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Assessing Z Generation Engineering Students' Social Media Platform Usage and Safety Awareness

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ABSTRACT

Despite various attempts to enhance community awareness, the number of cybercrime cases continues to rise. A key contributing factor to this trend is the lack of security awareness when using social media platforms. As such, this study aimed to examine the frequency of social media platform use and the level of security awareness among Generation Z engineering students in Malaysia. Using a quantitative approach, a survey-style study was conducted, involving a sample of 410 randomly selected Generation Z engineering students from across Malaysia. Results indicated that Malaysian Generation Z engineering students exhibit moderate levels of security awareness when using social media. Furthermore, Chat and Messaging Network platforms were found to be the most commonly used social media platforms among this group.

Contribution/Originality: This study is one of very few studies which have investigated the usage patterns of social media and the security awareness among Generation Z engineering students in Malaysia.

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1. Introduction

Social media has become an indispensable tool for communication and information dissemination in contemporary society, particularly among the youth. Technological advancements in internet and mobile phone technologies have propelled the rapid expansion of social media usage. These developments have brought about numerous societal and national benefits. However, the unbridled use of social media has given rise to negative impacts, including the rapid spread of false information. With social media platforms easily accessible via mobile devices at any time and location, users have access to information and communication at their fingertips. According to reports by Hootsuite (2018) and We Are Social (2018), the number of internet users in Malaysia has reached 25.08 million, which accounts for 79% of the population. The ease of access to social media platforms via mobile applications has been a primary contributor to their success. Regrettably, social media misuse can lead to cybercrime, including the spread of fake news, Macau scams, love scams, phishing, and other malicious activities.

2. Literature Review

The widespread use of social media among the general population is not necessarily indicative of a corresponding level of awareness regarding ethical usage and potential negative impacts. Such misuses of social media are frequently reported in the media, as evidenced by the 48 court cases related to social media abuse prosecuted under Section 233 of the Communications and Multimedia Act 1998 by the Malaysian Communication and Multimedia Commission (MCMC) during the first nine months of 2020 (The Star, 2020).

While social media has proven to be a versatile platform for income generation during the Covid-19 pandemic (Isa et al., 2020), its usage has also contributed to the increase in cybercrime. According to the Royal Malaysia Police (RMP), daily complaints of online fraud cases averaged at 47 throughout 2020, a figure that increased to 57 in 2021 and has continued to rise, reaching 72 cases from January to May 2022 (Salleh, 2023). Of the victims, women accounted for 55 percent, with men accounting for 45 percent, and 65 percent of victims aged between 17 and 40 years old - this group being the most likely to use mobile phones and access social media. Moreover, 23 percent of victims were aged between 41 and 60 years old, with a lack of knowledge about online scams due to their low engagement with newspapers and the internet (Cresci et al., 2010).

According to a 2020 report from the Ministry of Domestic Trade and Consumer Affairs, the Consumer Empowerment Index in Malaysia was found to be at a moderate level of 63.1 percent (Bernama, 2021). This suggests that consumers in Malaysia have yet to fully understand and exercise their rights as consumers, which includes information technology literacy. A lack of awareness and knowledge about information and communication technology literacy can increase the likelihood of becoming a victim of cybercrime.

Rahman et al. (2022) found that new social media platforms can have various negative effects, including the use of immoral language to express dissatisfaction, which can disturb the harmony and order in a country. Buzzetto-More et al. (2015) found that students who use social networking services are exposed to traps and dangers, and Sulyman-Haroon and Kadiri (2018) suggest that social media is flooded with fake news and can lead to cybercrime such as cyberbullying, propaganda, and negative effects on children.

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Fake news is also a major issue on social media, with some individuals spreading inauthentic news for malicious purposes, and many members of the community accepting and believing such news without fact-checking. For example, Malek (2021) reports that 287 investigation papers were opened by the Royal Malaysian Police (RMP) and Communications and Multimedia Commission (MCMC) regarding fake news about COVID-19 cases. With the rapid growth of social media, the dissemination of information on these platforms has become a primary method of conveying and explaining views, but also leads to issues such as breaching personal information security and spreading slander, sedition, threats, and provocations that threaten national security (Zainal et al., 2022).

Since the implementation of the Movement Control Order (MCO), online transaction complaints have increased by 14.56%, with 8,263 complaints reported from March to October 2020 compared to only 3,364 complaints during the same period in 2019, according to a report by the Ministry of Domestic Trade and Consumer Affairs (Bernama, 2020). The most common complaint was not receiving the product or service from the merchant, followed by the ordered item not meeting expectations and misleading advertised prices (Ong & Teh, 2016). These cases are often a result of users' negligence or lack of social media literacy, or the ability to access, understand, evaluate, and create communication in all forms.

