

This is the author-created version of the following work:

Tan, Kim-Lim, Sia, Joseph Kee-Ming, and Tang, Kuok Ho Daniel (2020)
Examining students' behavior towards campus security preparedness exercise: The role of perceived risk within the theory of planned behavior. Current Psychology, 41 pp. 4358-4367.

Access to this file is available from:

<https://researchonline.jcu.edu.au/76222/>

© Springer Science+Business Media, LLC, part of Springer Nature 2020. AAM may be made open access in an Institutional Repository after a 12 month embargo.

Please refer to the original source for the final version of this work:

<https://doi.org/10.1007/s12144-020-00951-6>

Examining students' behavior towards campus security preparedness exercise: The role of perceived risk within the theory of planned behavior

Abstract

Participating in campus security preparedness exercise (CSPE) is vitally important in addressing potential security threats and preventing critical incidents. The present study investigates the various determinants to predict intention, and actual participation in CSPE using the theory of planned behavior (TPB). We also examined the effect of perceived risk on attitude as an extension of the TPB. Based on 441 valid responses collected from students studying in different institutions of higher learning in Malaysia, the partial least squares equation modeling (PLS-SEM) was used to analyze actual participation in CSPE behavior. The findings suggest that TPB is, indeed, a predictive model for explaining participation in CSPE. Based on the findings, the correlation between perceived risk and attitude is insignificant which leads to our subsequent argument on attitude as autonomous and not affected by one's perceived risk. Nevertheless, the proposed direct relationship between perceived behavioral control (PBC) and intention behavior is not supported. These findings provide an important theoretical platform for new interventions to further promoting active participation in CSPE. Policy implications for improving CSPE behaviors are provided accordingly.

Keywords: Campus security, theory of planned behavior, perceived risk, attitude, participation

Introduction

Institutions of higher learning are constantly engaged in developing policies, programs and systems to reduce risks as well as to maintain safety and security within their campuses. Plans such as business continuity plan, community partnership programs, and all-hazards emergency response are important towards creating a disaster-resilient institution. Despite having these policies in place, we have witnessed a variety of noteworthy incidents resulted from breaches in campus security policies that have shaken the higher education scene. For instance, the Virginia Tech shooting in 2007, which left 32 people dead, as a result of miscommunication and coordination among the different departments and individuals about the mental health state of the perpetrator (Kapucu and Khosa 2013). That incident was the turning point that significantly raised one's awareness of on-campus security, not only across the United States but also in other parts of the world (Kapucu and Khosa 2013). Yet, this was not the last of its kind. In April 2019, another shooting took place at the University of North Carolina at Charlotte injuring six victims and two of them died later (Mettler 2019). Besides violence, campus security issues also emerge in other forms. Sexual offenses, for instance, have been frequently reported. In the National University of Singapore, 26 sexual offenses involving 18 cases of voyeurism, 5 outrage of modesty and 3 sexual harassment have been filed thus far (Teng 2019).

These incidents reflect two salient points. First, the diverse nature of threats and risks permeating institutions of higher learning means that they often find themselves responding to a situation they have not sufficiently prepared for. In other words, the campus security plans must be constantly put to test, maintained and updated. Second, the successful implementation of these plans resides in students' readiness in executing them. As a key stakeholder group, students possess unique first-hand knowledge of both the physical and social structure of the campus settings, its strengths as well as its vulnerabilities. Often, their views are far more accurate than that of administrators and outside agencies. Additionally, they exert significant influence on the behaviors of their peers, particularly in emergency situations. When students develop a sense of personal responsibility for the security of themselves and for the campus, they also develop ownership, pride, and a meaningful connection to their role in the academic community.

Taking the above into consideration, improving students' readiness to participate in CSPE is paramount towards building a disaster-resilient institution. It is, therefore, imperative that key determinants of behavior are identified, especially when human behavior can be shaped and

improved towards achieving specific objectives. While there have been attempts to understand students' decision-making process such as that of Skurka et al. (2018) which examined undergraduates' response strategies in times of emergency, it is still unclear whether those ostensibly being protected, the students, supported the recommended measure (Schafer et al. 2018). In fact, policymakers have always presumed "implicit student support, despite the absence of empirical evidence supporting that conclusion" (Schafer et al. 2018)

Additionally, the understanding of the role of inhibition factors such as perceived risk play in decision-making process remains under-examined. As elucidated by Quintal et al. (2010), understanding constraints that perceived risk pose enhances researchers and practitioners from two fronts. First, it supports researchers in developing a comprehensive theoretical base for the construct that advances our understanding of the TPB. Second, it helps practitioners in developing holistic policies in counteracting the negative impacts these inhibitors might have on students' decision process.

Collectively speaking, this study will extend upon the findings of earlier studies such as Skurka et al. (2018) by focusing on how perceived risk may affect one's decision-making process. Greater knowledge on these factors will provide insights for legislative bodies, institutions of higher learning and professional organizations in crafting strategies of local relevance that will ensure students' support, approval, and corporation. To achieve this objective, this study first introduces the theoretical framework and the relevant literature. PLS-SEM will be performed following the survey data gathered. The results will be discussed, followed by a conclusion highlighting the theoretical, empirical and managerial implications. This study contributes significantly to the enhancement of CSPE by permitting greater understanding of the moderators and determinants of students' participation in CSPE via TPB which enables the crucial determinants of CSPE participation to be addressed. The findings are instrumental to the formulation of effective institutional policy and measures targeting at promoting and shaping significant determinants of CSPE participation, as well as preventing unnecessary effort, hence resources spent on factors of low significance to CSPE. It comes timely to promote CSPE in learning institutions as campus violence is increasingly rampant.

