In terms of theoretical implications, the current study contributes to STOPS by testing its theoretical power and applicability to fake news issues in Malaysia. The inclusion of new media literacy in the STOPS theoretical framework as an antecedent to situational perceptions and referent criterion in problem solving brings novelty and an important contribution to the theory advancement. Additionally, the findings also add new knowledge to the existing literature on fake news studies, particularly on fake news identification.

As for practical implications, this study sheds valuable insights on developing strategic communicative interventions or campaigns to combat fake news. The government, especially the MCMC, and higher institutions, can adopt the current research findings in planning a strategic anti-fake news campaign, particularly in campaign message formulation. Instead of urging students not to believe and share fake news, the government and higher institutions can consider highlighting the prevalence of fake news and its possible consequences for the public (increase problem recognition) and relating the problem to students' loved ones (increase involvement recognition). If students rarely fact-check and correct fake news, the government should review the user friendliness of the fact-checking portal, simplify the fact-checking steps, and always convey the message to the public, especially students, that fact-checking and fake news correction are simple moves that everyone can contribute to countering fake news (reduce constraint recognition). This study suggests the government should constantly update the fact-checking portal since it has become an essential information verification source for the public, especially those who have referred to it before. They will refer to the portal again if they find it useful and informative (referent criterion). The importance of new media literacy has been proven, and this implies that initiatives to improve the public's new media literacy need to be planned so that their situational perceptions and referent criterion for countering fake news can be triggered.

There are some limitations in this study. First, the relationships between variables in the theoretical framework can be influenced or moderated by other possible factors, which are not included in the current study. Rampersad and Althiyabi (2020) found that culture has an impact on the dissemination of fake news in Saudi Arabia. Malaysia is a multiethnic and multicultural country. In future studies, the moderation effect of culture on the relationships between STOPS variables in a fake news context is worth examining. Second, the different dimensions of new media literacy are not further studied in the current research. Future studies can examine the relationships between each dimension and communicative action in countering fake news to determine the dimension that best predicts communicative action. Finally, the sample in this study is limited to university students. A non-student sample can be considered in future research to examine if the proposed theoretical framework applies to the general population.

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