

## Self-efficacy and user behavioral intention to use online consultation management system

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### ABSTRACT

A consultation is an act of discussing a certain issue between two or more parties. Consultation is considered very important especially in the context of higher education. The Novel Coronavirus 2019 (COVID-19) pandemic has shifted the education paradigm into digital dependency, including consultation management between students and academicians. However, a lack of studies has been conducted on the roles of self-efficacy towards user behavioral intention to use online consultation management systems in the aftermath of a pandemic. Therefore, the purpose of this research is to investigate the relationship between self-efficacy and user behavioral intention to use an online consultation management system. In terms of respondents, 270 students were selected based on convenience sampling. Findings were analyzed using statistical package for social sciences (SPSS) version 26 and SmartPLS version 3.2.8. Hence, this research revealed that proposed hypotheses were all supported. Self-efficacy has a positive and significant relationship with perceived usefulness and perceived ease of use. On the other hand, both perceived usefulness and ease of use were found positively influence attitude towards using online consultation management system.

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## 1. INTRODUCTION

Consultation involves a process of interaction between two professionals acting as consultants, who are experts, who refer to their help on current problems [1]. It is involved in any business by giving expert advice to people working in a particular field. Traditionally, Rajae, Ahmadi, and Abedi [2] mention academic consultation is a process based on helpful, face-to-face, and specialized relationships in which the consultants who are academicians, using their specialized knowledge and skills, then show the path to growth and problem solving of their clients (students). In recent decades, the evaluation of the higher education institution's functioning has been regarded as an important measurement in determining the quality of the action of the academic institution. Therefore, any kind of study related to the educational progress of the students can be considered as a step for the growth and advancement of the quality of academic institutions. Clearly, the academic advisor plan will achieve its goals in the universities [3].

However, White [4] reported with little warning, since 2020, academic institutions had to move from traditional face-to-face meetings to online instruction this spring due to the pandemic of COVID-19 [5]. No doubt, it will take quite some time to determine the impact of this type of consultation on student learning. This pandemic will, however, force academic institutions to examine just what is most crucial to achieving their academic missions.

White [4] added as instruction moves online, so does academic consultation. While the challenge of getting online is very difficult, academic consultation was one of the first academic efforts to embrace technology to complement its work. Once academic advisors realize that they were not replaced by new technology, they gladly embrace all the technology on offer especially when they were free from clerical tasks that are more relevant to their jobs. On top of that, academicians began to understand and become proficient with a new method to communicate and interact with the students beyond direct interaction or face to face interaction. However, a lack of studies has been conducted on the roles of self-efficacy towards user behavioral intention to use online consultation management systems in the aftermath of a pandemic. Therefore, this research investigated the relationship between self-efficacy and user behavioral intention to use an online consultation management system. First, we explained the underlying research model that constitutes the important base for the study. Next, we described the methodology and presented the findings of the study, before concluding the study with the discussion section.

## 2. RESEARCH MODEL

Based on the theoretical review, Figure 1 shows the model depicting the current study. There are a total of five variables selected for the study. The basic theoretical contribution was adopted from the technology acceptance model (TAM) of Davis [6]. Recently, Isaac and Mutahar [7] found Internet self-efficacy influenced perceived ease of use and perceived usefulness. The authors also reported this result by using a sample from employees of the government sector. Results from Isaac and Mutahar [7] not only extend the TAM model but also reveal the importance of self-efficacy as it eventually increases the actual usage of the internet and technology.

