The Effectiveness of Online Systems and Applications Usage for Online Final Examination amongst Academicians during MCO Period

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ABSTRACT

The study aims to analyze factors such as Perceived Ease of Use, Technology and Communication, and Facilitating Condition or Institution involvement in influencing the effectiveness of online systems and applications for final online examinations held at International Islamic University College Selangor (KUIS) during the period of Movement Control Order (MCO 2020). Basic model of Technology Acceptance Model (TAM) is applied in this research to study the effectiveness of online systems and applications used by academicians of KUIS who are involved in preparing final online examinations during MCO 2020. This is a quantitative research and questionnaire has been used as the research instrument. The questionnaires were distributed to KUIS academicians who were involved in preparing final online examinations during MCO 2020 and a total of 92 data have been collected. Through multiple regression analysis, it is discovered that Perceived Ease of Use is the factor that influenced towards the effectiveness of online systems and applications for final online examinations purposes at KUIS, while Technology and Communication factor, and Institutional or Facilitating Condition factor were not influenced. As a conclusion, by studying through these factors, the findings of this research study can serve and be beneficial towards KUIS and the teaching staff in the direction of improving the effectiveness of using online platforms for

online examination purposes.

Key Words: *Online Application, Online Final Examination, Perceived Ease of Use, Technology Acceptance Model (TAM), Movement Control Order.*

ABSTRAK

Kajian ini bertujuan untuk menganalisis faktor-faktor seperti Tanggapan Kebergunaan, Tanggapan Kemudahgunaan, Teknologi dan Komunikasi, dan Institusi dalam mempengaruhi keberkesanan penggunaan sistem dan aplikasi dalam talian bagi peperiksaan akhir di Kolej Universiti Islam Antarabangsa Selangor (KUIS) yang dijalankan semasa tempoh Perintah Kawalan Pergerakan (PKP 2020). Model Penerimaan Teknologi (TAM) digunakan sebagai model asas dalam kajian ini dalam melihat keberkesanan penggunaan aplikasi dalam talian yang digunakan oleh staf akademik KUIS yang terlibat dalam menyediakan kertas soalan peperiksaan akhir semasa PKP 2020. Soal selidik digunakan sebagai instrumen kajian. Kajian ini berbentuk kuantitatif dan soal selidik telah diedarkan kepada staf akademik yang terlibat dan sejumlah 92 data telah berjaya dikumpulkan. Melalui analisis regresi berganda yang dilakukan mendapati bahawa faktor Tanggapan Kemudahgunaan adalah faktor yang memberi pengaruh dalam keberkesanan penggunaan sistem dan aplikasi atas talian bagi tujuan peperiksaan akhir di KUIS, manakala faktor Teknologi dan Komunikasi, dan faktor Institusi adalah tidak berpengaruh. Secara kesimpulan, dapatan kajian ini dapat memberi manfaat kepada pihak institusi iaitu KUIS serta staf akademik dalam melihat faktor keberkesanan platform atas talian yang digunakan bagi tujuan peperiksaan atas talian.

Kata Kunci: *Aplikasi dalam Talian, Peperiksaan Akhir dalam Talian, Tanggapan Kemudahgunaan, Model Penerimaan Teknologi (TAM), Perintah Kawalan Pergerakan.*

INTRODUCTION

The COVID-19 pandemic, also known as the coronavirus pandemic is a global coronavirus 2019 pandemic caused by severe acute respiratory syndrome 2 (SARS-CoV-2) .The outbreak was initially detected in mid-December 2019 in the city Wuhan, Hubei, China, and was recognized as a pandemic by the World Health Organization (WHO) on March 11th, 2020.The Malaysian Government has declared a Movement Control Order (MCO) period on March 18th, 2020 to curb the spread of the virus, and it has affected various sectors including the education sector.

The MCO period implemented has been given an impact on the final examination system of the International Islamic University College Selangor (KUIS) session II 2019/2020. The traditional final examination system that is being carried out for all this while had to be changed to an online final examination. KUIS academicians have taken the initiative by conducting online final examination systems by using various platforms such as KUIS Learning Management System (KLMS), Google Apps, Socrative, e-mail and so on. Online examinations can be defined as publishing examination questions using the Internet and the examination results are generated automatically. Examination questions consist of various forms such as multiple choice, fill in the blanks and so on (Tufekci & Ekinci, 2013).