Therefore, it is important to increase the level of awareness of social media users. According to Rahman and Adnan's (2017) study, all social media users need to value cybersecurity and be aware of the risks associated with sharing information on social media platforms. The attitude of social media users who easily trust unknown individuals can lead to other crimes, such as rape, robbery, and fraud. Hence, this study aims to investigate the frequency of social media usage and the level of awareness among Generation Z regarding social media literacy.

2.1. The Frequency of Social Media Usage

According to the Secretary-General of the Ministry of Communications and Multimedia (MCMC, 2020), Malaysians are among the most active users of social media, with the number of users increasing by two million or seven percent within a year from 2020. MCMC (2021) Annual Report stated that the majority of internet users in Malaysia access the internet at home (70.5%) and on-the-go (64.4%), while 30.1% use it at their workplace. The data shows a 1.3% increase from 87.4% of internet users in 2018.

The use of social media in daily life has become a necessity, leading many users to be insensitive to the risks they may face when using these platforms. Madden et al. (2013) state that social media users tend to share various personal information online, while Chewae et al. (2015) found that about 78% of the respondents in their study did not have concerns about personal information being disclosed on social media. This can be worrisome because it gives opportunities to irresponsible individuals to misuse a user's personal information.

Despite the widespread use of social media, only 47% of Malaysians have confidence in online security and privacy when using the internet (MCMC, 2020). MCMC (2020) reports that half of Malaysians think their personal data are kept confidential by government bodies (50.4%), followed by service providers (40.6%) and non-government bodies (40.2%). Additionally, a survey by the Central Bank of Malaysia (2022) found that 37% of Malaysians share their passwords or Auto Teller Machine (ATM) pin numbers with close

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friends or relatives, which may increase their risk of becoming a cybercrime victim. While Adhikari et al. (2014) found that some individuals avoid using certain applications on smartphones and tablets due to security concerns such as privacy when communicating and sharing information online.

The Department of Personal Data Protection consistently reminds users to safeguard their personal information, particularly during online transactions and purchases, to prevent misuse by unauthorized parties. In accordance with the Personal Data Protection Act (2010) Act 709, users are entitled to review and modify their personal data, as well as withdraw consent for the processing of such data. Additionally, the Act stipulates that users have the right to opt-out of processing for direct marketing purposes.

Presently, social media usage is largely dominated by Generation Z, as evidenced by Hanafi and Rahim's (2017) study on university students who rely heavily on social media platforms such as Facebook, Twitter, Instagram, WhatsApp, Line, and YouTube. Manap et al. (2016) similarly found that the average daily usage of social media by Generation Z was 11.6 hours, with some respondents admitting to using the internet constantly (24 hours a day). Aziz and Makhsin (2021) also confirm that roughly 70% of their study's participants use smartphones to engage in social media activities and pass their free time. Matore (2010) reports that 38% of students use Facebook for about two hours a day, while 56% have been using Facebook for three years, with an average of 201 to 300 friends.

Extended use of the internet and social media platforms can lead to the inadvertent browsing of irrelevant or unfamiliar websites, as well as exposure to strangers' profiles on platforms such as Twitter, Facebook, and Foursquare, which increases the risk of becoming a victim of online crime (Marwick, 2012). Irresponsible third parties may exploit individuals' personal information and identities, as per Lai et al. (2012). Moreover, Ab Halim and Muslaini (2018) revealed that many students are exposed to immoral videos on social media, which can potentially damage their character and morals.

Zhang et al. (2017) observed that social media plays a significant role in shaping the morality of the current generation of youths. In addition, Nahar et al. (2017) discovered that the excessive and uncontrolled use of technology can lead to negative impacts on physical and muscle development, interpersonal skills, and academic performance among children and teenagers. According to the MCMC (2020), only 53.3% of parents are aware of parental control, which is a decrease from 62.4% in 2018, indicating a decline in parental supervision over their children's internet use, and possibly contributing to potential cybercrimes.

