

Factors Affecting Student Participation and Performance in Online Learning

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Abstract

Institutions in Malaysia have implemented online learning from pre-school right up to tertiary level since the start of the year 2020 due to the Coronavirus (COVID-19) pandemic. By implementing such method in delivering knowledge and skills, it allows students to be more convenient in accessing the learning platform from anywhere. One of the benefits for millennials is that they are adept with all of the latest technology there is – devices, applications, and software. Technologically skilful students are not a guarantee that they are able to exhibit exemplary participation as well as achieving good results in online classes. This study is to address this issue. It aims to investigate whether online learning experiences, the accessibility of online learning platforms, and self-efficacy to learn online, induce a difference in their participation and performance in online learning. Data collected from 138 students of Politeknik METrO Betong Sarawak (PMBS) who were directly involved in online learning showed that the respondents' participation and performance are affected greatly by online learning experience, accessibility, and self-efficacy. The most preferred online learning method is pre-recorded lectures. Most of the respondents stated that the biggest challenge in online learning is insufficient internet data or quota. In the future, the Government should come out with a well-devised plan to help students who come from rural areas in Malaysia. Institutions need to introduce offline e-learning to help students receive sufficient but quality education from distance learning.

Keywords: - factors, online learning, participation and performance

1. Introduction

The world was shaken by the news of Wuhan, China being attacked by the Corona virus (COVID-19) at the end of 2019. The virus had killed thousands of people in the affected area in China within fifty days and in a short period the virus spread worldwide (Shahzad et al., 2020). Due to this dire situation, many industries have been affected along with the education line. According to O'Hagan (2020), the closure of schools in 195 countries in April 2020 affected 1.5 billion learners from pre-primary to higher education. Many countries started implementing online learning methods including Malaysia. When the Government of Malaysia started imposing the Movement Control Order (MCO) on 18th March 2020, the Higher Education Ministry (MOHE) announced that no face-to-face sessions were allowed and all lectures must be conducted hundred percent online beginning 27th March until 31st December 2020 (Bernama, 2020). Government of Malaysia together with universities and colleges quickly deployed the strategy to protect and safeguard all students in order to control the infection (Sulieman, n.d.).

The drastic changes of teaching and learning from the traditional classroom method to fully utilising online learning without any proper preparation impacted both educators and students. With the sophisticated technology, lessons and assessments are

conducted through online (Chung et al., 2020) with the flexibility and accessibility according to professional and personal abilities (Ahmad and Chua, 2015) to ensure the continuity in learning. Online learning can be conducted through various channels of technology-based learning such as YouTube, video conferencing, websites, learning portals, mobile apps, and etc.

Politeknik METrO Betong Sarawak (PMBS), a Technical and Vocational Education and Training (TVET) institution under Jabatan Pendidikan Politeknik dan Kolej Komuniti (JPPKK), had started the online learning partially before the government announced the MCO, to achieve the blended learning (BL) status of the Learning Management System (LMS) platform namely CIDOS (Curriculum Information Document Online System) which is part of the Key Performance Indicator (KPI) for the current year. The advantage of CIDOS in the teaching and learning process is to prepare lecturers and students to adapt with the new pattern in conducting and attending classes. Most of the lecturers in PMBS are actively using CIDOS to deliver lessons and conduct assessments due to its user-friendly features. When the government ordered all schools, colleges and universities to shut its doors, PMBS started using Microsoft Teams, Google Meet, and Zoom to conduct classes through video conferencing; however still using CIDOS as the platform to run the assessments.

Even though PMBS had already been practicing the use of LMS in the teaching and learning process, students still struggle to present during online classes as well as completing their assessment on time. This matter has caught the attention of all the lecturers' whether the knowledge and skills delivered during the online classes were able to be absorbed and understood by fellow students as clearly as the face-to-face sessions; and whether there is any effective two-way communication present between lecturers and students during the question-and-answer sessions. Thus, this study aims to examine whether the online learning experience, the accessibility of online learning platforms, and self-efficacy to learn online influence students' participation and performance in online learning. In addition to that, this study also observes students' preference in online learning platform as well as the challenges and obstacles that they might be facing.