The basic model of Technology Acceptance Model (TAM) is applied in this research to study the effectiveness of online systems and applications used by academicians of KUIS who were involved in preparing final online examinations during MCO 2020. Perceived Ease of Use factor is based on TAM model, while the other two factors, which are Technology and Communication factor, and Institutional or Facilitating Condition factor are the external variables of TAM model.

The online examination system is a method that is increasingly applied by academicians today. Meletiou (2012) introduced an online exam system developed in order to ensure the provision of fast and effective learning processes for the users using the android system. Online exams can also reduce workload and save time (Yu, 2012). Not only that, the online examination application can also be handled easily when involving many candidates as has been conducted at the university of Spain, namely the foreign language examination of more than 200 people (Gimeno-Sanz & De Siquiera, 2012).

LITERATURE REVIEW

Perceived Ease of Use Factor

The Perceived Ease of Use factor refers to the user believes that the technology or system introduced can be used easily and problem-free (Davis, 1989). Zhang et al. (2008) studied the Perceived Ease of Use factor in determining user acceptance and found that this factor is important and influences the attitudes and behaviors of users to accept and use them.

Based on the focus of this study, the Perceived Ease of Use factor refers to academicians' perceptions towards the online examination platform being used whether it is easy or difficult to use. Academicians will be positive towards the acceptance of the platform if they find it is easy to use and then intend to use it again after this. Perceived Ease of Use factor is also found to have a positive influence on the Perceived Usefulness, because users think that when a technology introduced is easy to use, then the technology is also considered useful.

Ha^1: The Perceived Ease of Use gives significant influence towards the effectiveness of online platform use for examination.

Technology and Communication Factor

The Technology and Communication factor are important factor in determining the effectiveness of the online examination system. An educational system that was initially handled manually has been replaced by a more practical digital system. A typical example is the examination system (Mohammad A Sarrayih & Mohammed Ilyas, 2013). Online examinations have been widely used in many institutions as a convenient alternative assessment tool for evaluating students' learning outcome (Liu, 2015). There has been a rapid growth in the use of online examinations especially since the widespread implementation of the Learning Management System (LMS) in higher education in the early part of the twenty-first century (Stone, 2014). The digital world brings with it more and more opportunities to be innovative around assessment (Boitshwarelo et al., 2017).

Based on the focus of this study, the Technology factor refers to the facilities or infrastructures that the academicians have in terms of hardware, software and good Internet access in preparing online final examination, while the Communication factor refers to the online communication between academicians and students in implementing online final examination. Academicians will be positive towards this platform if they find they face not many problems in terms of Technology and Communication and then they intend to use it again after this.

Ha^2: The Technology and Communication give significant influence towards the effectiveness of online platform use for examination.

Institutional or Facilitating Condition Factor

The Institutional or Facilitating Condition factor refers to the degree to which an individual believes that institutional and technical infrastructure exists to support the use of a system and no issues should arise from the intention of adopting new technologies (Teo, 2009 and Paul et al., 2015). The traditional way of conducting examinations towards conducting them online has created a paradigm shift and integration between technology and the way of evaluating the student's degree of knowledge in education (Paul et al., 2015).

Based on the focus of this study, the Institutional or Facilitating Condition factor refers to the guidelines, facilities or infrastructures, and also technical supports that have been provided by the institution which is in this case was KUIS. KUIS had facilitated in providing online final examination guidelines, facilities and technical support towards its academicians. KUIS had also faced its challenges in order to allow its academicians to create, execute and maintain a proper order of online final examinations to students during the MCO period.

Ha^3: The Institutional or Facilitating Condition gives significant influence towards the effectiveness of online platform use for examination.

METHODOLOGY

This study used a quantitative approach by conducting a survey methodology. The study instrument used was a questionnaire developed based on a previous questionnaire by Septian (2018) and Alenezi (2011), which applied the TAM model in studies on the acceptance and effectiveness of online examination and online learning. The questionnaire was divided into five sections: (a) items on the demographic information of the respondents, (b) items regarding Perceived Usefulness factor, (c) items regarding Perceived Ease of Use factor, (d) items regarding Technology and Communication factor, and (e) items regarding Institutional or Facilitating Condition factor.