2.2. Theory

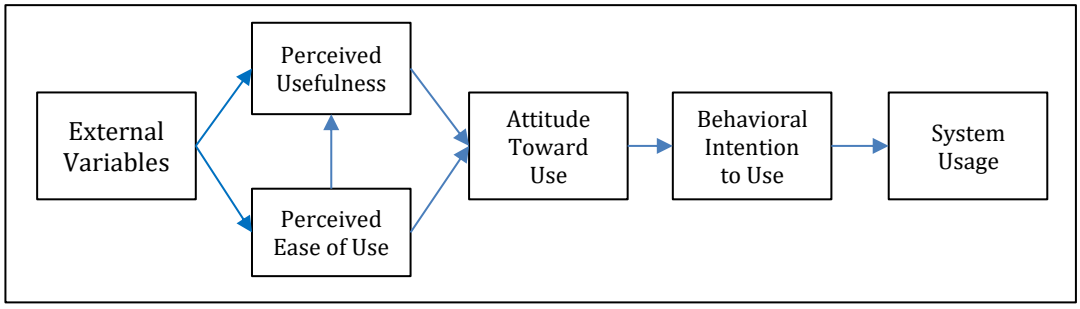
This study aims to describe the acceptance and usage of social media by utilizing the Technology Acceptance Model (TAM) developed by Davis et al. (1989). The TAM model is built upon the Theory of Reasoned Action (TRA) proposed by Ajzen and Fishbein (1980), which attempts to explain user acceptance of computer technology based on a theoretical framework. TAM aims to establish a foundation that can demonstrate the impact of external variables on internal beliefs, attitudes, and behavioral intentions (Liu, 2003).

In the original TAM, Davis (1986) and Davis et al. (1989) introduced four constructs: perceived usefulness (PU), perceived ease of use (PEOU), attitude, and behavioral intention to use. As shown in Figure 1, PU and PEOU represent an end-user's beliefs on

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technology and are able to predict their attitude towards the technology, which in turn predicts its acceptance.

Figure 1: TAM Model



Davis (1989) found that it was determined that PU showed a strong association with both present usage as reported by users and their projected future usage. PEOU was similarly found to have a significant relationship with both current and anticipated usage. The relationship between PU and system usage was notably stronger than that with PEOU. Advanced regression studies indicated that PEOU could be a precursor to PU instead of a direct influence on system usage. This implies that PEOU affects technology acceptance (TA) through its influence on PU.

Moreover, external variables can be identified as factors that encourage internet users to adopt social media as a part of their daily lives through the influence of PU and PEOU. Overall, the TAM model provides a valuable framework for understanding the acceptance and usage of social media, and its applicability can be extended to other technological innovations as well.

3. Methodology

This study utilized a quantitative survey approach and recruited 410 participants from the engineering courses of Generation Z, selected at random from various locations in Malaysia. A questionnaire was employed as the primary research instrument, and the collected data were subjected to descriptive analysis utilizing SPSS 21 software. The survey questionnaire consisted of three sections, namely, (i) demographics, (ii) frequency of social media usage, and (iii) level of awareness regarding social media usage.

4. Result and Discussion

In this section, a descriptive analysis was conducted on the data gathered. The results were presented in three distinct categories, namely, demography, frequency of social media usage, and the level of awareness in using social media. The study involved a sample size of 410 respondents from Generation Z, who were pursuing engineering courses and were randomly selected from various regions in Malaysia.

4.1. Demography

A detailed account of the respondents' demography is presented in Table 1. The findings revealed that slightly more than half of the respondents (54.1%) were females, while the

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remaining (44.9%) were males. These results slightly differ from the MCMC's (2020) survey, which showed that more males (54.3%) utilized the internet than females (45.7%).

Table 1: Respondent Demography

Items	N	%
Gender		
Male	186	44.9
Female	224	54.1
Age		
18 – 24 years old	332	80.2
25 – 34 years old	78	18.8
Ethnic		
Malay	322	77.8
Chinese	28	6.8
India	42	10.1
Others	18	4.3
Location		
Urban	321	78.29
Rural	89	21.71
Total	**410**	**100**

The study's shows majority of respondents were Malays (77.8%) and aged between 18 to 24 years old (80.2%). These results are consistent with those of MCMC's (2020) survey, which found that 34.1% of internet users in Malaysia fell within the same age range. Urban dwellers made up 78.29% of the sample, while only 21.71% lived in rural areas. This finding aligns with MCMC's (2020) report that urban internet usage (75.6%) exceeded rural usage (24.4%). The data suggests significant differences between social media users in urban and rural areas, possibly due to disparities in internet infrastructure and access.

