

# A STUDY OF STUDENTS' PERCEPTION AND LEVEL OF STUDENT MASTERY OF ONLINE LEARNING IN THE SCHOOL OF CIVIL ENGINEERING, UITM PAHANG

Normadiana Mohammad Hanapi <sup>1</sup>  
Mohd Mawardi Mohd Kamal <sup>2</sup>

<sup>1</sup> Pusat Pengajian Kejuruteraan Awam, Universiti Teknologi Mara Cawangan Jengka Pahang, Pahang, Malaysia  
Email: Normadiana@uitm.edu.my

<sup>2</sup> Pusat Pengajian Kejuruteraan Awam, Universiti Teknologi Mara Cawangan Jengka Pahang, Pahang, Malaysia  
Email: Mawardikamal@uitm.edu.my

## Article history

**Received date** : 1-3-2022  
**Revised date** : 2-3-2022  
**Accepted date** : 25-6-2022  
**Published date** : 1-8-2022

## To cite this document:

Mohammad Hanapi, N., & Mohd Kamal, M. M. (2022). A Study of Students' Perception and Level of Student Mastery of Online Learning in The School of Civil Engineering, UiTM Pahang. *Journal of Islamic, Social, Economics and Development (JISED)*, 7(46), 186 - 193.

---

**Abstract:** *The COVID-19 pandemic has created a new phenomenon where technology and the internet are no longer an option but a necessity, especially in the field of education. This can be seen where almost all the teaching and learning (T & L) processes have been implemented online. Therefore, this study aims to explore the impact of the COVID-19 pandemic on the perception and level of student mastery at the School of Civil Engineering in terms of knowledge and facilities for the online learning process. This study used a set of questionnaires as an instrument for the data collection process. The respondents consisted of 114 students who attended the Diploma in Civil Engineering programme at the School of Civil Engineering, UiTM, Jengka Pahang Branch. The data obtained from this questionnaire was analyzed using the Statistical Package for the Social Sciences (SPSS) version 28. Descriptive statistics are used to analyze the relevant data and answer the questions of the study. As a result of the analysis of the data for the Cronbach Alpha trust test, the value obtained was equal to  $0.897 > 0.7$ . This shows that the instrument is in good condition as well as effective and can be used in this study. Based on the results of the study, video recording is the student's preferred learning medium (mean = 4.11). The findings also show that there is a relationship between the aspect of knowledge and convenience (the value of  $\text{sig} = .001 < 0.05$ ) and the correlation value of 0.535, which means a strong relationship between the two variables.*

**Keywords:** *Covid19, student mastery, perception. e-Learning*

---

## Introduction

The declaration of a pandemic situation due to the spread of a new virus that has caused the COVID-19 pandemic by the World Health Organization (WHO) has had a direct impact on all sectors, including the education sector. As a measure to break the chain of infection, Malaysia has taken steps to implement the Movement Control Order (MCO), whereby people are advised to stay at home or work from home (Work from Home). This situation has greatly changed the landscape of every individual's life in the world today. On March 18, 2020, the Malaysian government declared a state of emergency, resulting in the postponement of face-to-face

learning throughout the IPTA. The Ministry of Higher Education (KPT) has decided that all learning and teaching (T&L) be implemented online and that all face-to-face T&L activities be suspended. In the context of education, as of March 2020, formal learning activities involving nearly 600 million students worldwide are affected by the closure of educational institutions either at the school level or higher education institutions (Goyal, 2020). As such, UiTM has implemented an online learning and teaching method, better known as "Online Distance Learning (ODL)". Online learning is categorized as the use of information technology to improve the quality of education. The concept of learning is also known as e-learning, which is influenced by the transformation of education from conventional into digital form, both in content and systems (Santoso, 2014). Previously, this teaching method was combined with the traditional methods under the supervision of face-to-face lecturers. This method has advantages and disadvantages for students and lecturers. The success of this method depends on several factors, such as accessibility, course content, use of delivery methods, and evaluation criteria. Online classes also have limitations and limitations, including problems with internet access, poor internet connection, quality of internet connection, and mastery skills of digital tools that are not fully dominated by students and lecturers.