Background

Higher education in Malaysia is under the purview of the Ministry of Higher Education. Typically, a student will go through six years of primary education and five or six years of secondary education before pursuing tertiary education. Tertiary education in Malaysia is divided into two tracks, i.e. the conventional track as well as the technical and vocational track. The Department of Higher Education under the Ministry of Higher Education oversees the conventional track consisting of the various postgraduate, undergraduate, diploma and pre-university programs offered by public and private higher learning institutions in the nation (Ministry of Higher Education Malaysia 2020b). The technical and vocational track is characterized by skill-based qualifications offered by polytechnic and community colleges under the supervision of the Department of Polytechnic and Community Education (Ministry of Higher Education Malaysia 2020a).

As of November 2018, there are 20 public universities and 47 private universities in Malaysia. These institutions of higher learning including polytechnic and community colleges have adopted measures to ensure the security of their campuses, though to varying degrees (Ministry of Higher Education Malaysia 2020b, 2020a). The Occupational Safety and Health Act (OSHA 1994) is the major legislation governing the safety, security and health of all sectors in Malaysia including the education sector. Generally, the law has required the formulation of any related policy and the establishment of committee within tertiary education institutions. Considering the varying risk levels at various locations within a campus, the law imposes specific requirements in relation to risks, for instance, chemical risks in a laboratory (N. L. Ali et al. 2019). Despite having standards of safety, security and health, implementation of these plans across campuses varies, particularly in security preparedness exercises such as fire drills and emergency evacuation. Though crucial, not all campuses nationwide have equal emphasis on these practices, resulting in variable participation of students and staff in such practices.

Theoretical Framework

Theory of planned behavior and perceived risk

A theoretical framework that is widely used to predict and understand human behavior in a specific context is the TPB (Ajzen 1991). Developed out of social-psychological research on attitudes and the attitude-behavior relationship, TPB has been regarded as an effective model to analyze individuals' behavioral decisions from the perspective of personal and behavioral

factors (Ajzen 2014). It is elucidated that one's behavior is determined by three factors, namely (1) their attitude towards it, (2) the extent of them perceiving how others would want them to perform it, and (3) their autonomy over their actions (Ajzen 1991).

TPB had been widely used in studies to predict a range of human behavior. For instance, it has been used to predict the behavior on solid waste (Karim Ghani et al. 2013), alcohol use (French and Cooke 2012), internet banking (Lee 2009), eco-friendly or green practices adoption behaviours such as recycling (C.-L. Hsu et al. 2017), e-sports (Alzahrani et al. 2017) and travel decision making (Quintal et al. 2010).

Additionally, TPB has also been previously examined together with perceived risk. Perceived risk is defined as the degree to which a user feels the uncertainty and adverse consequences of performing something (Liao et al. 2009). There are four important categories of perceived risk associated with participation in campus security exercise namely social risk (Murray and Schlacter 1990), convenience risk (Roselius 1971), psychological risk (Quintal et al. 2010) and physical risk (Mitchell 1999). These studies converge to a common point that different form of perceived risks play a salient role in influencing one's attitude, intention, and actual behavior.

In light of the above, incorporating perceived risk to the TPB model as an independent variable is the most appropriate choice for this study as such a model has not been deployed into the higher education context. Though we can glean insights from earlier studies such as Miller et al. (2013) and Thompson and Schlehofer (2014), a common shortfall of these studies is that they measured elements of TPB separately as antecedents of preparedness, rather than in one research model. Our study will be the first few studies that explicitly draw on the TPB in measuring students' behavioral intention towards participating in CSPE. Having said that, while it is reasonable to expect that TPB could predict students' participation behavior in CSPE, incorporating the element of risk will unravel an additional layer of complexity involved in decision making. Collectively speaking, the outcomes of this study will not only advance the body of knowledge on-campus security, but it also provides useful insights for stakeholders to develop effective behavioral interventions. Figure 1 summarizes the conceptual framework of this study.

Hypotheses Development

Perceived risk and attitude

Perceived risk is an expectation of potential loss in the pursuit of the desired outcome from doing something (Faqih 2013). According to Quintal et al. (2010), perceived risk can come in multiple forms such as social risk which is associated with people's opinion, financial risk representing a net financial loss in association with the decision, as well as psychological loss which can manifest as cognitive and affective discomfort arising from the decision. The concept of risk has been deployed in many contexts. For instance, Liao et al. (2009) found that perceived risk is a significant predictor of intention toward using pirated software. In a similar way, Kassim and Ramayah (2015) investigated perceived risk factors on internet banking among Malaysians. From this literature, it converges to a similar point that perceived risk plays a significant role in affecting one's perception and attitude in making a decision. In the same vein, we expect perceived risk to influence one's attitude towards CSPE, leading us to the first hypothesis:

H1: *Perceived risk toward participating in CSPE is negatively related to students' attitudes towards participating in CSPE.*

Attitude and intention

Attitude is referred to as one of the determinants of intention. It is a motivational factor of an individual's intention to perform a specific behavior. Ajzen (1991) defined attitude as the extent to which a person develops a favorable or unfavorable perception towards a particular behavior. If the individual has volition over the situation, the behavior is predicted by the person's intention to perform it. Thus, if individuals have a positive attitude towards something, they will have a stronger intention towards adopting it. Karim Ghani et al. (2013) reported that attitude is the strongest predictor of recycling and food separation intention. Further, an environmental study conducted by Yadav and Pathak (2016) found that positive mental attitude has a significant influence on green purchase intention. In the context of this study, we believe that attitude towards CSPE is a psychological evaluation that stems from the perception of students in tertiary education. If students have a positive attitude towards participating in CSPE, they would form the intention to participate in CSPE. Therefore, we postulate in the following

hypothesis that students' intention to participate in CSPE would possibly be influenced by their attitude as predicted by Ajzen (1991).

H2: Attitudes towards participating in CSPE is positively related to students' intentions towards participating in CSPE.

