

SOCIO-DEMOGRAPHIC EFFECT ON E-LEARNING IN USIM DURING COVID-19 PANDEMIC

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Abstract

The e-learning is the only way available to ensure the Teaching and Learning can proceed during the outbreak period. However, this rarely used platform may induce several big challenges to both university's management and students. Thus, in this study, we are keen to investigate the effect of socio-demographic on convenience as well as the effectiveness of e-learning among students in USIM during COVID-19 using survey procedure. The questionnaire was distributed via email and WhatsApp group to the respondents. The descriptive statistics as well as the inferential statistics are used to interpret the responses received. Based on the results obtained, most of the students are convenient in using the e-learning platform but moderately effective. There are also some significant differences found for the convenience except age and household size, as well as the effectiveness except gender and faculty.

Keywords: *E-learning, Convenience, Effectiveness, High education.*

INTRODUCTION

The novel coronavirus (COVID-19) has caused thousands of death in over 200 countries and territories. Global international trade has undergone a huge backlash due to supply chain problems. Domestic use has also been limited by the movement control order (MCO) imposed in many countries. As announced by the International Monetary Fund (IMF), the world will likely face difficulties to avoid negative growth this year. Inevitably, not only does the spread of this epidemic have a significant effect on the economic situation, but it also has a major impact on global higher education.

Following the announcement of the COVID-19 as a pandemic by the World Health Organization (WHO) on March 11, all universities around the world were shut down to stop the spread. Some of the universities transfer their face-to-face teaching

and learning to virtual classrooms to prevent it from reaching the student populations and spreading to local communities. This leads to confusion in the administration of universities as well as students. Universities with advanced online learning (e-learning) systems have a high chance of effectively turning their face-to-face classrooms into e-learning. However, universities with technical and technological problems may face many hurdles in completing their curricula. For instance, the teachers who are less qualified to manage the internet and the peculiarities of managing a classroom through a screen and microphone may find this platform difficult.

Despite all schools and higher institutions being closed due to the spread of the COVID-19 pandemic, each country in the world is taking its initiative to develop online learning tools to ensure that the teaching and learning activities can continue. China began its new semester online on 9 February 2020, involving nearly 200 million students, including primary and secondary schools. As a starting point of e-learning implementation, The People's Republic of China's Ministry of Education formed planning strategies with school management agencies, online platform and course providers, telecommunications providers and other stakeholders to launch an initiative called "Ensuring undisruptive learning when classes are interrupted". This shows an impressive and remarkable response of China's education system towards the COVID-19 pandemic, whereby they managed to provide remote learning facilities in a short time for a huge scale of students (UNESCO, 2020).

Furthermore, as stated by the World bank (2020), since 1 April 2020, Argentina has started broadcasting educational content, called *Seguimos Educando* ("continuing to educate") specially created for students by its government. This program broadcasts 14 hours of television content per day and 7 hours of radio content per day with the participation of a teacher and a conductor together with the teaching materials. Its government also provides notebooks with learning materials and delivered to the home for students without access to technology or connectivity.

Thailand also has invested some funds in e-learning platforms such as SchoolNet, UniNet and e-learning portal Thailand Cyber University (Saekow and Samson (2011) and Saengpassa (2013). As been reported by Rueangprathum et al. (2009) cited in Ngampornchai and Adams (2016), there are 31 higher education institutions in Thailand have adopted learning management systems in their education system as a learning platform for students with lack access to higher education.

Apparently, one of the successful ways to cope with MCO is to use digital/online technology. Many have noticed that e-learning provides a tremendous benefit particularly in a large class where it can easily reach out to all students. COVID-19 and its effect on the university will be the catalyst for changing the

Malaysian higher education model, especially the teaching and learning matters. In this study, we aim to investigate the effect of socio-demographic factors on convenience and effectiveness of students towards e-learning in USIM during COVID-19 pandemic with the following hypotheses:

1. H_0 = The socio-demographic factors do not influence the convenience of the students towards e-learning.
 H_a = The socio-demographic factors do influence the convenience of the students towards e-learning.
2. H_0 = The socio-demographic factors do not influence the effectiveness of the students towards e-learning.
 H_a = The socio-demographic factors do influence the effectiveness of the students toward e-learning.

METHODOLOGY

A group of 1029 undergraduate students from Universiti Sains Islam Malaysia (USIM), Nilai, Negeri Sembilan, participated in the study. Based on the 95% confidence interval and 5% margin error, the minimum sample size required is 371, which is sufficient enough for the analysis.