Data collection was done online through the Google Form. The study subject was the KUIS academicians who were involved in preparing final online examinations for session II 2019/2020 during the MCO period. The questionnaires used five Likert rating scales that ranged between 1 (Strongly Disagree) and 5 (Strongly Agree). Data were analyzed using the Statistical Package for

Social Sciences (SPSS) version 23. The multiple regression analysis, Anova and coefficient of Independent Variable has been used and presented in this study. Total of the study sample was 92 academicians from 7 faculties of KUIS as shown in Table 1.

TABLE 1: Total of Study Sample

Faculty	Sample
Faculty of Education (FP)	8
Faculty of Management and Muamalah (FPM)	18
Faculty of Islamic Civilization Studies (FPPI)	18
Faculty of Science and Information Technology (FSTM)	9
Faculty of Syariah and Law (FSU)	15
Core Studies Centre (PPT)	23
Matriculation Centre (PM)	1
Total	**92**

FINDINGS

Table 2 shows the demographic information of all respondents. In total of 92 respondents, 31 (33.7%) respondents were male, while 61 (66.3%) which was the majority respondents were female. Regarding age, 2 (2.2%) respondents were between 26 to 29 years old, 18 (19.6%) respondents were between 30 to 35 years old, 21 (22.8%) respondents were 36 to 39 years old, while 51 (55.4%) which was the majority respondents were 40 years old and above. As for the location, 4 (4.3%) respondents were preparing for an online final examination in the campus (KUIS staff's residence), while 88 (95.7%) which was the majority respondents were preparing for an online final examination outside the campus. Regarding the Internet speed, 60 (65.2%) which was the highest respondents said their Internet speed was good, 29 (31.5%) Internet speed's respondents was moderate, while the rest which was 3 (3.3%) Internet speed's respondents was poor. As for faculty, 9 (9.8%) respondents were from FSTM, 8 (8.7%) respondents were from FP, 18 (19.6%) respondents were from FPM, 15 (16.3%) respondents were from FSU, 18 (19.6%) respondents were from FPPI, 1 (1.1%) respondent was from PM, while 23 (25.0%) which was the highest respondents were from PPT. Regarding the examination platform, 9 respondents were using KUIS Learning Management System (KLMS), 53 which was the highest respondents were using Google Apps (Google Form, Google Docs, Google Sheets, Google Drive and so on), 1 respondent was using Socrative, while 24 respondents were using Microsoft Office & e-mail as their examination platform. As for examination platform items, the table cannot provide the valid percentage since one course may have chosen more than one option of examination platform.

TABLE 2: Demographic Information of the Respondents

		Frequency	Percentage (%)
Gender	Male	31	33.7
	Female	61	66.3
Age	26-29 years old	2	2.2
	30-35 years old	18	19.6
	36-39 years old	21	22.8
	40 years old and above	51	55.4
Location	In campus	4	4.3
	Outside campus	88	95.7
Internet speed	Good	60	65.2
	Moderate	29	31.5
Faculty	FSTM	9	9.8
	FP	8	8.7
	FPM	18	19.6
	FSU	15	16.3
	FPPI	18	19.6
	PM	1	1.1
	PPT	23	25.0
Examination platform*	KUIS Learning Management System (KLMS)	9	
	Google Apps	53	
	Socrative	1	
	Microsoft Office & E-mail	24	
	Others	32	
	Total	**92**	

**Cannot provide a valid percentage as one course may have chosen more than one option of examination platform.*

Table 3 shows the correlation between the Perceived Ease of Use score, Technology and Communication score, and Institutional or Facilitating Condition score to the effectiveness of online platforms in which all factors contribute about 65% (r= 0.806) towards the effectiveness of the online platforms. The dependent variable was Perceived Usefulness, while independent variables were Perceived Ease of Use, Technology and Communication, and Institutional or Facilitating Condition.

TABLE 3: Regression Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.801[a]	.641	.637	1.28789
2	.806[b]	.650	.642	1.27868
3	.806[c]	.650	.638	1.28587

a. Predictors: (Constant), Perceived Ease of Use score
b. Predictors: (Constant), Perceived Ease of Use score, Technology and Communication score
c. Predictors: (Constant), Perceived Ease of Use score, Technology and Communication score, Institutional or Facilitating Condition score
d. Dependent Variable: Usefulness score

Table 4 shows the result of ANOVA in three regression model, in which all factors, which are Perceived Ease of Use, Technology and Communication, and Institutional or Facilitating Condition score are significant towards the effectiveness of the online platforms, [$F(3,88) = 54.505$; $p < 0.001$)].