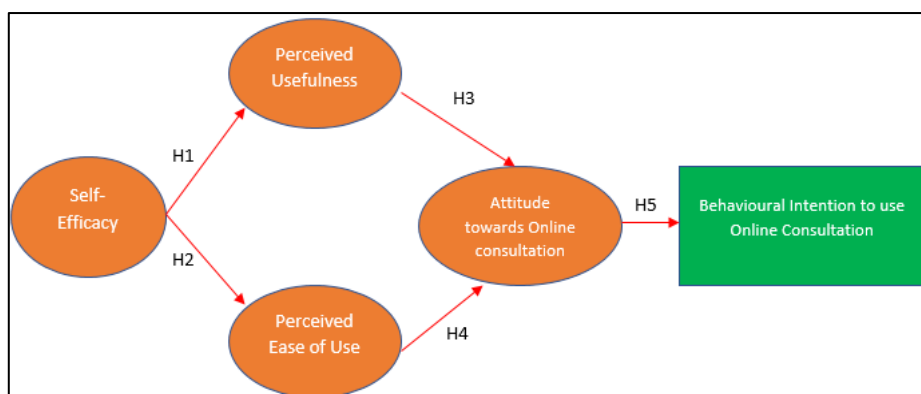


Figure 1. Conceptual framework

On the other hand, Mutahar *et al.* [8] investigated the intention to use mobile banking among 482 bank clients in Yemen. They found out self-efficacy is significantly influenced perceived usefulness and perceived ease of use; whereby perceived ease of use and perceived usefulness significantly influence intention to use mobile banking. Apart from banking, Ozturk *et al.* [9] has empirically tested antecedents of mobile shopping loyalty in the context of a hotel customer.

Moreover, Abdullah, Ward, and Ahmed [10] investigate the behavioral intention of students to use the portfolio management system and found out that perceived ease of use and perceived usefulness predict behavioral intention. They also found out self-efficacy to influence both perceived ease of use and perceived usefulness. On the other hand, Aguilera-Hermida [11] investigated the college student perceptions, adoptions, use and acceptance to use online learning during pandemic situations. Although respondents would prefer face to face learning, it is found out that self-efficacy plays a significant role in cognitive engagement, while also affecting the academic performance of students.

Gültekin *et al.* [12] pointed out that self-efficacy affected the perceived usefulness of information technology. Additionally, Teo and Huang [13] also reported variables that are positioned as predictors of

students' intentions and attitudes to use technology are pertaining to the perceived usefulness. As noted by Bandura [14], self-efficacy is key to Socio-Cognitive Theory, and it relates to task and domain-specific beliefs people have their ability to manage resources and accomplished the course of action to effectively perform the task. Furthermore, robust self-efficacy can cause students to behave in ways that improve their learning and academic performance by using extra energy and determination in the execution of tasks and being resolute when opposing obstacles [15]. In other literature also stated that technology self-efficacy is a variable affecting the use of technology [16]. On the other hand, Hanham *et al.* [15] added students with relatively poor self-efficacy tend to behave in ways that undermine their chances of gaining learning benefits from the usefulness of online resources and improving themselves academically. Therefore, it can be hypothesized that: Self-efficacy has a positive and significant relationship with perceived usefulness (H1).

A previous study reported only perceived ease of use contributed to the more predictive attitude of internet use [17]. They asserted, however, that perceived ease of use directly influences information technology (IT) implementation because the primary task used by IT is directly related to intrinsic IT characteristics, for instance, when the task itself is an integral part of the IT interface. Moreover, Sun, Tai, and Tsai [17] pointed out that when a system website is used to query a product, perceived ease of use likely to influence IT usage because the required information is included in IT and thus the quality is directly linked to IT ease of use. Therefore, the perceived important role of ease of use in the use of IT makes it important to understand the factors that contribute to this user experience. The self-efficacy of the computer serves as a determinant of the perceived ease of use before and after the use of the computer system directly. Additionally, trust in institutions, computer self-efficacy, and perceived ease of use positively correlated with individuals' past use and willingness to pay for future economic sharing services [18].