The questionnaire was established essentially based on previous studies. The questionnaire has been distributed to the participants through Google-form links, where they give their consent before continuing to answer the questions. A pilot study of 42 respondents was carried out to ensure the acceptability of the variables involved. The responses of the respondents were collected and structures in Microsoft Excel before being exported for review to SPSS. Variables included in the analysis are convenience and effectiveness, whereby each consisted of five and six items. A Likert scale basis from level 1 to 5 is used to measure each item, where 1 represents "Totally disagree" and 5 represents "Totally agree".

The analysis contains both descriptive and inferential statistics to achieve our objective. Descriptive statistics are used to understand the socio-demographic characteristics of the respondents as well as the tools used during MCO in the e-learning process. The socio-demographic factors include gender, age, environment, household size, faculty, study period and preferred method.

The inferential statistics is carried out in this study to examine the effect of socio-demographic characteristics mentioned above with the variables (convenience and effectiveness).

RESULTS AND DISCUSSION

Descriptive Statistics

The reliability test performed in the first stage of the study was done to ensure the acceptability of the variables involved. The Cronbach alpha for the pilot sample (42 respondents) and the entire sample (1029 respondents) is shown in Table 1:

Table 1 *Cronbach's Alpha of factors affecting eLearning during MCO among USIM undergraduate students*

Factors	Pilot Test (N:42)	Total Respondents (N: 1029)
Convenience	0.749	0.823
Effectiveness	0.863	0.902

Based on Table 1, it can be seen that both variables have a high Cronbach alpha which is greater than 0.7. This strongly supports us to proceed with further analysis.

There are 75.6% of the respondents are females and 24.39% percent are males. This can be seen in Table 2 along with the socio-demographic features. The majority of the respondents in this study are 22 years old (31%) mainly from suburban areas, mainly living in suburban areas (38.97%) where half of them forms a family size of four to six (50.34%). Other than that, approximately 15% of the respondents are from the Faculty of Shariah and Law and only 1-3 months of e-learning is encountered by a bulk majority (73%). When asked about the preferred form of e-learning, approximately 60% of the respondents prefer a combination of face-to-face and virtual learning methods.

Table 2: Descriptive Statistics on Socio-Demographic Profile

Socio-Demographic Characteristics	Components	N	percentage
Gender	Male	251	24.39
	Female	778	75.61
Age	below 20 y/o	14	1.36
	20 y/o	274	26.63
	21 y/o	239	23.23
	22 y/o	319	31.00
	23 y/o	129	12.54
	24 y/o	44	4.28
	25 y/o and above	10	0.97
Environment	Urban	312	30.32
	Suburban	401	38.97

	Rural	316	30.71
Household size	1-3	60	5.83
	4-6	518	50.34
	7-9	381	37.03
	10-12	61	5.93
	More than 12	9	0.87
Faculty	Faculty of Quranic and Sunnah Studies	102	9.91
	Faculty of Leadership and Management	125	12.15
	Faculty of Syariah and Law	152	14.77
	Faculty of Economics and Muamalat	98	9.52
	Faculty of Science and Technology	131	12.73
	Faculty of Medicine and Health Sciences	89	8.65
	Faculty of Major Languages Studies	96	9.33
	Faculty of Dentistry	129	12.54
	Faculty of Engineering & Built Environment	107	10.40
eLearning period	Never	4	0.39
	Less than 1 month	72	7.00
	1-3 months	761	73.96
	3-6 months	141	13.70
	More than 6 months	51	4.96
Preferred method	eLearning	95	9.23
	Face-to-face lecture	327	31.78
	A blended learning of face-to-face lecture with eLearning	607	58.99

Table 3 provides descriptive statistics related to the variables involved. Since the number of students with low scores is small, the range for each factor is high compared to those with high scores. This can be explained further by looking at the high standard deviation which shows that the data widely deviate. The mean can be considered moderate for both variables. About the equal percentage of moderate (51.1%) and high (47.2%) convenience score, it can be considered that the students are convenient with e-learning. In contrast, most students (69.4%) have moderate effectiveness when studying using e-learning.

Table 3: Number of items, range and level of score for each factor affecting e-learning among USIM undergraduate students.

	N of items	Range	Minimum	Maximum	Mean	SD	Level %, N = 1029		
							Low	Moderate	High
Convenience	5	80.00	20.00	100.00	69.88	14.80	1.7	51.1	47.2
Effectiveness	6	80.00	20.00	100.00	63.42	15.88	4.4	69.4	26.2

Referring to Figure 1, most of the students use Microsoft Teams (49.9%) followed by the Global Open Access Learning System, GOALS, (35.75%). GOALS is the main platform for teaching and learning in USIM. The next choice network is Zoom which is at 11.41%. Even though most people have Google and Facebook accounts, people prefer the other choices due to bad server connection. As shown in Figure 1, only a small number of people use Google Meet (2.5%) and Facebook Live (0.29%). In addition, there are fewer students using Skype (0.05%) and Webex (0.1%) which may be attributed to the unfamiliarity and subscription fee required.