Subjective norm and intention

Comprising two main constructs of interpersonal influence and external influence, the key to subjective norm lies in how one's perception of the social pressures towards conforming of a behavior or the relevancy of other people's beliefs that exhibits influence on one's behavior (Ajzen 1991). Regarding this, if the community and referents are significant to the individual such as the person's spouse, family, and close friends, there is a higher motivation for one to perform the act. Many studies have confirmed that social pressure to act is a factor influencing behavioral intention. For instance, Moons and De Pelsmacker (2012) revealed that subjective norm positively influences consumers' intention to use an electric car. Ramayah et al. (2012) elucidated that subjective norm was a major factor of behavioral intention in household solid waste separation. In the same vein, Lizin et al. (2017) found that subjective norm is significant in predicting recycling waste intention. A more recent study by Tan et al. (2019) expanded the earlier findings by discovering that subjective norm is a key construct that influences one's adoption of mobile technologies regardless of ethnicity. Aligned with previous literature, we expect the subjective norm to be an important motivational construct in the behavioral intention of participating in CSPE. It is therefore hypothesized that:

H3: Subjective norms towards participating in CSPE is positively related to students' intentions towards participating in CSPE.

Perceived behavioral control (PBC) and intention

A central tenet within the TPB is PBC. As Ajzen (1991) has explained, PBC can be seen as an individuals' expectation regarding the degree to which they are competent in performing a given behavior. In other words, if the students have high confidence in their ability to participate in CSPE, it will increase their motivation to participate in CSPE. Conversely, if students have low self-confidence in their ability to participate in CSPE, they will not have the intention to perform it. Interestingly, studies on PBC over intention showed inconsistency findings across the literature. For instance, Alzahrani et al. (2017) found that PBC played a significant role in influencing behavior of online gaming. Yet, Ramayah et al. (2012) found

that PBC was insignificant in encouraging recycling behavior which he and his authors attributed to the culture of the society. From this, we can infer that while PBC has been recognized as a key dimension in influencing attitudes and behaviors, it is still susceptible to contextual factors such as personality and culture. On this basis and taking into consideration the inconsistent findings, it warrants additional investigation which we have hypothesized as follows:

H4: Perceived behavioral control about participating in CSPE is positively related to students' intentions towards participating in CSPE.

Intention and actual participation

Behavioral intention is a crucial determinant of actual participation in TPB. According to Ajzen (1991), intention to engage in behavior will happen when individuals have a positive evaluation of the behavior. This is due to the reason that individuals generally behave as their intentions within an available context and time. Based on research conducted by Ham et al. (2015), it was revealed that behavioral intention was a predictor of actual green consumption behavior. In the same vein, Nie et al. (2019), in their studies on energy-saving behavior, noted that careful-use intention is the most important determinant of the behavior. Given the commonality in findings, we argue that similar observations would be observed for this study, leading to the following hypothesis:

H5: Students' intention to participate in CSPE is positively related to students' actual participation in CSPE.

4. Methods

Participants

Using convenience sampling, data were collected from students studying in both private and public higher institutions of learning across Malaysia for a period of three months from July 2019. The sample size was determined using the G*power analysis (Faul et al. 2007). Using the minimum values suggested by Cohen (1988), the prior power calculation indicates that the minimum sample size required at 80% power, an effect size of 0.10, and with a maximum of three indicators (the intention construct has the largest number of predictors) is 114. With 441 usable responses, post-hoc power calculations showed that it represented the power of 99.9% meaning that it has exceeded Cohen (1988) recommendations, justifying that the sample size is adequate for the analysis to be conducted. Additionally, this also aligned with Kock and

Hadaya (2018) recommendation that the minimum required sample size for PLS-SEM should be at least 160.

From the data collected, Table 1 revealed that there is an almost equal balance of gender among the respondents, with 47.6% as male and 52.4% as female. Majority of them (81.4%) are pursuing their undergraduate education, which explains the reason for 90.5% of the respondents falling within the age group of 18-24 years old. Out of the 441 respondents, more than two-thirds of them (78.7%) are domestic students, with the remaining 21.3% belonging to international students.

*** Insert Table 1 ***

Instruments

The items in this instrument were adopted from different established studies. The perceived risk of participating in CSPE was adopted from Quintal et al. (2010). The items were measured on a seven-point scale ranging from *extremely improbable* to *extremely probable*. Examples of items include “What is the probability that participating in campus security exercise will lead to a social loss (e.g. it would make others think less highly of you)?” The composite reliability score, as a measure of internal consistency, was 0.900

The constructs measuring attitude, subjective norm, perceived behavioral control and intention towards CSPE were adapted from Funk and Bruun (2007) and C. H. C. Hsu and Huang (2010). These constructs were measured on a five-point scale ranging from *strongly disagree* to *strongly agree*. Example of items include “participating in campus security exercise is a good thing to do.”, “Most people who are important to you think you should participate in campus security exercise”, and “I encourage my friends to participate in campus security exercise”. The composite reliability score of these constructs ranged from 0.867 to 0.920.

Finally, actual participation behavior towards CSPE was adopted from Afroz et al. (2015). Example of items includes “I often participate in campus security exercise”. Measuring on a five-point scale ranging from *strongly disagree* to *strongly agree*. The composite reliability of this construct was 0.900.