Technology application self-efficacy is an individual's perceptions of users' capability to use mobile devices technology to execute certain tasks for instance browsing the Internet [19]. In education enhancement, technology self-efficacy has influenced the ease of use of mobile devices. When students have adequate experience with technology applications, they perceive technology learning is easier to use and less effort is required as stated in the related study [20]. Thus, Nikou and Economides [19] summarized that student with a higher level of technology-self efficacy, feel know-how and easier in using technological devices in learning activities. Therefore, it can be hypothesized that: Self-efficacy has a positive and significant relationship with perceived ease of use (H2).

Perceived usefulness is defined as individual belief that using the technology will increase their efficiency of completing a task. Self-efficacy on technology enhances the impression of individual, and subsequently help them to find that their job performance may increase and offers better usefulness, thus encourage their attitude towards accepting new technology [21]. Perceived usefulness is how far someone believes that using a particular system will improve its performance [22]. Similarly, Mathwick *et al.* [23] defined perceived usefulness as the extent to which a person deems a particular system to boost his or her job performance. Nursiah [24] stated that perceived usefulness can be understood as a measure of to what extent individuals believe that the use of a technology will improve the task completion.

Baharuddin and Rosman [25] define usefulness as people's belief that using a specific system would increase their work performance. Perceived usefulness is also defined as the utility of technology such that when power is applied to it, it does not indicate a person's intention to utilize it. According to Venkatesh [26], there is a significant effect of understanding the reaction of persons' advantages in information technology. Wang and Brookshire [27] articulated the same idea, stating that perception of usefulness occurs when a person feels that utilizing a system would improve his performance.

On the other hand, Gardner and Amoroso [28] define perceived usefulness as the degree to which people feel that utilizing technology would help them perform better at their jobs. According to these definitions, individuals will utilize technology if they have trust in decision-making process and in the technology that is helpful to them by improves the system. Similarly, if a trustworthy individual does not gain from it, they will not utilize it. Based on the foregoing arguments, it is possible to conclude that perceived usefulness is the degree to which a person feels that adopting a technology would enhance productivity and performance and will comprise advantages of information technology system adoption.

Moreover, the behavioral intention to use online consultation (BIU) emerges in an organization when perceived usefulness (PEU) is utilized with the attitude towards online consultation (ATT). Therefore, there is a direct relationship of Perceived Usefulness (PEU) with Attitude Towards Online Consultation (ATT). This relationship is regarded as logical because PEU influenced users to use an online consultation management system in the aftermath of a pandemic. This is because users believe and are more confident with the advantages of using a particular system that can increase their job execution. The main determinant that strongly affects users' convictions and expectations to use the innovation is perceived usefulness. Therefore, it can be hypothesized that: Perceived usefulness has a positive and significant relationship with attitude to use online consultation system (H3).

There are many prior studies assuming perceived ease of use has positively impact IT customer reception and usage behavior [26]. The more commonly used system shows that the system is better known, easier to be operated, and easier to be use by its users. Perceived ease of use is also able to increase consumer acceptance related to the product or services [29]. According to Rogers [30], perceived ease of use is the degree to which customers consider a new product or service to be superior to its alternatives. Similarly, perceived ease of use may be defined as the degree to which an invention is easy to comprehend or utilize [31]. According to Wang and Ha-Brookshire [27], perceived ease of use refers to the degree to which a user feels that using a specific technology would be simple and painless. Furthermore, Johar and Awalluddin [32] emphasized that perceived ease of use refers to an individual's belief that using the new technology would be devoid of obstacles or significant effort. In other terms, it relates to a person's belief that using information technology is simple and needs little work. The energy, thinking, and time required to learn and utilize the systems will be reduced because of the simplicity. People who use information systems operate more efficiently than those who work manually.

The complexity of an information system often leads to frustration and work as a hindrance factor towards the adoption and acceptance of an information system. Reducing task complexity often influence engagement towards information system [33]. In the aftermath of COVID-19, students were forced to learn most of the application by themselves, sometimes leading to stress and negative responses. Thus, having an information system that is capable to helps them reduce the stress and making their progress manageable should be able to enhance their attitude towards using the information system [25]. Therefore, it can be hypothesized that: Perceived ease of use has a positive and significant relationship with attitude to use online consultation system (H4).