In particular, the relationship between students' participation and performance in online learning with online learning experience, accessibility as well as self-efficacy has yielded several important research questions. This study was guided by the following research questions:

1. Do online class experiences influence students' participation and performance in online learning?
2. Does accessibility influence students' participation and performance in online learning?
3. Does self-efficacy influence students' participation and performance in online learning?
4. Which online learning method is preferred by students?
5. What are the challenges students face in online learning?

2. Literature Review

The first educational institution that fully implemented online learning was University of Phoenix in the year of 1989 (Sarkar, 2020). Then, the method of online learning is widely spread due to the advancement of internet technology and computer software (Adams et al., 2018).

2.1 Online Learning

Online learning, also known as electronic learning or e-learning (Abernathy, 2019) using the communication technologies, deliver the learning process anywhere and anytime (Magano and Carvalho, 2010). Some of the authors define e-learning as a platform to deliver the teaching and learning process using the applications of new technologies such as web-based and computer-based learning, as well as virtual classrooms (Moore et al., 2011). The changes of face-to-face class to online class actually give many benefits to the lecturers and students where the teaching and learning process can be conducted

anywhere and anytime subject to the availability of good internet connection. A study shows that majority of the students agreed that online learning gives them flexible time to complete their assignments within the timeframe given as well as to understand on the topics according to their momentum at any place where they feel comfortable (Gilbert, 2015). Not only flexible but also cost-saving for students who stay far away from the campus; they are able to reduce their transportation and accommodation costs. This was proven by Battaglino et al. (2012) in their study where the virtual school model shows the lowest spending for student services, school operations, technology, content, as well as faculty and admin compare to traditional and blended school model. Even though online learning gives advantages to both institutions and students it does not guarantee the quality of lectures and students' performance at the end of the day.

2.2 Students' Participation and Performance

One of the obstacles that students face in an online class is the gap between them and their lecturers. Nevertheless, in face-to-face classes two-way communication can be seen when students are unable to understand the topics and they can discuss on the spot with the lecturers by discussing examples and further explanation on that particular topic. However, when it comes to online learning, as Coldwell, et al. (2008) stated that reasons behind the reduced participation in class is due to lack of time, lack of interesting questions, and not comfortable with the medium as well as learning style preference. Gray and DiLoreto (2016) mentioned about the outcome of metacognitive skills during the online class by encouraging them to think critically, discussing related issues with the topics, offer positive feedback on their assessments, flexible schedule, etc. so that students will participate more in the online discussion.

Meanwhile, the performance of students can be measured through their completed assessments at the end of the semester. For this study, performance is measured by the Grade Point Average (GPA) which requires students to complete both Continuous Assessment (CA) which carries 80%, and Alternative Assessment (AA) attributing the remaining 20%. This value was laid down by JPPKK due to the commencement of online learning as the method of teaching and learning during this crisis. According to Coldwell et al. (2008), students' performance are influenced by their study habit, the level of knowledge and understanding, the ability to communicate, time management, as well as how effective the lecturers is in conducting the class. Coldwell, et al. (2008) continues by stating that performance cannot be directly affected by the level of participation. Some of the students might perform well even though they show lower interaction and participation during class. Gifted students might take online learning as an opportunity as they can study according to their pace

and think that it is their responsibility for their learning as well as working independently (Gilbert, 2015) even though not fully active during the online class.

2.3 Online Learning Experience

Different students have different levels of experience in online learning. Some of them might encounter pleasant experience while others might not, depending on their interest, the availability of devices, the quality of internet connectivity, and online learning environment. According to Lin and Chiu (2007), online learning environment can recognise learners' heterogeneous characteristics including experience, skills, and attitude differences. In Maheshwari (2021) students' perceived enjoyment will ultimately influence their intention to use technology to continue their learning thus increasing their performance. Muthuprasad et al. (2021) stated that an online class experience in their study reported that 47.23% of the respondents had previously attended the online class and 67.1% had agreed to continue the rest of the class online.