Controlling common method bias

As this is a cross-sectional study, provision of socially desirable response has always been considered as a threat that could possibly bias the results and in turn, the conclusions. Remedies

following Podsakoff et al. (2003) have been put in place to reduce such biasness. Firstly, the survey was subjected to an initial pre-testing to ensure that any ambiguous terms have been removed such that respondents understand the questions the way they are designed and intended for. (Memon et al. 2017). Secondly, temporal separation has been created where the instrument measuring the predictor variables and the criterion variables were separated by the questions asking for the demographic profile of respondents (Podsakoff et al. 2003). Thirdly, respondents' anonymity and confidentiality of data have been assured throughout the data collection period. Besides, we emphasized to the respondents that there were no right nor wrong answers. Lastly, the instruments used different scale endpoints which reduce commonalities and anchoring effects (Podsakoff et al. 2003). Statistically, the Harman single factor test also showed that no single factor accounted for the majority of the covariance in the independent and criterion variables indicating that common method biases are not a serious issue in this study. Additionally, we deployed the full collinearity test suggested by Kock (2015). Our results showed that the variance inflation factor (VIF) for both lateral and vertical collinearity are lesser 3.3 which we can consider the model to be free of common method bias (Kock 2015).

Data analysis

The descriptive statistics of the respondents was developed using the Statistic Package for the Social Sciences (SPSS) version 25.0, while the PLS-SEM was used for testing the hypotheses. PLS-SEM is the second-generation technique that allows for the simultaneous evaluation of the measurement and structural models (Hair et al. 2017). Unlike the covariance-based SEM, PLS-SEM has been adopted for this study as it is a variance-based technique that facilitates the evaluation of the predictive capabilities of the model, which is one of the research objectives of this study. Additionally, PLS-SEM is a non-parametric method with no distributional assumptions that has been widely deployed in various context of studies such as knowledge management (Cepeda-Carrion et al. 2019), human resource management (Ringle et al. 2020), hospitality (F. Ali et al. 2018), and education (Da Rosa et al. 2010). Following the recommendations by Hair et al. (2017), we adopted a two-stage approach of assessing the measurement model followed by the structural model.

Results

Measurement model

The measurement model involves assessing the average variances extracted (AVE), composite reliability (CR) and discriminant validity of the model. From Table 2, it showed that the model met the thresholds as AVE exceeds 0.50 and CR exceeds 0.70 (Hair et al. 2017). Following this, Table 3 assessed the discriminant validity via the heterotrait-monotrait ratio of correlations (HTMT) technique. Compared to the cross-loadings as well as the Fornell-Larcker criterion, HTMT was found to display higher sensitivity and superior performance in detecting discriminant validity (Henseler et al. 2015). In this regard, Table 3 showed that discriminant validity has been achieved at $HTMT_{0.85}$.

*** Insert Table 2 ***

*** Insert Table 3 ***

Structural model

Prior to assessing the structural model, we conducted the collinearity test by assessing the variance inflation factor (VIF). Table 4 showed that collinearity was not an issue in this model as the VIF scores were lesser than 5 which is within the threshold recommended by Hair et al. (2017). Using the bootstrapping technique, our results revealed that attitude ($\beta = 0.395, p < 0.001$) and subjective norm ($\beta = 0.332, p < 0.001$) influence one's intention to participate in campus security exercise, which will eventually shape the actual behaviour ($\beta = 0.617, p < 0.001$). Hence, H2, H3, and H5 were supported. On the other hand, the results showed that perceived risk ($\beta = -0.081, p = 0.205$) did not have any significant relationship in shaping attitude towards campus security exercise. Similarly, PBC ($\beta = 0.059, p = 0.111$) did not shape one's intention towards participating in the campus security exercise. Hence, H1 and H4 were not supported. Figure 2 summarizes the results of the structural model.

The R^2 values are 0.006, 0.381 and 0.468 for the constructs of attitude, actual behavior and intention to participate respectively. Among them, two of the R^2 values exceeded the threshold of 0.26 indicating that the model is substantial (Cohen 1988). Next, we examined the effect sizes (f^2) for all significant relationships. Our results showed that attitude and subjective norm have similar effect sizes of 0.168 and 0.123 respectively which (Cohen 1988) classified them as a medium. Concomitantly, the results showed that intention to participate has a large effect

on actual behavioral participation at 0.616 respectively. On the predictive relevance of this model, the Q^2 results showed that it is larger than zero, indicating its predictive capacity.

Discussion and implications

This study aims to predict the intention, hence the behavior of students to participate in CSPE. As highlighted earlier, previous researchers have demonstrated the role of perceived risk in shaping one's decision in different contexts. However, the question of this relationship operates in higher education remains unclear. Therefore, this study presents a model that enriches the understanding of how one's intention to participate in CSPE is influenced by perceived risk, attitude, perceived behavioral control and subjective norm.

Firstly, our findings showed that perceived risk failed to establish any significant relationship in shaping attitude towards CSPE. This ran contrary to our expectations. Unlike the conventional application of TPB in contexts such as tourism where perceived risk shapes individuals' attitude, the results showed students' attitude towards CSPE remains unchanged, despite the possible risks that will bring about. A plausible explanation is the recent incidents of security breaches in overseas campuses have heightened students' sense of awareness on security and our results reflect students' views that having CSPE is a necessity and compulsory in today's climate.

Secondly, we are also expecting a positive relationship between the different elements of TPB towards the participation behavior of CSPE. Overall, we found partial support for the TPB elements towards predicting students' behavior towards CSPE. Firstly, it is not surprising that attitudes and subjective norms predicted behavioral intentions. It aligns with many existing studies (Lizin et al. 2017; Alzahrani et al. 2017; Najafi et al. 2017). Other than positive attitudes, our results demonstrated that social pressures exercise by students' friends and family members would positively influence users' behavior intentions towards participating CSPE. Among both variables, attitude emerged as the strongest predictor of intention in this study. This coincides with the self-determination theory promulgating intentions based on attitudes as a better predictor of behavior than intentions based on subjective norms owing to autonomous motivation which originates from oneself (Sheeran et al. 1999). This corroborates with other studies where the attitude was also reported as a stronger predictor of intention than the subjective norm (Foltz et al. 2016).