On the other hand, attitude is operationalized as the respondent's preferences and perception towards the actual usage of the information system. Attitude is an important indicator of engagement that can include multiple dimensions, such as cognitive, affective, and behavioral perspectives [33]–[35]. Attitude is often influenced by several factors, such as technological, individual, contextual, and organizational factors. A positive attitude may lead to further engagement and actual information system usage, while a negative attitude leads to disengagement and burnout among the potential users [36].

The benefit of the electronic system has been well documented in education. Study by Abdullah, Ward, and Ahmed [10] highlighted the use of electronic systems facilitate self-directed learning, enable communication and feedback at any time, provide effective means of storing, organizing learning material, demonstrate student learning and growth over time. The authors used indicators from TAM and theory of planned behavior (TPB), such as perceived ease of use (PEOU) and perceived usefulness to predict behavioral intention. The context of the studies is undergraduate students in the UK. The findings contributed to the extension of TAM and TPB in the context of the e-portfolio management system.

Another important work in using an electronic system in education can be found in the work of Aguilera-Hermida [11], who explored the college's student perception of their adoption, use, and acceptance of using online learning due to COVID-19. Although students would prefer physical learning over online learning, Aguilera-Hermida [11] found out that motivation, self-efficacy, attitude and use of technology significantly influenced behavioral intention to use the online platform. The context of the study were 270 students who experienced online learning platform during COVID-19 pandemic. The study contributes by highlighting indicators that influence students' use and perceptions of an online learning platform. Although the researcher did not specify the online learning platform, the studies have supported the indicators from TAM and TPB in the context of an online learning platform.

From the studies, although Abdullah, Ward and Ahmed [10] investigate the use of the e-portfolio system among students. It is interesting to investigate the use of an online consultation management system among students to further extends the applicability of TAM and TPB in the context of a consultation management system. This study is important as a consultation management system would provide a similar function to an e-portfolio management system such as effective means of storing, organizing, referring consultation information. A consultation management system also would allow communication and feedback to occur at any time. As reported by White [4], due to restrictions of face-to-face learning in universities, the usage of the online platform in learning is critical to ensure the learning process took place. Consultation is an important aspect in universities, therefore, investigating factors affecting user behavioral intention to use online consultation management system is compulsory. This importance has long been highlighted since the early 2000s in a study by Wang, Lin, and Luarn [37] as reported at that time, despite millions having been spent on an online system, users were reluctant to use it despite their availability. Wang, Lin, and Luarn [37] contributes by adopting TAM and TPB to investigate factors affecting their intention to use the online system. By investigating the factors affecting behavioral intention to use consultation management system, the study will contribute to the extension of TAM and TPB in educational online platforms, while providing critical information for universities policymaker. Therefore, it can be hypothesized that: Attitude has a positive and significant relationship with behavioral intention to use an online consultation system (H5).

### 3. RESEARCH METHOD

The research method followed a quantitative research approach using a questionnaire. The items of the questionnaire were adapted from the previous study [6], [33], [38]. The instrument was pre-tested by 6 experts from the field of information system (IS), library and information science (LIS), and business & management (BM). The experts were selected based on academic experience and academic qualifications. The expert review process took approximately a month. Improvement was made to the instrument in response to the expert's recommendations. Next, a pilot study was conducted and subsequently, reliability analysis was conducted to determine the reliability of the instrument. Table 1 shows the result of reliability analysis, with the value ranging from 0.826 to 0.944, confirming the reliability of the instrument [39].