2.4 Accessibility

Wikipedia (2021), accessibility is defined as the ability to access a particular system or entity which is usable and beneficial to people. According to Hussin et al. (2016) having accessibility during online learning will allow students convenient access to education opportunities including content and instruction; flexibility in terms of time and location as well as cost-effectiveness in improving students' performance. Al-Ahmadi and Drew (2017) states that the accessibility of university websites plays an important role for students to access all the online learning materials. An ineffective institution's website will be affecting students' participation and performance because they are unable to do the preparation before class or sit for an exam.

2.5 Self-Efficacy

Apart from that, Puzifferro (2008) states that self-efficacy is about the ability and engagement in achieving the goals which is influenced by motivation either intrinsically or extrinsically. Students need to be motivated in learning because it will increase the level of self-esteem during any online learning session. The environment of online learning is different compared to a physical class. Sometimes students might face difficulty in concentrating during class due to unfavourable environment. Since the teaching and learning session is switched to the online method, students might not feel confident to score certain subjects and courses which in turn might affect their performance. According to Ismail et al. (2017), self-efficacy is considering the confidence level of students in mastering subjects in a new environment which in this study, refers to online learning. The study of the relationship between self-efficacy and GPA grade scores of students reported that there is

positive relationship between capabilities with performance of students compared with self-beliefs (Ismail et al. 2017). Another study also analysed the positive influence of capabilities on students' performance (Jungert and Rosander, 2010) where lack of capabilities for the subjects will lead to poor performance.

The research framework is shown in Figure 1.

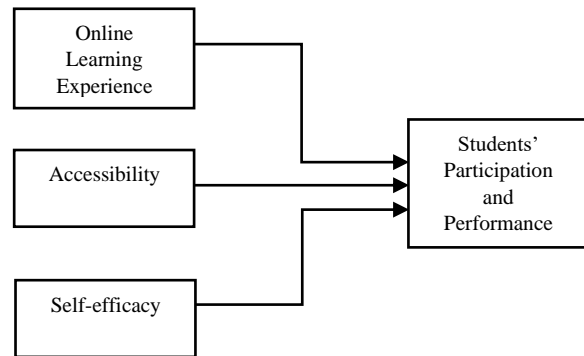


Figure 1: Factors affecting students' participation and performance in PMBS

3. Methodology

3.1 Pilot Test

A pilot test was conducted to analyze the 24 items in the questionnaire with the participation of 11 students during an online learning session at PMBS. The results indicated strong reliability with Cronbach's alpha 0.939, and significant correlation $r = 0.884$, $p < 0.001$ between online learning experience, accessibility and self-efficacy. Cited in Nawi et al. (2020), it is suggested that the pilot analysis should be equal to or more than 0.60. Thus, initial reliability as well as the significant correlation were supported in this pilot test.

3.2 Context and Participation

This study utilizes the quantitative research design. The participants consist of semester one to semester six students from PMBS who were directly involved in online learning. An online questionnaire using Google Form was distributed to the class representative using WhatsApp. 138 usable responses out of 140 respondents were obtained from a variety of students from two different programs with a total response rate of 95.7%. Primary data for this study was collected from PMBS's students from Commerce Department, and Tourism and Hospitality Department. The sample was selected randomly. Respondents were asked to respond to the 16-items with a 5-point Likert-scale, with anchors from 1 (Strongly disagree) to 5 (Strongly Agree). Besides that, there was also one item each to find out students' response on least and most preferred online learning style, and challenges faced by them in online learning.

Table 1, the 138 of respondents are made up of 69.6% female students and 30.4% male students. The

age group of the respondents below than 20 years old are 34.1%, and 65.9% is between 20 to 29 years old. 50.7% of the respondents are from Diploma in Banking and Finance (DKB) while the remaining 49.3% are from Diploma in Tourism Management (DUP). Meanwhile, 24 (17.4%) respondents are from semester 1, 18 (13%) are from semester 2, 20 (14.5%) are from semester 3, 43 (31.2%) are from semester 4, 9 (6.5%) are from semester 5, and the remaining 24 (17.4%) are from semester 6 and above for the current semester (December 2020 session).

Table 1: Respondents' demographic backgrounds.