Interestingly, our results also showed that PBC was not a significant predictor of intention. These results corroborated with studies across different contexts such as the protection of personal information (Chon et al. 2018). From these studies, it highlights a common point that individuals will always endeavor to control situations such that they can produce the results that they want. However, if they perceive that they do not have sufficient power to do so, they will leave things as it is and try not to change (Ajzen 1991). From this perspective, we can argue that the respondents generally perceive that attending CSPE is an activity that they have no choice but to participate in. While there could be several reasons attributed to this perception, it nonetheless reinforces our earlier argument that such exercise is necessary for equipping the students with knowledge of and familiarity with emergency procedures.

In this study, a significantly strong correlation between intention and the behavior of participating in CSPE was drawn. This agrees with the findings of Foltz et al. (2016) that the intention of users to change social networking privacy and security setting actually led to the action. In the context of Malaysia, CSPE particularly fire drill and emergency evacuation practices are conducted in institutions of higher education and participation of students and staff in these exercises is strongly emphasized. Such facilitated participation may be beneficial to convert intention into action.

CSPE has been conducted in institutions of higher learning to increase the emergency preparedness of staff and students therein. However, the participation of students and staff has been inconsistent mainly because not everyone perceives the importance of such exercises similarly. This study, therefore, makes significant contributions to the body of knowledge.

First, it provides insight into the important determinants to increase participation in campus security preparedness by highlighting that attitude and subjective norm are crucial elements to such participation. With attitude having higher correlation and effect size on the intention to participate than the subjective norm, it calls for attitude forming measures which often involve impartation of values and beliefs for instance via conveying the consequences of action or inaction and the values of the consequences (Ajzen 2015). Nonetheless, this study does not opine that manipulating the perceived risk of participating in campus security preparedness exercise will alter attitude significantly. This is probably because attitude represents an internal locus and autonomous motivation (Sheeran et al. 1999) which do not significantly interact with how one perceives risk arising from the action. It can, therefore, be said that a person would

regard participation in such exercises as worthy even though the perceived risk of doing so is high.

Second, this study also reveals subjective norm as important to forming the intention of participating in CSPE and deems that measures promoting social pressure to participate in such exercises would greatly help in forming the intention. Such measures could be in the form of expectations by lecturers and peer as well as examples set by key personnel of campus including staff and student representatives (Ajzen 2015).

Lastly, this study downplays the importance of PBC in predicting participation in campus security preparedness exercise. The reason could be that the exercises themselves are means of enhancing emergency preparedness and there is little need to increase the awareness of these exercises. Once the intention is formed, this study shows that it will most likely lead to the behavior of participants. Therefore, this study is deemed to contribute significantly to the understanding of the formation of intention and behavior concerning participation in campus security preparedness exercises which have not been subject to extensive study. It contributes immensely to devising policy and strategies to enhance participation in such exercises.

Limitations

Despite the above-mentioned contributions, this study is not without limitations. Firstly, this study is subject to limitations typical of a questionnaire survey which revolve around the quality of responses. It is possible that the respondents might provide convenient responses especially to survey items they are unfamiliar with. The responses could also be affected by the biases of the respondents shaped by their previous experiences. For instance, respondents who have experienced emergency and security threats in life would appreciate security preparedness than those who have not, not to mention those who are never exposed to such a concept previously. While not appreciating security preparedness, the respondents could still be inclined to provide “socially desirable responses” which further limit accuracy in measuring the constructs. Secondly, this study is confined to the use of TPB in predicting the intention and behavior to participate in campus security exercise while other models such as perceived motivation theory have also been shown to have the predictive capacity in compliance with information systems security policy. Finally, this study does not make a distinction between how the respondents of different genders, age categories, nationality and education levels are influenced in their intention to participate in CSPE.

Compliance with Ethical Standards

Conflict of Interest: The authors declare that they have no conflict of interest.

Ethical Approval: All procedures performed in this study involving human participants has been approved by the Curtin University Human Research Ethics Committee (HRE2019-0423).

Informed Consent: Informed consent was given to all participants in order to get their allowance for this study