Throughout the online learning session, there are some benefits and constraints faced by students and even lecturers. This came as a surprise to students and lecturers who had to carry out their online learning activities in full. This online teaching method also challenges the ability of lecturers to implement it (Bibi Noraini Mohd Yusuf and Jihan Ahmad 2020). We decided to analyze students' perceptions of the online teaching approach after almost 2 years of implementing the ODL method of learning.

### **Literature Review**

The National e-Learning Policy of Higher Education Institutions defines e-learning as the use of information and communication technology to facilitate the learning and teaching process. While Muzafar & Hasmadi (2019) dispute the e-learning readiness factor for students to undergo industrial training, the definition of e-learning is geared towards the use of electronic media and information and communication technology (ICT) as well as open, flexible, and scattered learning. In Malaysia, e-learning, or online learning methods, have been done for some time, especially in the Institute of Higher Learning. The use of e-learning contributes to a more flexible environment for teaching and learning. This is in line with the current situation in the whole world, the COVID-19 Pandemic. The importance of e-learning has long been recognized by Universiti Sains Malaysia (USM) since 1971 at the School of Distance Education (PJJ) USM (Omar, 2009). In this regard, online learning is the use of the internet to access learning materials; interact with content, teachers, and fellow students; and get support during the learning process in order to gain knowledge, build something meaningful, and be able to develop results from the learning experience (Ally, M, 2008). The most important thing for educators is to ensure e-learning can benefit and improve student learning outcomes and provide more brilliant teaching techniques for better learning outcomes. Hussein, Z. (2017) Effective online learning is related to the use of ICT in the learning process. The development of information and communication technology (ICT) has the potential to support the learning revolution based on six main dimensions (Santoso, 2014):

1. Connectivity: ease of communication and access to global information
2. Flexibility: learning can be done anytime and anywhere;
3. Interactivity: interaction between students with the content of the lesson as well as the learning of the environment and learning resources that can be carried out directly and directly;

4. Collaboration: the use of communication facilities and online discussions to support collaborative learning outside the classroom;
5. Expanding opportunities: e-learning materials that can enrich learning materials and develop materials for in-person encounters
6. Motivation: the use of multimedia that creates fun learning.

This method of learning creates a more flexible learning infrastructure where students and lecturers can communicate and learn at the same time, even though their locations vary. Therefore, virtual learning methods using various online mediums are necessary to streamline the learning process and ensure the continuity of information delivery to students. According to Amin et al. (2020), a lack of technical support, awareness, readiness, skills, resource materials, and infrastructure pose challenges to the adoption of e-learning. Trust issues, resistance to accepting change, and financial issues are also critical to the success of e-learning programs. In Malaysia, the application of online learning is mostly only implemented at the IPT level, which has a joint venture with a foreign IPT (Zaki, 2004). Hence, there are still many local institutions of higher learning that have not yet empowered overall online learning. However, the impact of the COVID-19 pandemic has changed the conventional learning approach to online learning overnight. As the application is drastically applied, the need to study the level of student readiness for online learning is important. This is to ensure that the learning objectives that have been set are achieved. In addition, it is also to ensure that students do not miss out on the learning sessions. Use of apps like Google Classroom, Google Meet, Google Form, Webex, WhatsApp, and Telegram are among the examples of online media that are often used in the learning and teaching process.

In discussing the practice of using the online medium by students for the home learning process in the era of the COVID-19 pandemic, surveys were conducted on several past studies or existing writing. The first study referred to was Fariza Khalid, Md. Yusoff Daud, and Aidah Abdul Karim (2015). The result of an analysis of a survey conducted on 56 undergraduate students showed that the students exhibited a positive attitude and view towards the collaborative learning process using technology. The ease of internet access is an important factor in the e-learning process and affects the effectiveness of the e-learning method. An inappropriate learning environment will be an infrastructure barrier for students in the e-Learning process (Zalat MM et al., 2020). According to S. Bali (2018), some students are very comfortable with implementing online learning as it encourages them to be more innovative with computer technology. Therefore, this study aims to explore the impact of the COVID-19 pandemic on the perception and level of student mastery at the School of Civil Engineering in terms of knowledge and facilities for the online learning process.