Demographic Backgrounds	Variable	Frequency, n	Percentage, %
Gender	Male	42	30.4
	Female	96	69.6
Age	< 20	47	34.1
	21 – 29	91	65.9
Program	Diploma in Banking & Finance	70	50.7
	Diploma in Tourism Management	68	49.3
Semester	1	24	17.4
	2	18	13.0
	3	20	14.5
	4	43	31.2
	5	9	6.5
	≥ 6	24	17.4

3.3 Reliability Test

It is important to test the reliability of the dimensions in this study. Data collected via Google Form was screened and transferred to Statistical Package for Social Science (SPSS) version 26 for analysis. The values of composite reliability in this study were between 0.654 to 0.961 as showed in Table 2. Cited in Said (2018) the value of Cronbach Alpha between 0.60 and 0.80 is acceptable.

Table 2: Reliability analysis.

Dimension	Items	Composite Reliability
Online Learning Experience	4	0.727
Accessibility	4	0.878
Self-efficacy	4	0.654
Students' Participation and Performance	12	0.961

Correlation among the 3 dimensions as shown in Table 3 are positively, and significantly correlated to each other, with P value < 0.001 with the highest correlation of 0.637 between self-efficacy in online learning and students' participation and performance.

Table 3: Correlation among the dimension.

	1	2	3	4
Online Learning Experience	1			
Accessibility	0.560**	1		
Self-efficacy	0.408**	0.523**	1	
Students' Participation and Performance	0.461**	0.522**	0.637**	1

4. Finding and Analysis

4.1 Students' Participation and Performance

Factors affecting students' participation and performance among respondents were measured by calculating the mean for the three dimensions in this study. These three dimensions were online learning experience, accessibility, and self-efficacy. Table 4 shows a range of 3.47 to 3.85 for mean scored which represents moderate level of students' participation and performance in online learning. The findings suggest that the respondents had the highest level of participation and performance in self-efficacy in online learning dimension, but had the lowest mean score in the online learning experience dimension. Alqurashi (2016) also discovered students' self-efficacy actually affects their participation and performance. Students who had higher levels of self-efficacy in online-seeking information were able to use the information and showed better knowledge input in online learning.

Table 4: Mean for the dimensions.

	Mean, μ	Standard Deviation
Online Learning Experience	3.47	0.6822
Accessibility	3.49	0.7992
Self-efficacy	3.85	0.5768
Student's Participation and Performance	3.66	0.7352

*Mean calculation is based on the Likert Scale of 5

4.2 Relationship Between Online Learning Experience, Accessibility, and Self-efficacy with Students' Participation and Performance

This study hypothesized that online learning experience (OLE), accessibility (A), and self-efficacy (SE) in online learning have a statistically impact on both students' participation and performance (PP). Multiple regression was used to identify whether there is significant relationship between online learning experience, accessibility, and self-efficacy with students' participation and performance in online learning.

Table 5: Hypothesis testing.

Hypothesis	Path	Standardized Coefficient	P Value	Conclusion
H ₁	OLE → PP	.166	.032	Failed to reject
H ₂	A → PP	.181	.030	Failed to reject
H ₃	SE → PP	.474	.000	Failed to reject

*significant at $p < .001$, and $p < .05$.

The multiple regression with the dependent variables produced $R = 0.688$, and $R^2 = 0.473$ (indicates 47.3% of students' participation and performance in online learning are influenced by online learning experience, accessibility, and self-efficacy). From Table 5, results indicate positive relationship towards online learning experience ($p = .032 < .05$), accessibility ($p = .03 < .05$), and self-efficacy ($p = .000 < .001$) with students' participation and performance in online learning. This finding also supports Lin and Chiu (2007) who reported that students' experience influences performance in online learning. Moreover, in Hussin et al. (2016), it is reported that there is positive relationship between accessibility with motivation of student to participate in online learning. Students that lack of self-efficacy will affect their intention (Maheshwari, 2021) which in turn might influence their level of participation and performance in online learning.