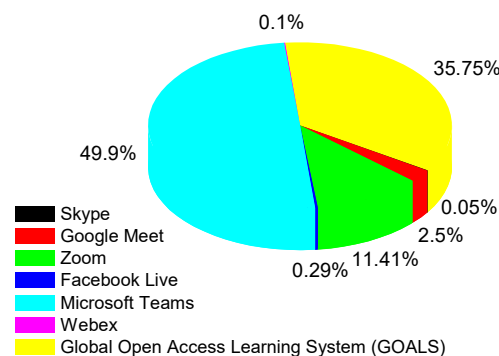


Figure 5: e-learning platform used by USIM undergraduate students during MCO

Inferential Statistics

A t-test and ANOVA test are used to see if there are any variations between the socio-demographic profiles concerning the variables based on the above-mentioned hypotheses. In Table 4, some important differences are identified for convenience variable in all socio-demographic elements except for age and household size. Meanwhile, for effectiveness, the differences are clear in all areas of socio-demographic characteristics except for gender and faculty.

Table 4: t-test and ANOVA results

Variables	Socio-demographic item	p-value	Null hypothesis rejected (or fail to reject) – 5%
Convenience	Gender	0.000	Rejected
	Age	NS	Fail to reject
	Environment	0.000	Rejected

	Household size	NS	Fail to reject
	Faculty	0.000	Rejected
	E-Learning period	0.02	Rejected
	Preferred method	0.000	Rejected
Effectiveness	Gender	0.03	Fail to reject
	Age	NS	Rejected
	Environment	0.000	Rejected
	Household size	0.000	Rejected
	Faculty	NS	Fail to reject
	E-Learning period	0.01	Rejected
	Preferred method	0.000	Rejected

Further post-testing is conducted using the post-Tukey method to explore the variations. For example, the substantial gender gap is seen high for both convenience and effectiveness. Furthermore, in terms of environment, both variables have significant differences, where the means are lower in rural areas. This is an important finding for lecturers and educators to understand the drawbacks of e-learning with students living in rural as well as suburban areas who have minimal internet access. In addition, the household size often plays an important role in ensuring the smooth implementation of online learning, although not as crucial as the environment variable. We discovered that those who have only 1-3 persons in the household have higher means compared to the other household size.

Concerning the differences across faculties, it is shown that the faculty of Dentistry has higher means in both variables. The reason for this finding is still vague and will be considered for further research. Another important result is seen in the e-learning period, in which those with more than 6 months of experience and preferred method in the e-learning process have significantly higher means for both convenience and effectiveness.

CONCLUSION

During pandemic COVID-19, most of the schools as well as the higher education institution worldwide were closed to avoid the spread of the outbreak. To ensure the

continuity and persistence of teaching and learning, many have adopted the e-learning platform in their education system which seems to be an obstacle at the beginning of the learning process. However, this platform is found to be convenient for some people especially those who are familiar with the technology. In this study, our main aim is to investigate the effect of socio-demographic factors on convenience as well as the effectiveness of e-learning among students in USIM, Nilai. The study was conducted qualitatively where the questionnaire was distributed to 1029 respondents via Google form. To analyze the results, the descriptive statistics as well as the inferential statistics have been done. Based on the responses received, we discovered that most of the students are convenient in using e-learning platform while they moderately find effectiveness while studying using e-learning. In addition, there are some important differences identified for convenience variable in all socio-demographic elements except for age and household size. In contrast, for effectiveness, the differences are clear in all areas of socio-demographic characteristics except for gender and faculty.

REFERENCES

- Ngampornchai, A., Adams, J. 2016. *Students' acceptance and readiness for E-learning in Northeastern Thailand*. International Journal of Educational Technology in Higher Education, pp. 13:34. DOI 10.1186/s41239-016-0034-x.
- Saekow, A., & Samson, D. 2011. *E-learning readiness of Thailand's universities comparing to the USA's cases*. International Journal of e-Education, e-Business, e-Management and e-Learning, 1(2).
- UNESCO. 2020. How is China ensuring learning when classes are disrupted by Coronavirus? Retrieved from <https://en.unesco.org/news/how-china-ensuring-learning-when-classes-are-disrupted-coronavirus>. (Accessed on 16 April 2020).
- World Bank. 2020. How countries are using edtech (including online learning, radio, television, texting) to support access to remote learning during the COVID-19 pandemic. Retrieved from <https://www.worldbank.org/en/topic/edutech/brief/how-countries-are-using-edtech-to-support-remote-learning-during-the-covid-19-pandemic>. (Accessed on 16 April 2020).