TABLE 4: Anova

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	266.590	1	266.590	160.727	.000[a]
	Residual	149.279	90	1.659		
	Total	415.870	91			
2	Regression	270.352	2	135.176	82.675	.000[b]
	Residual	145.518	89	1.635		
	Total	415.870	91			
3	Regression	270.365	3	90.122	54.505	.000[c]
	Residual	145.505	88	1.653		
	Total	415.870	91			

a. Predictors: (Constant), Perceived Ease of Use score
b. Predictors: (Constant), Perceived Ease of Use score, Technology and Communication score
c. Predictors: (Constant), Perceived Ease of Use score, Technology and Communication score, Institutional or Facilitating Condition score
d. Dependent Variable: Usefulness score (Effectiveness)

Table 5 shows three coefficients of independent variable which is perceived ease of use ($\beta = 0.703$, $t = 7.697$, $p < 0.001$), technology & communication ($\beta = 0.141$, $t = 1.395$, $p > 0.05$) and institution ($\beta = -0.007$, $t = -0.089$, $p > 0.05$). Perceived ease of use ($p < 0.001$) shows significant contribution to effectiveness of the online platform.

TABLE 5: Coefficient of Independent Variable

Model		Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	2.452	.753		3.255	.002
	Perceived Ease of Use score	.809	.064	.801	12.678	.000
2	(Constant)	2.083	.786		2.650	.010
	Perceived Ease of Use score	.709	.091	.702	7.761	.000
	Technology and Communication score	.131	.086	.137	1.517	.133
3	(Constant)	2.105	.826		2.549	.013
	Perceived Ease of Use score	.710	.092	.703	7.697	.000
	Technology and Communication score	.134	.096	.141	1.395	.167
	Institutional or Facilitating Condition score	-.007	.077	-.007	-.089	.929

1. Dependent Variable: Usefulness score (Effectiveness)

TABLE 6: Hypothesis Result

Ha^1	The Perceived Ease of Use gives significant influence towards the effectiveness of online platform use for examination.	Accepted
Ha^2	The Technology and Communication give significant influence towards the effectiveness of online platform use for examination.	Rejected
Ha^3	The Institutional or Facilitating Condition gives significant influence towards the effectiveness of online platform use for examination.	Rejected

Through analysis that has been done, it is discovered that Perceived Ease of Use factor is the aspect that influenced towards the effectiveness of online systems and applications for final online examinations purposes at KUIS while Technology and Communication factor, and Institutional or Facilitating Conditions factor were not influenced.

Regarding the Perceived Ease of Use factor, the academicians had been given the opportunity to choose which type of platform in preparing their online final examination courses. They had chosen the platform which they comfortable most with the good features and also easy to use and manage. The Perceived Ease of Use determines the acceptance or rejection of a new technology because the level of user acceptance of a technology introduced will increase when the

system developed is easy to use (Davis, 1989).

As for the Technology and Communication factor, there is no significant correlation between Technology and Communication towards the effectiveness of online platform use for examination. The reason for this could be that the academicians of KUIS are faced with problems of having not enough computer hardware and software as well as good Internet connection in preparing online final examination at home.

Regarding the Institutional or Facilitating Condition, this factor also has been rejected by the analysis. Khitam Yousul Shraim (2019) in her study found that successful implementation of online examination requires institutional support, including the clear guidelines in preparing and conducting online examinations, improving facilities and infrastructures, building the capacity of academic staff and providing them with guidance as well as technical support. Khitam Yousul Shraim also added that in the interests of sustainable development, the online examination approach should be embedded within the institution's strategic planning. In this case, the institution which is KUIS should provide more proper procedures, as well as facilities and infrastructures, and also technical support towards the successful implementation of online examination at KUIS.

CONCLUSION

This study has shown that Perceived Ease of Use factor has influenced towards the effectiveness of online systems and applications for final online examinations purposes at KUIS. By studying through these factors, the findings of this study can serve and be beneficial to KUIS and its academicians in the direction of improving the effectiveness of using online platforms for online examination purposes towards blended learning and also fully online learning in future. The implementation of an online system and application for final online examinations will have a significantly positive impact on the broader online education landscape, providing the same credibility and experience of physical examinations.

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