4.2. Frequency of Social Media Platform Usage

Table 2 presents the frequency of social media platform usage among the respondents, and the results reveal that all of them had social media accounts regardless of their location (rural or urban). It is worth noting that nearly half of the respondents (44.9%) reported spending around 6-8 hours per day on social media, whereas only 14.6% reported spending 0-2 hours daily. A relatively small percentage of respondents (6.69%) reported allocating more than 12 hours per day to social media use. The data distribution indicates that the respondents' average daily social media use falls within the 1-8 hour range. These findings suggest that Generation Z individuals use social media extensively for their daily requirements such as attending classes, doing assignments, or joining webinars.

It is interesting to note that these results differ from those reported by Mustafa and Hamzah (2011), who found that most respondents only allocated 1-2 hours per day for social media use. This suggests that Generation Z individuals are more likely to use social media platforms for extended periods of time, possibly due to its increased accessibility and popularity.

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Table 2: Frequency of Social Media Platform Usage

Items	N	%
Have a social media account		
Yes	410	100
No	0	0
Time allocation used for social media		
0 - 2 hours	60	14.6
3 - 5 hours	96	23.4
6 - 8 hours	184	44.9
9 - 11 hours	56	10.41
12 - > hours	14	6.69
Types of social media		
Social Networks		
Facebook	410	100
LinkedIn	186	44.9
Google+.	29	7.1
Blog Micro Networks		
Twitter	257	62.6
Tumblr	12	2.9
Medium	30	7.3
Photo Sharing Networks		
Instagram	398	97
Pinterest	270	90
Snapchat	395	96.3
Imgur	97	23.6
Video Sharing Networks		
Youtube	410	100
Tik tok	284	69.2
Vimeo	5	1.21
Message and Communication Networks		
WhatsApp	410	100
Telegram	410	100
WeChat	410	100
Skype	149	36.3
Forum Discussion and Community Site		
Reddit	214	52.1
Quora	279	68.0
Consumer Survey Networks		
Yelp	315	76.8
Tripadvisor	401	97.8

This study utilized a comprehensive approach in analyzing the frequency of social media usage by investigating seven different types of media platforms. The results revealed that Facebook was the most widely used social network among the respondents, with 100% of users utilizing this platform. In addition, Twitter was the preferred choice for blog micro networks, as 62.6% of respondents reported using this platform. These findings were consistent with the study conducted by Mustafa and Hamzah (2011), which also identified Facebook as the preferred social network platform among their respondents.

Regarding photo sharing networks, the vast majority of respondents (97%) used Instagram, while 96.3% utilized Snapchat for sharing photos for personal or official purposes. The high usage rate of Instagram is supported by the research conducted by Mat

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Il and Abd Rahim (2017), which indicated that approximately 47% of respondents used Instagram for six hours daily.

The emergence of technology has revolutionized the way people interact and obtain information. In the context of the Z generation in engineering courses, platforms such as Youtube and Instagram have become popular for various purposes, including entertainment, academics, hobbies, and even as a source of income. In particular, Youtube has gained popularity as a reference tool for its vast content covering a wide range of topics. This finding is consistent with the rapid growth of Youtube users globally, with a reported two billion logged-in monthly active users as of 2021.

On the other hand, Instagram has become a preferred platform for sharing images and videos, particularly among the Z generation. Many users have leveraged Instagram as a tool or medium to showcase their talents and generate income. This finding aligns with the growing trend of social media influencing as a career path and the rise of the creator economy.

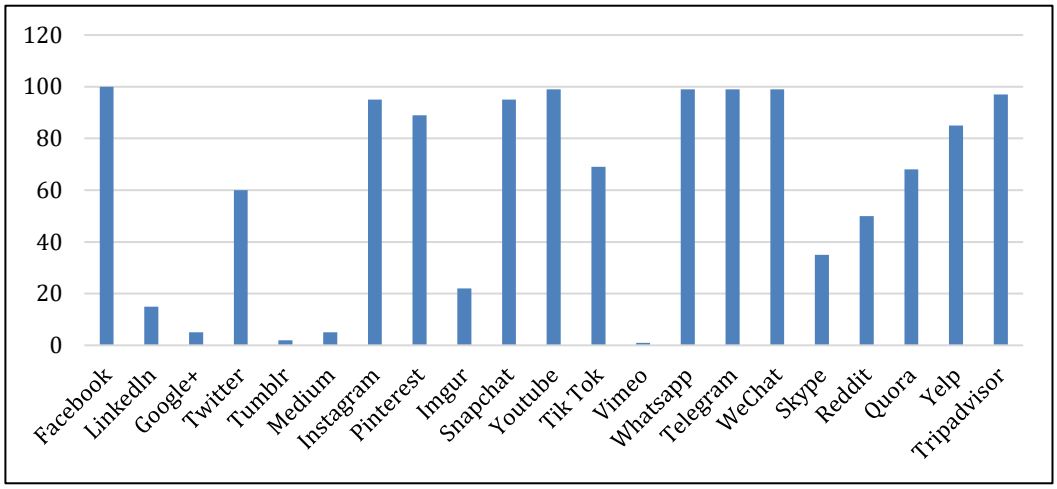
Furthermore, communication platforms such as Whatsapp, Wechat, and Telegram have become the preferred choice among the Z generation of engineering students due to their convenience and accessibility. The ability to handle these platforms from multiple devices and locations has made communication more efficient and manageable. In general, the Z generation of engineering students are highly dependent on social media platforms for various purposes. They use these platforms for daily requirements such as attending classes, doing assignments, and joining webinars. Social media has also become a medium for their hobbies and side income, with YouTube and Instagram being the popular platforms for these purposes. In addition, communication and messaging networks such as WhatsApp, WeChat, and Telegram are also widely used by this generation as they provide quick and easy communication that can be accessed from multiple devices.