4.3 Preferred Learning Method

There are two significant methods of teaching students online – synchronous and asynchronous. Synchronous teaching is conducted via various platforms such as Microsoft Team, Google Meet, Zoom, Webex, Whatsapp, Telegram, and Streamyard according to the original timetable. Meanwhile, asynchronous teaching is done using pre-recorded classes through Google Meet, Microsoft Team, and PowerPoint with voice-over after which it is uploaded into CIDOS. Usually, asynchronous method helps students more when they are unable to be present during the actual class where they can replay the video over and over again. Table 6 shows that students were more likely to choose pre-recorded learning videos compared to video conferencing. This can help students to understand the whole idea of what is being taught in class. Apart from that, it also gives the students flexibility to learn whenever the lecturer is unable to attend class due to other important commitments such as workshops or meetings during actual class hours. Furthermore, some students might face connectivity problems as well during the class session. Consequently, this pre-recorded learning videos will help them catch up on the things that they have missed during class.

Table 6: Preferred learning method in online learning.

I prefer pre-recorded learning.		I prefer learning through video conferencing.		I prefer blended learning (pre-recorded and video conferencing)	
Freq.	%	Freq.	%	Freq.	%
56	40.6	33	23.9	49	35.5

4.4 Challenges in Online Learning

There were three challenges faced by students in online learning. Most of the respondents encountered problems such as insufficient data followed by poor connectivity, and lastly personal or family matters. This is the main issue that causes headaches not only to students but also to their parents. In PMBS, majority of the students come from low-income families. Some parents cannot afford to subscribe to fixed high-speed broadband services such as UNIFI Home or Maxis Home to aid their children's learning. Some students depend on public connection to attend online classes due to insufficient data or poor network coverage in their area. Due to that, some lecturers have resorted to using WhatsApp or Telegram to deliver lessons which helps students in saving their data for other lessons.

As for connectivity issues, it will be troublesome for students who come from rural areas where 3G, 4G, or LTE coverage is not available because they will not be able to join video conference classes and download the pre-recorded classes. To overcome this matter, most students will return to Betong and stay in their rented rooms during the MCO just so they can get sufficient and good internet connection for online learning. Some of them will go to the library to utilise the campus wireless internet connection to do their assignments.

Online learning presents various obstacles to students especially when family members take advantage of their presence home by asking them to send or pick up their siblings from school. In some cases, they have to take care of their grandparents while their parents are at work, and others may need to work part-time just to get their own pocket money to pay for tuition fees and monthly expenses because their parents have been retrenched by their employers due to the ongoing pandemic. This is where the method of pre-recorded classes helps these students to stay on track in their studies. They can replay the video and learn at their own pace, anytime, and anywhere they may be.

Table 7: Challenges in online learning

Challenges	%
Connectivity	32.8
Insufficient Data	37.1
Family Matter	30.1

5. Conclusion

From the findings above, the respondents in this study showed that their participation and performance in online learning is highly affected by online learning experience, accessibility, and self-efficacy. Then, most of the respondents preferred pre-recorded online learning. Findings also indicated that respondents facing connectivity problems, insufficient data, and family matter during the online learning.

As far as this study is concerned, the challenges in online learning have impacted students' participation and performance greatly during this pandemic. Insufficient data would be the biggest challenge for students since all classes are conducted online and the cost to stay connected is high depending on the size of the data chosen. According to Bernama (2021), the initiative of Higher Education Institutions by distributing 200,000 data plans and 4,000 devices to the B40 group was launched back in November 2020 to ease students' burden in continuing to attend online learning sessions. However, this initiative proved futile based on feedback from some students who come from rural areas who do not have internet coverage at all. Therefore, the government needs to look into other alternatives in helping these students to receive the education they need and deserve.

In improving the online learning quality and experience, PMBS needs to introduce offline e-learning where distance learning can be done without internet connectivity. In Elrashdi et al. (2021), 60% of the respondents agreed that they liked the idea of using offline platforms such as Moodle, and Google Classroom to overcome the connectivity and insufficient data issue during online learning.

Future studies should look into the comparisons on preferred online learning platforms for different departments. There is also a need to investigate lecturers' competency in handling online learning which might be affecting students' participation and performance. Findings from this study could eventually help PMBS and other institutions to improve online teaching and learning in educating graduates to face the challenges in the real world.

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