## **Methodology**

When conducting a study, there are several factors that need to be taken into account when choosing a respondent, i.e., taking into account the time limit and permission to access the place of study (Miles, Huberman & Saldana, 2019). The method of work in this study is based on a survey question using the Google Form platform, where the link to the questionnaire is disseminated using applications such as WhatsApp and Telegram. This study involved 114 students in semester 5 at the UiTM School of Civil Engineering, Jengka Branch, Pahang as the respondents. In summary, the survey was conducted using a quantitative method whereby the data collected was based on a questionnaire using a Likert scale with five answer options, i.e., 1–5 (Very agree–Very disagree). The study instruments are divided into 4 sections, namely sections A, B, C, and D. Part A contains the demographic information of the respondent. Section

B contains 6 questions related to online medium selection. Section C has 7 questions regarding the level of student mastery in terms of knowledge, and Section D has 5 questions regarding the level of mastery of students in terms of facilities. The data, which was collected, was analyzed using a descriptive version of the Statistical Package for Social Sciences for Windows Version (SPSS) software such as mean score, percentage, and standard deviation, along with the Cronbach Alpha Reliability Test and Correlation Test (Pearson) to study the relationship between knowledge levels and student facilities.

## Results and Discussion

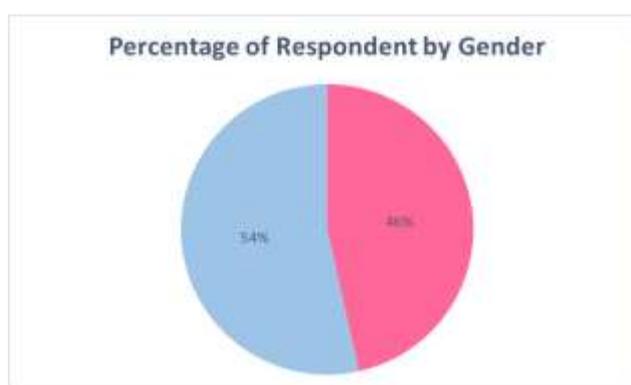
**Table1: Reliability Test**

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.897	.902	18

The findings of the pilot study analysis found that the reliability value that refers to the Alpha Cronbach value is 0.897 as per Table 1. This shows that the instrument is in excellent condition and effective, with a high level of consistency and can be used in actual research (Bond & Fox, 2015).

**Table 2: Score Interpretation of Cronbach Alpha**

Cronbach Alpha Score	Reliability Level
0.8 – 1.0	Excellent and effective with high concentration levels
0.7 – 0.8	Good and acceptable
0.6 -0.7	Acceptable
< 0.6	Items need to be repaired
<0.5	Items need to be removed



**Figure 1: Percentage of Gender Respondent**

### Respondent Profile

The demographic profile of the respondents who participated in this study is shown in Figure 1. A total of 114 respondents were involved in this study. They consisted of 46% of female respondents and the remaining 54% of male respondents.

### Online Learning Methods

For the purpose of descriptive data interpretation, the findings are based on Jainabee & Jamil's mean score table (2009) as stated in Table 3.

**Table 3: Interpretation of Score Mean**

Mean Score	Interpretation
1-1.8	Very Low
1.81-2.6	Low
2.61-3.40	Medium
3.41-4.20	High
4.21-5.00	Very High

Source: Jainabee & Jamil (2009)

**Table 4: Mean Score for Online Learning Methods**

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
GC,GS AUDIO	114	1	5	3.91	.847
GC,POWERPOINT	114	2	5	3.95	.818
GM,WEBEX,MT	114	2	5	3.88	.811
WS,TELE	114	1	5	3.69	1.098
POWERPOINT	114	1	5	3.95	.850
RECORDED VIDEO	114	1	5	4.11	.963
Valid N (listwise)	114				

According to Table 4, the video recording method is the student's preferred choice with a high mean value (4.11), followed by Google Classroom and PowerPoint notes (3.95), Google Slide (3.91), Live Lecture (Google Meet, Webex, Microsoft Teams =3.88) and via WhatsApp or Telegram application (3.69). The results of this study also stated that video recording is the preferred choice as it makes it easier for students to use as one of the reference materials during their review week before facing the final exam.