Approximately 68% of the participants selected Quora as their preferred platform for forum discussions and community sites. This was due to the user-friendly nature of Quora, which allowed respondents to answer questions related to their areas of expertise. Meanwhile, 52.1% of respondents preferred Reddit for their communication and discussion needs. However, there was a slight difference observed between Quora and Reddit. Despite being user-friendly, Reddit was criticized for its poorly organized interface, outdated design, and lack of regulation (Khanna, 2023).

For the Consumer Network Survey platform, the majority of participants (97.8%) opted for Tripadvisor. This website was found to be the most trusted and widely used by travelers for reviewing information on hotel reservations, transportation, lodging, travel experiences, and restaurants. Nilashi et al. (2018) found that Tripadvisor was the most recommended website by agents to travelers. Furthermore, the findings were consistent with MCMC's (2020) survey, which identified Facebook (91.7%), Youtube (80.6%), and Instagram (63.1%) as the top three social networking applications. Among communication applications, the top three were Whatsapp (98.7%), Facebook Messenger (53.9%), and Telegram (40.1%). The Summary of social media usage is shown in Figure 2.

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Figure 2: The Frequency of Social Media Platform Usage



Overall, the data analysis revealed that the respondents utilized various social media platforms for different purposes, such as doing assignments, attending classes, and joining webinars. The extensive use of social media among the generation Z population has become increasingly apparent, as it has become an integral part of their daily lives.

4.3. The Level of Awareness towards Social Media

The results of the study as shown in Table 3 indicate that the level of awareness among Generation Z engineering students regarding the safety aspect of social media usage is moderate (mean = 3.254).

Table 3: Level of Z Generation in Engineering Courses Awareness towards Social Media Usage

Num	Item	Mean Value
1	I make sure all my information on social media is accurate	3.50
2	I only display public information about myself on social media	3.80
3	I am not browsing suspicious websites	3.78
4	I am browsing internet to complete assignments	3.15
5	I use social media platforms as needed	3.65
6	I am honest when using social media	3.36
7	I just give a positive comment in social media	3.33
8	I am always careful when looking for information on social media	3.64
9	I only response from the person that I know in social media.	3.63
10	I am aware of fake news in social media.	3.36
11	I know how to differentiate between the right and fake information in social media.	3.57
12	I have fake account to fool my friends	3.88
13	I have made security settings for my social media accounts	3.04
14	I like to share vacation travel posts on social media	3.18
15	I am aware of who I share information with on social media	3.29
16	I like to update my daily activities on social media for public viewing	3.40
17	I am always hesitant to share information on social media	3.41
18	I only share information on social media with trusted friends	3.11
	Overall total mean	3.254

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This suggests that these students are susceptible to various security risks while using social media. For instance, the responses to the statements "I only display public information about myself on social media" (mean = 3.80) and "I like to update my daily activities on social media for public viewing" (mean = 3.40) indicate that the students are prone to sharing personal information and daily activities with the public. Such behavior can create opportunities for malicious individuals to engage in cybercrime against the Generation Z population.

The present study has shed light on the level of safety awareness of Generation Z in engineering courses when using social media platforms. The findings suggest that their awareness of safety measures when utilizing social media was moderate, with a mean score of 3.254. This implies that there may be some degree of exposure to security risks. Notably, the survey indicated that Generation Z in engineering courses utilize social media platforms for academic purposes, such as completing assignments, with a mean score of 3.15. Furthermore, they were cautious about browsing suspicious websites, with a mean score of 3.78, and demonstrated a level of care when seeking information on social media, with a mean score of 3.64. Such actions could mitigate the risk of exposure to cybercrime.