References

- Afroz, R., Masud, M. M., Akhtar, R., Islam, M. A., & Duasa, J. B. (2015). Consumer purchase intention towards environmentally friendly vehicles: an empirical investigation in Kuala Lumpur, Malaysia. *Environ Sci Pollut Res Int*, 22(20), 16153-16163, doi:10.1007/s11356-015-4841-8.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211, doi:10.1016/0749-5978(91)90020-T.
- Ajzen, I. (2014). The theory of planned behaviour is alive and well, and not ready to retire: a commentary on Sniehotta, Priesseau, and Araújo-Soares. *Health Psychology Review*, 7199(May), 1-7, doi:10.1080/17437199.2014.883474.
- Ajzen, I. (2015). Consumer attitudes and behavior: the theory of planned behavior applied to food consumption decisions. *Rivista di Economia Agraria*, 70(2), 121-138, doi:10.13128/REA-18003.
- Ali, F., Rasoolimanesh, S. M., Sarstedt, M., Ringle, C. M., & Ryu, K. (2018). An assessment of the use of partial least squares structural equation modeling (PLS-SEM) in hospitality research. *International Journal of Contemporary Hospitality Management*, 30(1), 514-538, doi:10.1108/ijchm-10-2016-0568.
- Ali, N. L., Goh, C. T., Syed Zakaria, S. Z., Mokhtar, S. A. H., Mokhtar, M., Lee, K. E., et al. (2019). Assessing awareness on laboratory safety: A case study in Pahang, Malaysia. *Jurnal Pendidikan Malaysia*, 43(2), 73-80.
- Alzaharani, A. I., Mahmud, I., Ramayah, T., Alfarraj, O., & Alalwan, N. (2017). Extending the theory of planned behavior (TPB) to explain online game playing among Malaysian undergraduate students. *Telematics and Informatics*, 34(4), 239-251, doi:10.1016/j.tele.2016.07.001.
- Cepeda-Carrion, G., Cegarra-Navarro, J.-G., & Cillo, V. (2019). Tips to use partial least squares structural equation modelling (PLS-SEM) in knowledge management. *Journal of Knowledge Management*, 23(1), 67-89, doi:10.1108/jkm-05-2018-0322.
- Chon, B. S., Lee, J.-K., Jeong, H., Park, J., & Park, J. (2018). Determinants of the Intention to Protect Personal Information among Facebook Users. *ETRI Journal*, 40(1), 146-155, doi:10.4218/etrij.2017-0082.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). New York, NY: Lawrence Erlbaum Associates.
- Da Rosa, M. J. P., Saraiva, P. M., & Diz, H. (2010). Excellence in Portuguese higher education institutions. *Total Quality Management & Business Excellence*, 14(2), 189-197, doi:10.1080/1478336032000051377.
- Faqih, K. (2013). Exploring the influence of perceived risk and internet self-efficacy on consumer online shopping intentions: Perspective of technology acceptance model. *International Management Review*, 9(1), 67-77.
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G * Power 3 : A flexible statistical power analysis program for the social , behavioral , and biomedical sciences. *Behavior Research Methods*, 39(2), 175-191, doi:10.3758/BF03193146.
- Foltz, C. B., Newkirk, H. E., & Schwager, P. H. (2016). An Empirical Investigation of Factors that Influence Individual Behavior toward Changing Social Networking Security Settings. *Journal of theoretical and applied electronic commerce research*, 11(2), 2-2, doi:10.4067/s0718-18762016000200002.
- French, D., & Cooke, R. (2012). Using the theory of planned behaviour to understand binge drinking: The importance of beliefs for developing interventions. *British Journal of Health Psychology*, 17(1), 1-17, doi:10.1111/j.2044-8287.2010.02010.x.
- Funk, D. C., & Bruun, T. J. (2007). The role of socio-psychological and culture-education motives in marketing international sport tourism: A cross-cultural perspective. *Tourism Management*, 28(3), 806-819, doi:10.1016/j.tourman.2006.05.011.

- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). London, UK: Sage Publications Ltd.
- Ham, M., Jeger, M., & Frajman Ivković, A. (2015). The role of subjective norms in forming the intention to purchase green food. *Economic Research-Ekonomska Istraživanja*, *28*(1), 738-748, doi:10.1080/1331677x.2015.1083875.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*(1), 115-135, doi:10.1007/s11747-014-0403-8.
- Hsu, C.-L., Chang, C.-Y., & Yansritakul, C. (2017). Exploring purchase intention of green skincare products using the theory of planned behavior: Testing the moderating effects of country of origin and price sensitivity. *Journal of Retailing and Consumer Services*, *34*, 145-152, doi:10.1016/j.jretconser.2016.10.006.
- Hsu, C. H. C., & Huang, S. (2010). An Extension of the Theory of Planned Behavior Model for Tourists. *Journal of Hospitality & Tourism Research*, *36*(3), 390-417, doi:10.1177/1096348010390817.
- Kapucu, N., & Khosa, S. (2013). Disaster Resiliency and Culture of Preparedness for University and College Campuses. *Administration & Society*, *45*(1), 3-37, doi:10.1177/0095399712471626.
- Karim Ghani, W. A., Rusli, I. F., Biak, D. R., & Idris, A. (2013). An application of the theory of planned behaviour to study the influencing factors of participation in source separation of food waste. *Waste Manag*, *33*(5), 1276-1281, doi:10.1016/j.wasman.2012.09.019.
- Kassim, N. M., & Ramayah, T. (2015). Perceived Risk Factors Influence on Intention to Continue Using Internet Banking among Malaysians. *Global Business Review*, *16*(3), 393-414, doi:10.1177/0972150915569928.
- Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration*, *11*(4), 1-10, doi:10.4018/ijec.2015100101.
- Kock, N., & Hadaya, P. (2018). Minimum sample size estimation in PLS-SEM: The inverse square root and gamma-exponential methods. *Information Systems Journal*, *28*(1), 227-261, doi:10.1111/isj.12131.
- Lee, M.-C. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*, *8*(3), 130-141, doi:10.1016/j.elerap.2008.11.006.
- Liao, C., Lin, H.-N., & Liu, Y.-P. (2009). Predicting the Use of Pirated Software: A Contingency Model Integrating Perceived Risk with the Theory of Planned Behavior. *Journal of Business Ethics*, *91*(2), 237-252, doi:10.1007/s10551-009-0081-5.
- Lizin, S., Van Dael, M., & Van Passel, S. (2017). Battery pack recycling: Behaviour change interventions derived from an integrative theory of planned behaviour study. *Resources, Conservation and Recycling*, *122*, 66-82, doi:10.1016/j.resconrec.2017.02.003.
- Memon, M. A., Ting, H., Ramayah, T., Chuah, F., & Cheah, J.-H. (2017). A review of the methodological misconceptions and guidelines related to the application of structural equation modelling: A Malaysian scenario. *Journal of Applied Structural Equation Modeling*, *1*(1), i-xiii.
- Mettler, K. (2019). Student who studied mass shooting videos had planned attack by Christmas, police say. www.washingtonpost.com. Accessed 26 September 2019.
- Miller, C. H., Adame, B. J., & Moore, S. D. (2013). Vested Interest theory and disaster preparedness. *Disasters*, *37*(1), 1-27, doi:10.1111/j.1467-7717.2012.01290.x.
- Ministry of Higher Education Malaysia (2020a). Higher Education. <https://www.moe.gov.my/en/education/higher-education>. Accessed 13 July 2020.
- Ministry of Higher Education Malaysia (2020b). Technical and Vocational Education and Training. <https://www.moe.gov.my/en/tvet>. Accessed 13 July 2020.
- Mitchell, V.-W. (1999). A role for consumer risk perceptions in grocery retailing. *British Food Journal*, *100*(4), 171-183.