Table 1. Reliability analysis of pilot study assessment

Construct	Items	Cronbach Alpha
SEF	5	0.826
PEU	4	0.921
EOU	3	0.884
ATT	3	0.916
BIU	3	0.944

The respondents were selected based on the convenience sampling method, due to difficulty to obtain the list of students. The selection criteria were based on: i) Enrolled as an active undergraduate student at Universiti Teknologi MARA in Malaysia for the current semester; ii) Has experience in using an online consultation management system; and iii) Has the access to the internet. With the help of the assistant registrar, an email invitation was emailed to students that meet the criteria as mentioned. To determine sample size, the rule-of-10 was adopted, indicating that the minimal sample size of the study is 90 and the maximum should be greater than 180 [40]. A total of 270 valid responses were received, indicating a sufficient number of respondents [41]. The data were coded, data cleaning was performed, before analysis using SPSS and SmartPLS. The following section describes the findings of the study.

### 4. RESULTS

Table 2 shows the demographic analysis of the respondents. A total of 270 respondents participated in the study. Most of the respondents are female (87% or N=235), while 13% or N=35 is male. In terms of respondents' age, most respondents are between 20 to 30 years old (87% or N=235). The faculty of Information Management provides the highest number of respondents (52.6% or N=142), followed by the Faculty of Business and Management (29.6% or N=80). From the context of education level, 63.7% or N=172 enrolled for the first degree while 36.3% (N=98) enrolled for a diploma.

Table 2. Demographic analysis of respondents

Item		Frequency	%
Gender	Male	35	13.0
	Female	235	87.0
Age (years)	Below 20	33	12.2
	20-30	235	87.0
	31-50	2	0.7
Faculty	Faculty of Information Management	142	52.6
	Faculty of Accountancy	12	4.4
	Faculty of Business and Management	80	29.6
	Faculty of Computer and Mathematical Sciences	29	10.7
Level of study	Others	7	2.6
	Diploma	98	36.3
	Degree	172	63.7

Table 3 shows the measurement model analysis result. The initial run shows that all variables meet the value as suggested by Hair *et al.* [42]. The factor loading for SEF between 0.621 to 0.839 (AVE 0.595, CR 0.879), PEU between 0.845 to 0.919 (AVE 0.809, CR 0.944), EOU between 0.885 to 0.909 (AVE 0.812, CR 0.929), ATT between 0.918 to 0.929 (AVE 0.856, CR 0.947), and BIU between 0.944 to 0.952 (AVE 0.899, CR 0.964). Therefore, it is assumed that convergence validity has been determined.

Table 3. Final assessment of convergence validity

Construct	Indicators	Factor loading	Average Variance Extract (AVE)	Cronbach's alpha	Composite reliability
Self-Efficacy (SEF)	SEF1	0.770	0.595	0.828	0.879
	SEF2	0.774			
	SEF3	0.835			
	SEF4	0.839			
	SEF5	0.621			
Perceived Usefulness (PEU)	PEU1	0.845	0.809	0.921	0.944
	PEU2	0.919			
	PEU3	0.919			
	PEU4	0.912			
Perceived Ease of Use (EOU)	EOU1	0.909	0.812	0.885	0.929
	EOU2	0.909			
	EOU3	0.885			
Attitude Towards ODL (ATT)	ATT1	0.928	0.856	0.916	0.947
	ATT2	0.918			
	ATT3	0.929			
Behavioral Intention Towards Consultation Management System (BIU)	BIU1	0.944	0.899	0.944	0.964
	BIU2	0.952			
	BIU3	0.948			

Subsequently, a Fornell-Larcker Criterion was conducted to assess the discriminant validity. Table 4 reveals result of the Fornell-Larcker Criterion. It is confirmed that all square root of the AVE's is bigger than its previous values, therefore indicates that discriminant validity has been achieved and measurement model analysis has been completed.

