Knowledge, Attitude, and Practices Towards Internet Safety and Security Among Generation Z in Malaysia: A Conceptual Paper

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Abstract. Rapid advances in computer networking and digital technology provide various benefits to human life, but they are not without negative consequences, such as cybercrime. According to the Malaysian Crime Prevention Foundation (MCPF), the total losses recorded in regard to cybercrime for 2019 and 2020, were RM305 million and RM247 million, respectively. In addition to that, cybercrime statistics indicate that the younger generation does not always behave ethically when engaging in online activities, and thus any internet users have the potential to become a victim. Therefore, the objectives of this research are 1. Identify the knowledge pattern of generation Z 2. Identify the attitude pattern of generation Z 3. Identify the practice pattern of generation Z based on knowledge about cybersecurity and cybercrimes programs 4. Identify the technology acceptance of generation Z 5. Examine the relationship between the pattern of Knowledge, Attitude, and Practice of generation Z 6. Examine the differences in knowledge, attitude, practice, and technology acceptance of generation Z based on socio-demographic factors. This research will be carried out using quantitative approaches, and a vast amount of data will be obtained and then investigated empirically. The researcher will use questionnaires as the primary tool for collecting crucial data/information, and the questionnaire will be distributed to the intended respondents via Google Forms.

Keywords: Cybersecurity · Cybercrime · KAP Model · Generation Z · Internet Safety

1 Introduction

All security breaches, including virus infections, identity theft, and hacking, are the direct result of users' negligence, lack of information, and lack of action. Cybercrime activities would be reduced if users at home, in government sectors, and in educational institutions, particularly the younger generation, had a high degree of knowledge, attitude, and behavior to verify the source of information and understanding regarding information security and cybercrime issues.

Aside from CyberSecurity Malaysia, several sub-organizations and services are available to meet Malaysia's growing demand for online security. Many cyber laws and policies, such as the Computer Crime Act 1997 and the Communication and Multimedia Act 1998, exist to protect the country from cyber-criminal activities. The Malaysian Crime Prevention Foundation (MCPD) has recently proposed that the government form a committee consisting of the police, MCMC, Bank Negara, telecommunication companies, and the National Cyber Security Agency to discuss, monitor, and identify effective cybercrime responses.

2   Research Background

The Government of Malaysia has provided a significant budget to ensure the Malaysian public gets the right knowledge and top facilities with regard to internet and internet usage. RM1 billion has been provisioned in the 2021 budget to provide safety in digitalization. Apart from that, various public initiatives such as Klik Dengan Bijak by the MCMC were launched in 2012 with one the objective is to educate the public about cybercrimes, to promote safety, security, and responsibility among the public when conducting online activities.

In addition to the Klik Dengan Bijak program by the MCMC, public and private universities in Malaysia had also developed courses on cybersecurity. In MMU itself, the course emphasizes the functions and management of security technology in the protection of assets and is supported by appropriate studies in cyber law and ethics.

In line with United Nations Sustainable Development Plan (UNDP) as stated in Goal 11 on Sustainable Cities and Communities specifically to make cities and humans safe, resilient, and sustainable, therefore, this research will address the knowledge, attitude, and practice toward digital space safety issues among Generation Z.

In tandem with the Malaysian Science, Technology, Innovation and Economy Framework (MySTIE), this research intends to investigate the knowledge, attitude, and practice of Generation Z in Malaysia on the issue pertaining to security and internet safety that will address 10-10 MySTIE Framework to the Education Socio-Economic Driver focusing on the safety and security issue lead towards cyberbullying.

3   Problem Statement

Malaysians have unquestionably benefited from the growth of broadband infrastructure in terms of Internet access and connectivity. In 2020, MCMC reported that 88.7% of the total population in Malaysia are internet users. This figure could amount to a high number in content sharing. Despite government efforts to curb the problem of digital usage among the public in Malaysia, it is notable that cases such as cybersecurity and scamming are still rampant. As of October 2021, Malaysians have lost a total of RM58 million to online shopping scams and there were 8,162 online shopping fraud cases in the first 10 months of 2021 compared to 5,846 in 2020 and 3,512 in 2019. The Macau Scams caused the nation's total loss of RM336 million. In 2020 alone, 730 bank accounts have been seized with funds amounting to 80 million in cash which has been linked to Macau scams.

Besides that, the public also is unaware that many online contents were illegal in nature, including fraudulent information. Rampant cases in cybercrime also have been reported which include violation of netizens' privacy and the security of their personal data, specifically hacking, malware, identity theft, financial fraud, medical fraud, and certain crimes against netizens that involve the release of personal information, messages, images, and video and audio recordings without the individual's consent or permission (e.g., cyberstalking, cyber harassment, and cyberbullying). Despite Generation Z having high exposure to the internet, however, it is found that this Generation is more fragile towards any cyber-security issues and has a high tendency to lose trust and confidence in security after a bad experience [1].

Based on the critical points mentioned above, it is particularly important to seriously consider a comprehensive program to further enhance the cybersecurity program throughout the nation. Therefore, researchers need to find out the critical issue in this focus on what is the effectiveness of the existing public cybersecurity awareness programs.