- Moons, I., & De Pelsmacker, P. (2012). Emotions as determinants of electric car usage intention. *Journal of Marketing Management*, 28(3-4), 195-237, doi:10.1080/0267257x.2012.659007.
- Murray, K. B., & Schlacter, J. L. (1990). The Impact of Services versus Goods on Consumers' Assessment of Perceived Risk and Variability. *Journal of the Academy of Marketing Science*, 18(1), 51-65.
- Najafi, M., Ardalan, A., Akbarisari, A., Noorbala, A. A., & Elmi, H. (2017). The Theory of Planned Behavior and Disaster Preparedness. *PLoS Curr*, 9, doi:10.1371/currents.dis.4da18e0f1479bf6c0a94b29e0dbf4a72.
- Nie, H., Vasseur, V., Fan, Y., & Xu, J. (2019). Exploring reasons behind careful-use, energy-saving behaviours in residential sector based on the theory of planned behaviour: Evidence from Changchun, China. *Journal of Cleaner Production*, 230, 29-37, doi:10.1016/j.jclepro.2019.05.101.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879-903, doi:10.1037/0021-9010.88.5.879.
- Quintal, V. A., Lee, J. A., & Soutar, G. N. (2010). Risk, uncertainty and the theory of planned behavior: A tourism example. *Tourism Management*, 31(6), 797-805, doi:10.1016/j.tourman.2009.08.006.
- Ramayah, T., Lee, J. W., & Lim, S. (2012). Sustaining the environment through recycling: an empirical study. *J Environ Manage*, 102, 141-147, doi:10.1016/j.jenvman.2012.02.025.
- Ringle, C. M., Sarstedt, M., Mitchell, R., & Gudergan, S. P. (2020). Partial least squares structural equation modeling in HRM research. *The International Journal of Human Resource Management*, 31(2), 1617-1643, doi:10.1080/09585192.2017.1416655.
- Roselius, T. (1971). Consumer Rankings of Risk Reduction Methods. *Journal of Marketing*, 35, 56-61.
- Schafer, J. A., Lee, C., Burruss, G. W., & Giblin, M. J. (2018). College Student Perceptions of Campus Safety Initiatives. *Criminal Justice Policy Review*, 29(4), 319-340, doi:10.1177/0887403416631804.
- Sheeran, P., Norman, P., & Orbell, S. (1999). Evidence that intentions based on attitudes better predict behaviour than intentions based on subjective norms. *European Journal of Social Psychology*, 29, 403-406.
- Skurka, C., Quick, B. L., Reynolds-Tylus, T., Short, T., & Bryan, A. L. (2018). An evaluation of a college campus emergency preparedness intervention. *J Safety Res*, 65, 67-72, doi:10.1016/j.jsr.2018.02.003.
- Tan, K.-L., Memon, A. M., Sim, P.-L., Leong, C.-M., Soetrisno, F. K., & Hussain, K. (2019). Intention to Use Mobile Payment System by Ethnicity: A Partial Least Squares Multi-group Approach. *Asian Journal of Business Research*, 9(1), 36-59, doi:10.14707/ajbr.190055.
- Teng, A. (2019). NUS disciplinary board heard 26 sexual offence cases over three years. www.straitstimes.com. Accessed 26 September 2019.
- Thompson, S. C., & Schlehofer, M. M. (2014). Undermining optimistic denial reactions to domestic and campus emergency warning messages. *Appl Psychol Health Well Being*, 6(2), 192-213, doi:10.1111/aphw.12024.
- Yadav, R., & Pathak, G. S. (2016). Young consumers' intention towards buying green products in a developing nation: Extending the theory of planned behavior. *Journal of Cleaner Production*, 135, 732-739, doi:10.1016/j.jclepro.2016.06.120.

Table 1. Demographic Data (n=441)

Description	Frequency	Percent	Cumulative Percent
Gender			
Male	210	47.6	47.6
Female	231	52.4	100.0
Age			
Below 18 years old	9	2.0	2.0
18-24 years old	399	90.5	92.5
25-34 years old	24	5.4	98.0
35-44 years old	9	2.0	100.0
45 years old and above	0	0.0	100.0
Nationality			
Malaysian	347	78.7	78.7
International	94	21.3	100.0
Education Level			
Doctorate	10	2.3	2.3
Master	12	2.7	5.0
Bachelor's degree	359	81.4	86.4
Foundation	16	3.6	90.0
Others	44	10	100.0

Table 2. Measurement model

		Outer Loading	CR	AVE
Perceived risk	PR1	0.887	0.900	0.700
	PR2	0.578		
	PR3	0.975		
	PR4	0.852		
Attitude	AT1	0.806	0.910	0.716
	AT2	0.894		
	AT3	0.885		
	AT4	0.797		
Subjective norm	SN1	0.882	0.887	0.724
	SN2	0.857		
	SN3	0.812		
Perceived behavioural control	PBC1	0.761	0.861	0.675
	PBC2	0.860		
	PBC3	0.840		
Intentions to participate	INT1	0.762	0.920	0.657
	INT2	0.766		
	INT3	0.798		
	INT4	0.864		
	INT5	0.830		
	INT6	0.839		
Actual participation behaviour	ACT1	0.829	0.900	0.694
	ACT2	0.887		
	ACT3	0.838		
	ACT4	0.773		

Table 3. Discriminant validity test

	ACT	ATT	INT	PBC	PR	SN
ACT						
ATT	0.404					
INT	0.698	0.707				
PBC	0.299	0.520	0.416			
PR	0.314	0.090	0.091	0.159		
SN	0.552	0.736	0.705	0.486	0.097	