Table 4. Result of Fornell-Larcker criterion

	ATT	BIU	EOU	PEU	SEF
ATT	0.925				
BIU	0.784	0.948			
EOU	0.791	0.744	0.901		
PEU	0.748	0.737	0.799	0.899	
SEF	0.557	0.520	0.589	0.639	0.772

Upon completing measurement model analysis, structural model analysis was conducted. Results in Table 5 show that all hypotheses of the study are accepted. Self-efficacy has a positive and significant relationship with perceived usefulness (H1: Supported,  $t=5.260$ ,  $p=0.000$ ) and perceived ease of use (H2: Supported,  $t=12.736$ ,  $p=0.000$ ). Besides, perceived usefulness also influenced attitude towards using online consultation systems (H3: Supported,  $t=4.237$ ,  $p=0.000$ ). Similarly, perceived ease of use also has a positive and significant relationship with attitude towards ODL (H4: Supported,  $t=7.295$ ,  $p=0.000$ ). Next, attitude towards using online consultation systems also has been found positively influenced behavioral intention to use online consultation systems (H5: Supported,  $t=25.963$ ,  $p=0.000$ ). The full result of the study is illustrated in Figure 2.

Table 5. Relationship between variables (direct effect)

	Relationship	Coefficient	Std Deviation	t-value	p-values	Decision
H1	SEF → PEU	0.259	0.049	5.260**	0.000**	Supported
H2	SEF → EOU	0.589	0.046	12.736**	0.000**	Supported
H3	PEU → ATT	0.320	0.076	4.237**	0.000**	Supported
H4	EOU → ATT	0.535	0.073	7.295**	0.000**	Supported
H5	ATT → BIU	0.784	0.030	25.963**	0.000**	Supported

\* $t > 1.645$ ,  $p\text{-value} > 0.05$ , \*\*  $t > 2.58$ ,  $p\text{-value} < 0.01$

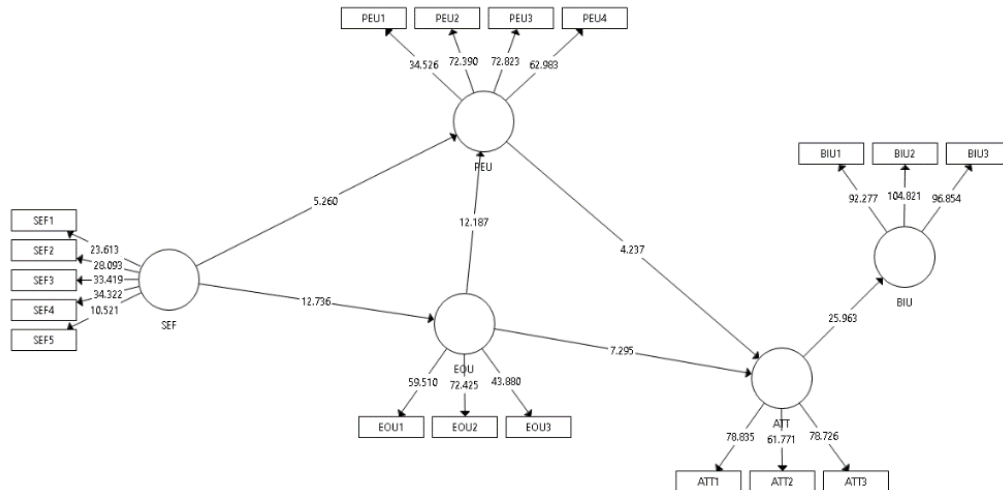


Figure 2. Final structural model of the study

The next step in the structural model analysis is to assess the model for the coefficient of determination score, or how many independent variables can explain the dependent variable(s). This study uses adjusted  $R^2$  instead of regular  $R^2$  because the value of  $R^2$  increased whenever additional predictors were included [43]. Based on the analysis in Table 6, the result shows that the exogenous variables are capable to explain 68.0% (moderate), 34.4% (weak), 61.3% (moderate), and 66.1% (moderate) of the endogenous variables (perceived usefulness, ease of use, attitude, and behavioral intention to use consultation management system).