The findings of this study are in line with the MCMC (2020) report, which identified that social media usage was among the top three online activities among Malaysians, with a percentage of 93.3%. The study also revealed that text communication was the most popular online activity among Malaysians, with a percentage of 98.1%. The findings suggest that Generation Z in engineering courses in Malaysia have integrated social media platforms into their daily lives, primarily for academic purposes, but with a moderate level of safety awareness.

The analysis also indicated that the respondents displayed a heightened level of caution when seeking information on social media platforms (mean = 3.64) and possessed the ability to distinguish between credible and false information (mean = 3.67). This finding aligns with the results of a study conducted by MCMC (2020), which demonstrated that a majority of respondents (72.4%) comprehended the information before sharing it with others, more than half of them (63%) ascertained the validity of the information, and many of them (62.9%) verified the reliability of the source. This suggests that Generation Z has become more conscious of the prevalence of fake news and misinformation on social media and has taken active measures to combat it.

The participants in the study demonstrated an awareness of security issues by limiting the personal information they shared on social media to public access (mean = 3.80), as indicated by the data. This aligns with the findings of MCMC's (2020) survey, where a significant proportion of respondents (53.0%) refrained from sharing any content online. However, the results revealed a lack of emphasis on creating security settings for social media accounts (mean = 3.04). In contrast, the MCMC (2020) data indicated that a majority of internet users (68%) utilized unique user IDs and passwords for their social media accounts.

In a study by Wang et al. (2019), the responses of generation Z to social media were found to be split in half, indicating a need for increased awareness and education on the potential risks associated with online social networking. As online social networks continue to reach a wider audience, it is essential for users to be able to recognize potentially sensitive information or content that could attract someone with malicious intent. With technological advancements, both human stalkers and automated bots can navigate old

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posts to piece together confidential information that is often embedded in text-format postings. This can result in serious privacy breaches and security risks for users.

Additionally, the respondents were moderately aware of the side effects of certain posts, which can have irreversible consequences (Baccarella et al., 2018). Therefore, users often hesitate to share personal information on social media, recognizing the potential for regret later on. These findings highlight the importance of promoting responsible and safe use of social media, particularly among generation Z who are frequent users of these platforms. It is critical to provide education and guidance to help users navigate the complex landscape of social media, and to encourage responsible and thoughtful sharing of information online.

5. Conclusion

In conclusion, this study sheds light on the moderate level of awareness among Malaysian Generation Z engineering students regarding the safe use of social media. This finding suggests that there is a high probability that Generation Z individuals in Malaysia will fall prey to cybercrime in the future due to their own disregard for safe online practices, unless appropriate measures are taken to improve their awareness. It is crucial for respondents to adopt a positive approach towards social media usage, enabling them to interact with others effectively while avoiding negative emotions. It is important to recognize that the use of social media carries both positive and negative ramifications, contingent upon the way in which it is utilized.

The paragraph highlights the limited safety awareness of Generation Z despite their extensive use of social media platforms for communication, entertainment, and educational purposes. Although users may feel that they are aware of the security and safety of using social media, they are still at risk of various frauds, particularly when they spend excessive amounts of time on these platforms. Therefore, it is imperative to ensure that the digital environment is secure, and all users understand the risks and potential consequences of being a victim of fraud cases. The potential devastation caused by cyber fraud is not limited to the individual victim but can also affect their family, friends, colleagues, and society at large. Consequently, individuals must take responsibility for protecting themselves from any potential fraud by conducting thorough research on companies or individuals with whom they might transact online. Furthermore, social media users should be vigilant about any suspicious activities and report them to the relevant authorities. This calls for the need to create awareness campaigns and educational programs to equip Generation Z with the necessary knowledge and skills to protect themselves against cyber fraud, ensuring a safer digital environment.

Ethics Approval and Consent to Participate

The researchers used the research ethics provided by the Research Ethics Committee of Universiti Tun Hussein Onn Malaysia. All procedures performed in this study involving human participants were conducted in accordance with the ethical standards of the institutional research committee. Informed consent was obtained from all participants according to the Declaration of Helsinki.

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Conflict of Interest

The authors reported no conflicts of interest for this work and declare that there is no potential conflict of interest with respect to the research, authorship, or publication of this article.

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