### Analysis of Student Mastery Level from Aspects of Knowledge

The findings of this section are analyzed based on 7 questions in Section C and 5 questions in Section D. Based on the findings of this section, it shows that the highest mean score is an item related to students' having the skills to operate a computer or mobile phone well for online learning and student mastery of online learning applications with a mean score of 4.04. This shows that the students' mastery towards online learning is at a high level. The item that recorded a relatively low mean score (3.41) compared to other items was the student's interest in online learning. This shows that if students are given a choice, face-to-face teaching and learning are their top choices. However, with an average value of 3.81, students' overall level of knowledge on online learning is at a high level. A summary of the findings is disclosed in Table 5.

**Table 5: Student Knowledge Level Against Online Learning**

No.	Item	Mean	Knowledge Level
1.	Basic skills in online learning	4.00	High
2.	Constantly increase the level of knowledge in online learning	3.84	High
3.	Knowing the types of online learning mediums	3.91	High
4.	High level of effectiveness and understanding if online learning is implemented	3.46	High
5.	Interest in online learning	3.41	High
6.	Skills in operating computers and mobile phones for the purpose of online learning	4.04	High
7.	Skills in using online learning applications	4.04	High
<b>Overall Average</b>		<b>3.81</b>	<b>High</b>

#### **Analysis of Student Mastery Level from Facilities Aspects**

Based on the findings of this section, the highest mean score (4.05) is on item number 4, where students own a computer and a mobile phone for online learning. This demonstrates that almost all students have complete access to online learning. Meanwhile, items related to internet access recorded a low mean value compared to other items of 3.58. This also shows that the quality of internet access affects the smooth running of the online learning process. The quality of internet access is also influenced by the area of residence of students. Based on the data obtained from this study, internet access in urban areas is better compared to rural areas. A summary of the findings is disclosed in Table 6.

**Table 6: Student Facilities Level Against Online Learning**

No.	Item	Mean	Facilities Level
1.	Internet access capabilities	3.66	High
2.	Sufficient internet access	3.68	High
3.	Quality of internet access	3.58	High
4.	You must own a computer and a mobile phone.	4.05	High
5.	Have enough learning aids	3.97	High
<b>Overall Average</b>		<b>3.79</b>	<b>High</b>

#### **Analysis of the Relationship Between Knowledge Levels and Student Facilities**

Next, the Pearson correlation analysis was used to determine whether there was an association between two variables: aspects of knowledge and convenience. The relationship between these two variables was tested, taking into account the strength of the relationship guided by the Relationship Strength Scale by Cohen, Manion, and Marrison (2011) as shown in Table 7.

**Table 7: Strength of Relationships by Correlation Coefficient Value**

Correlation Coefficient (r)	Correlation Strength
±.81 until 1.00	Very Strong
±.51 until .80	Strong
±.31 until .50	Medium
±.21 until .30	Weak
±.01 until .20	Very weak

The results of the Pearson's-Correlation Analysis study in Table 8 showed there was a significant relationship between the two variables with significant values,  $p < .05$ . There is a strong and positive correlation between knowledge and facilities,  $p = .001$ , and Correlation Coefficient,  $r = 0.535$ . This is because these two aspects affect the effectiveness of online learning.

**Table 8: Pearson Correlation Analysis**

Correlations			
		KNOWLEDGE	FACILITY
KNOWLEDGE	Pearson Correlation	1	.535**
	Sig. (2-tailed)		<.001
	N	114	114
FACILITY	Pearson Correlation	.535**	1
	Sig. (2-tailed)	<.001	
	N	114	114

\*\* . Correlation is significant at the 0.01 level (2-tailed).