Table 6. Result of coefficient of determination score

Construct	R Square	R Square Adjusted	Decision
ATT	0.663	0.661	Moderate
BIU	0.615	0.613	Moderate
EOU	0.346	0.344	Weak
PEU	0.682	0.680	Moderate

Subsequently, the level of effect size ( $f^2$ ) was assessed, with the value of 0.35 (large), 0.15 (medium), and 0.02 (small), as suggested by Cohen [44]. Table 7 presents the summary of the effect size for the study. The results show a value ranging from 0.110 to 1.596. ATT → BIU has the largest effect size (1.596) while PEU → ATT (0.110) has the smallest effect size.

Table 7. Assessing the level of effect size ( $f^2$ )

Relationship	$f^2$	Decision
ATT → BIU	1.596	Large
PEU → ATT	0.110	Small
EOU → ATT	0.308	Medium
SEF → EOU	0.530	Large
SEF → PEU	0.137	Small

### 5. DISCUSSION

From the studies, it can be said that government employees [7], [8] and university students [10], [11] would accept new technology if they found the technology is easy to use, useful and they have the knowledge to use it. The finding reveals important information on the practitioner to consider implementing new technology such as information systems, websites, or applications for clients, and employees. Practitioners may use the result of this study to develop an appropriate action plan in ensuring the success of the information development project, as well as reduce the probability of non-usage.

Likewise, our findings are consistent with the results reported by Isaac and Mutahar [7] that reveals how Internet self-efficacy predicts perceived ease of use and perceived usefulness, while perceived ease of use and perceived usefulness as an important predictor for actual usage. Our findings acknowledge that the actual usage of the product would be the goal of any information system product. This finding is also in line with the findings of Abdullah, Ward and Ahmed [10] where behavioral intention is influenced by perceived ease of use and perceived usefulness, while perceived ease of use and perceived usefulness were influenced by self-efficacy.

It can be concluded that information regarding employee self-efficacy is critical to an organization, as, to adapt to the dynamic environment of business, the organization need to introduce new technology, a new method, new ways of working to achieve its objectives and missions. The new technology that is introduced by the organization needs to be fully utilized by an employee as there is a wide range of business opportunities available via the latest technologies [8]. Besides, the emergence of COVID-19 also signals the importance of integrating the Internet of Things (IoT) and information system development factors into the future application of information system development [45]–[47]. On the other hand, Alotaibi and Alghamdi [48] also agreed that self-efficacy can help users to approve or disapprove of an information system development project.

Moreover, the finding of the study also indicated that self-efficacy has a large effect size on ease of use, indicating that improving one's computer efficacy greatly contributed towards acceptance and usage of the information system, as previous knowledge, and experience in using other applications may contribute to the subsequent usage of another application system. However, the effect size of self-efficacy on perceived usefulness is relatively small, indicating that having previous knowledge and experience in using a computer or application systems does not necessarily influence respondent perception concerning the usability and benefits of the information system usage. Moreover, perceived ease of use also has the largest value of R Square Adjusted in comparison with other variables, indicating that it is one of the important predictors for user behavioral intention to use an online consultation system.

## 6. CONCLUSION

The study discussed the relationship between self-efficacy and user behavioral intention to use online consultation systems in the context of a pandemic. A conceptual model was developed based on the technology acceptance model. The conceptual model was pre-test, through a series of activities included experts review, face validity, and pilot study (reliability analysis). The model was also validated through quantitative data collection. Findings showed that all hypotheses of the study are accepted, and the model exogenous variable is capable to explain between 34.4% to 68.00% of the endogenous variables (weak to moderate).

However, the study is not without a limitation. First, this study only focuses on the roles of self-efficacy in the prediction of user behavioral intention. Future studies may consider using more variables to explain the endogenous variables. We suggest using the technological factors of the information system success model (ISSM). Second, researchers may consider grouping exogenous variables into a dimension, such as technological factors, individual factors, organizational factors, contextual factors, and socio-economic factors. Third, this study only focuses on confirming the generalization of theory. Future study may consider a wide-scale data collection for population generalization.

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