4   Research Objectives

This research is mainly to establish the pattern of knowledge, attitude, and practice (KAP) and Technology Acceptance (TA) of generation Z on the existing cybersecurity and cybercrime programs. The KAP and TA patterns will be examined based on several categories: socio-cultural background, socio-economic standards, and demographic characteristics. Specifically, this research aims to:

1. Identify the knowledge pattern of generation Z
2. Identify the attitude pattern of generation Z
3. Identify the practice pattern of generation Z based on knowledge about cybersecurity and cybercrimes programs
4. Identify the technology acceptance of generation Z
5. Examine the relationship between the pattern of Knowledge, Attitude, and Practice of generation Z
6. Examine the differences in knowledge, attitude and practice, and technology acceptance of generation Z based on socio-demographic factors

5   Literature Review

Knowledge, Attitude, and Practice Model (KAP Model) have been widely used and cited in different research frameworks related to the measurement of the effectiveness of programs such as health behavior [2]; food control industries [3]; media literacy [4]; ICT exposure on health program [5]; risk communication [6], disease control program such as Covid-19 [7], government program effectiveness measurement [8], technological acceptance [9]; environmental issues [10]; as well as media exposure [11].

The KAP model has been developed and originated in the 1950s in the field of family planning and population research. However, the KAP model is also popular and widely accepted for the investigation in any research to measure the effectiveness of issues and

efforts, and it has been verified as one of the models in communication to measure the effectiveness of programs in particular to any effect of the program towards the public. Thus, the KAP Model is relevant to measuring the effects of the existing cybersecurity and cybercrimes programs towards generation Z in Malaysia. In summary, KAP Model can generate data that can be used for the following purposes:

1. To identify knowledge gaps
2. To identify the cultural beliefs
3. To identify behavioral patterns that may identify needs, problems, and barriers to help plan and implement interventions

Innovation Readiness/Acceptance Innovation is the successful application or execution of new ideas [12] [13]. Previous literature has demonstrated a strong relationship between innovation and performance [14] [15]. Personal innovativeness is a personal trait that greatly affects consumers' acceptance of technology [16]. General innovativeness and personality construct may be interpreted as willingness to change and not the change itself [17]. Consumers can fall under the different parts of a continuum ranging from an ability 'to do things better to the ability 'to do things differently. For example, personal innovativeness in information technology (PIIT) is a domain-specific individual trait that reflects the willingness of a person to try out new information technology (IT) [16]. This specific domain has an explicit relationship with individual perceptions of new technology [18].

The utilization of information technology can provide better performance implications on information technology. Unified Theory of Acceptance and Use of Technology (UTAUT) is an important model of acceptance of Information Technology (IT). UTAUT theory argues that the implementation of information technology is always associated with user acceptance. Performance expectancy in the UTAUT concept is also discussed to the level of an individual's conviction that the utilization of innovation encourages undertaking execution [19]. The UTAUT theory particularly utilizes a few key factors that prompt the aim of utilization and genuine utilization. These clarify that performance expectancy, effort expectancy, social impact, and encouraging conditions are variables affecting behavioral aim or utilize conduct of correspondence innovation.

6 Proposed Conceptual Framework

Based on the literature review discuss, this research will adopt the "KAP Model" as the main theoretical ground. Adding up to the original framework is the Technology Acceptance Model. In short, the research conceptual framework is shown in Fig. 1.
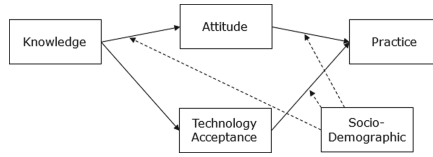
Fig. 1. Proposed Conceptual Framework

7   Research Methodology

This research will be conducted via quantitative methods. Researchers will utilize questionnaires as the main instrument to capture the key data/information.

A Pilot study will be conducted to test the reliability and validity of the questionnaires. 30 respondents will be selected from the selected location in Wilayah Persekutuan Kuala Lumpur, Putrajaya, and Selangor for the pilot study. The questionnaire will include various items related to the knowledge, attitude, and practice patterns as indicated in the KAP Model as well as Technology Acceptance Model. A minimum of 384 respondents based on Krejcie and Morgan Sample Size (1970) will be selected for the actual study within Malaysia.

Statistical analysis will be conducted by using appropriate software (Statistical Package for Social Sciences) and SMART-PLS. The data will be analyzed by using descriptive and inferential analysis to answer each Research Objective.

The result from this study will discriminate between the highest to the least patterns and trends of knowledge, attitude, and practice. This research is expected to provide an overview of the knowledge, attitude, practice, and technology acceptance patterns of Malaysian generation Z.

7.1   Implications and Impact of Research for Regulatory and/or Policy Action

Baseline data obtained from this research can be utilized to:

1. Understand the phenomena of knowledge, attitude, and practice of generation Z
2. Review the effectiveness of existing cybersecurity and cybercrimes programs
3. Review the socio-demographic factors, especially household income, gender, and age based on KAP components

8   Conclusion

The paper evaluates a study on generation Z's knowledge, attitude, and practice (KAP) and Technology Acceptance (TA) in relation to current cybersecurity and cybercrime activities.

To completely comprehend and address Generation Z's understanding, attitude, and practice in regard to digital space safety issues, extensive study with contributions from across theoretical grounds is required.

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