### Conclusion

Overall, the level of student mastery at the School of Civil Engineering in the aspects of knowledge and facilities towards online learning is very high. This is based on the value of the mean score that was analysed in this study. This is because students have been exposed to the online teaching and learning system for a period of 2 years. However, the process of online teaching and learning still needs to be explored and understood in more depth, both by the lecturers and the students themselves. According to the findings of this study, students are more likely to follow online learning through video recordings provided by lecturers. However, the students suggested that the video footage be made more concise, compact, and interesting. In addition, the level of students' mastery in online learning is also influenced by the knowledge and facilities that students have towards the needs of the online learning process. This can be proven by the strength of the relationship between knowledge and facilities in the following online learning.

### Acknowledgement

Thank you to those who have assisted in the completion of this study, especially to the respondents of this study, namely semester 5 students of the Diploma in Civil Engineering, School of Civil Engineering, and all individuals in UiTM Jengka Pahang Branch who are directly or indirectly involved in this study.

## Reference

- Ally, M, “Foundations of Educational Theory for Online Learning: Theory and Practice”, 2008.
- Amin Almaiah, M., Al-Khasawneh, A. & Al Thunibat, A. (2020). Exploring the critical challenges and factors influencing the e-Learning system usage during COVID-19 pandemic. *Education and Information Technologies*. 22 : 1–20.
- Bibi Noraini Mohd Yusuf, and Jihan Ahmad, “Are We Prepared Enough? A Case Study of Challenges in Online Learning in a Private Higher Learning Institution during the Covid-19 Outbreaks.” *Advances in Social Sciences Research Journal*, 2020, pp. 7(5):205–12.
- Bond, T. G., & Fox, C. M, “Applying The Rasch Model Fundamental Measurement in the Human Sciences. (Routledge & T. & F. Group, Eds.) (Third Edit). New York & London” , 2015.
- Cohen, L., Manion, L., & Marrison, K, “Research methods in education ” ,2011.
- Fariza Khalid, Md Yusoff Daud & Aidah Abdul Karim, ”Pemilihan Aplikasi Teknologi sebagai Medium Perkongsian Maklumat oleh Pelajar Siswazah Universiti. ASEANComparative Education Research Network Conference”, 2015.
- Goyal, S. (2020). Impact of Coronavirus on Education in India
- Hussein, Z, “ Leading to intention: The role of attitude in relation to technology acceptance model in e-learning. *Procedia Computer Science*” , 2017, pp. 105, 159-164.
- Jainabee Kassim & Jamil Ahmad, “ Kualiti Kepimpinan Pengetua Sekolah-sekolah Menengah Kebangsaan Zon Selatan, Malaysia. Seminar Nasional Pengurusan dan Kepimpinan Pendidikan ke-16 pada 21 –24 Julai 2009 di Auditorium Dato’ Razali Ismail, Institut Aminuddin Baki, Genting Highlands” ,2009.
- Miles, M. B., Huberman, A. M, & Saldana, J., (2019). *Qualitative Data Analysis: A Sourcebook of New Methods* (4th ed.). SAGE Publications.
- Mustafar dan Hasmadi,” E-Learning Methods During Industrial Training”, 2019.
- Omar, R., & Ahmad, J. H., “ Kesedaran, Penilaian dan Penerimaan e-Pembelajaran dalam Kalangan Ahli Akademik (Awareness, Evaluation and Acceptance of e-Learning Among The University’s Academic Staff). *Jurnal Pendidikan Malaysia (Malaysian Journal of Education)*”,2009, 34(1), 155-172.
- S Bali and M C Liu (2018). Students' perceptions toward online learning and face-to-face learning courses. *Journal of Physics: Conference Series*, Volume 1108, Mathematics, Informatics, Science and Education International Conference (MISEIC) 2018 21 July 2018, Surabaya, Indonesia.
- Santoso, H., & Wyn, W.E. , “Primary School e-Learning Development as a Social Study”, 2014.
- Zaki, S. M, “The relationship between the Level of Understanding of eLearning and Self-Instruction Learning Readiness among Staff Akademik UTMSkudai. *Universiti Teknologi Malaysia*”,2004.
- Zalat MM, Hamed MS, Bolbol SA (2021) The experiences, challenges, and acceptance of e-learning as a tool for teaching during the COVID-19 pandemic among university medical staff.