Note: (1) ACT = Actual participation behaviour, ATT = Attitude, INT = Intentions to participate, PBC = Perceived behavioural control, PR = Perceived risk, SN = Subjective norm; (2) HTMT achieved at $HTMT_{0.85}$

Table 4. Structural model

Hypotheses	Relationship	Standard Beta	Standard Error	t-value	LL	UL	VIF	R ²	f ²	Q ²
H1	PR -> ATT	-0.071	0.072	0.988 ^(NS)	-0.122	0.146	1.000	0.005	0.005	0.003
H2	ATT -> INT	0.395	0.041	9.600***	0.323	0.462	1.745	0.468	0.168	0.290
H3	SN -> INT	0.331	0.042	7.932***	0.272	0.406	1.680		0.123	
H4	PBC -> INT	0.059	0.049	1.203 ^(NS)	-0.018	0.145	1.280		0.005	
H5	INT -> ACT	0.617	0.032	19.574***	0.561	0.665	1.000	0.381	0.616	0.249

Note: (1) ACT = Actual participation behaviour, ATT = Attitude, INT = Intentions to participate, PBC = Perceived behavioural control, PR = Perceived risk, SN = Subjective norm. (2) NS- not significant, * $p < 0.05$ ** $p < 0.01$, *** $p < 0.001$

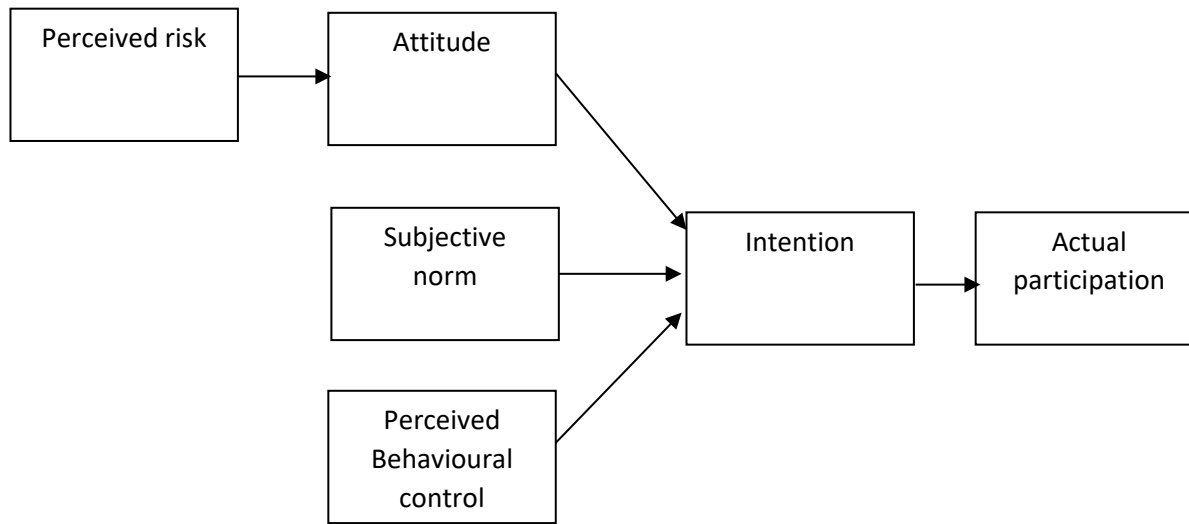
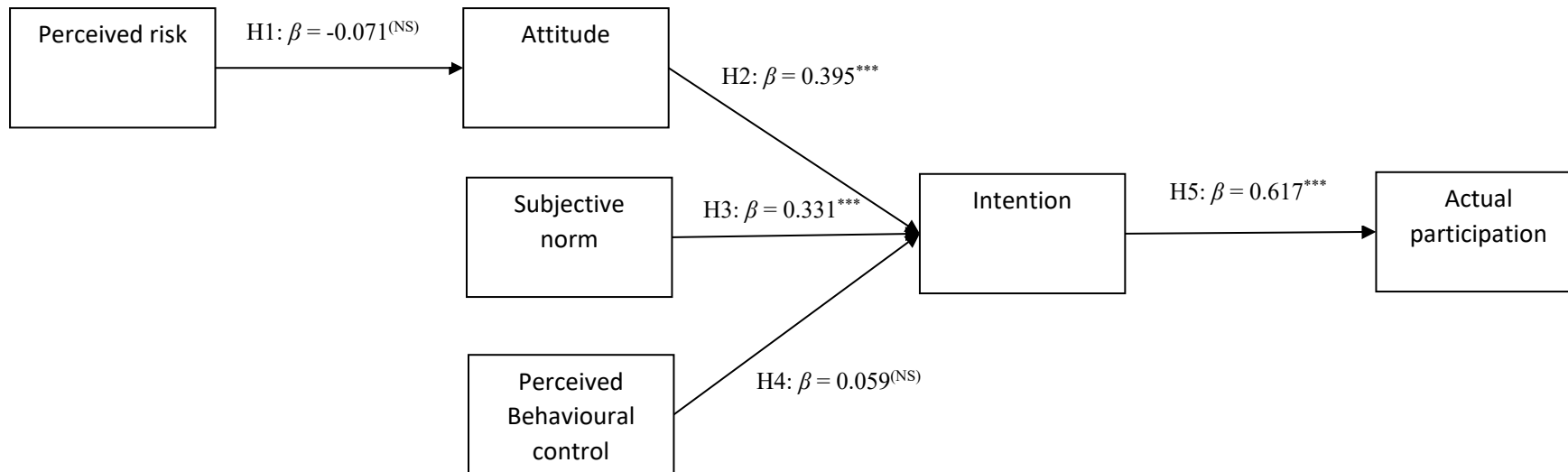


Figure 1 : Conceptual model



Note: NS- not significant, * $p < 0.05$ ** $p < 0.01$, *** $p < 0.001$

Figure 2: PLS structural model results

