The Effectiveness of Using Application as an Online Basic Computer Learning Medium in Higher Education Institution

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Abstract—The use of Google Meet (GM) application for teaching and learning implementation online is one of the methods in the teaching manual that has been introduced by the Ministry of Higher Education (MOHE). This study aimed to identify the level of readiness of students and self-motivation by students when using the GM application as a medium for online learning Basic Computer subject in Higher Education Institution during pandemic Covid-19. A quantitative study was conducted with the participation of 43 students from Diploma level in Universiti Islam Antarabangsa Sultan Abdul Halim Mu'adzam Shah (UniSHAMS). A set of questionnaires had been provided with three main categories consists of Online Learning Medium, Online Learning Method Using Application, and Relationship Between Online Learning Application's Features with Self-Motivation. The findings of this study show that Online Learning Medium improves self-motivation and directly encourages students to adopt technology into their learning. Furthermore, learning application directly affects their self-motivation. Online learning medium, as mediated by online learning application, can affect self-motivation. The results suggested that MOHE must encourage the use of online learning application for teaching and learning in their schools to align with the technology growth rapidly.

Keywords—Online Learning, Google Meet Application, self-motivation

1 Introduction

Pandemic Coronavirus (Covid-19) is a kind of disease that has already hit the world so badly. It has had a huge impact on every sector especially the field of education even the school primary schools did not escape the bad impact [1]. The government had to take action by shutting down all institutes of learning and schools simultaneously because of the spread of the disease and to curtail the spread as there is still not yet a fixed solution. The new norm in the world of education is to face challenges in implementing the teaching and learning (T&L) of students. Since the Covid-19 pandemic hit the world and our country is no exception. Thus, school leaders, teachers, and students

must undertake inevitable paradigm transformation to the use of technology for learning and teaching [2]. The Government of Malaysia imposed the Movement Control Order (MCO) in March 2020 which resulted in the closure of schools and requires teachers and lecturers to continue teaching and learning to shift to an online classroom. Further to this, the Ministry of Higher Education instructed all schools not to implement face-to-face lectures for the safety of students and lecturers, thereby, leverage on the use of technology for Open and Distance Learning (ODL). Lecturers must use their creativity to interact with students even at a distance. This is the time the lecturer applies only their abilities and creativity with aid of various technology applications, to ensure that the teaching and learning process runs smoothly and successfully.

The schools have adopted Google Classroom (GC) applications in addition to the existing applications, such as WhatsApp and Google Meet [3]. This virtual meeting now provides the platform used by students to get to know and ask questions directly from the teachers. In this way, students now feel the atmosphere of being in the classroom when the teacher responds to the students in the learning session. The implementation of teaching and learning conducted online has both negative and positive effects on all, including administrators, teachers, students, and parents both in terms of internet accessibility resources and the socio-economy of the family. Therefore, this study will focus on the level of readiness and constraints of students to transform to the online learning era using the Google Meet (GM) application as a medium for the learning process. Nowadays, many students have access to technological equipment, some student even possesses more high technology skills than teachers. GM application will be a fun platform because of the existence of communication between students and teachers, its flexibility, and as well dynamic where educators can deliver lessons effectively and efficiently. In short, the use of GM applications as a Basic Computer learning medium among high school students will create a conducive environment that equals the environment in the classroom. According to Yusup Hashim [4], in the face-to-face learning methods, a student's interactions with teachers within the class or out of class are required with whiteboard assistance or an overhead projector. Therefore, lecturers and teachers start trying and use a variety of technologies to communicate with students from across the country. Many new communities are aware that virtual learning methods, are an alternative and effective knowledge can still be imparted to students even without face to face.

Similarly, the implementation of the T&L process through GM where the emphasis is on the interaction of the two directions and application of T&L theory appropriate according to the cognitive of the student. GM has many advantages over other applications that teachers can use it for virtual learning. For students who are unable to attend GM online, they have a chance to watch the recording at any time. According to Mohamad Idham Md Razak [5], to ensure the effectiveness of online learning methods, several factors need to be taken into consideration such as construction environmental control, the importance of interactive, effective training, maximum access to technology, standard level of assurance quality of unlimited resources as well as the support of the educational institutions that run online learning methods. Reports from various sources indicate rates the use of online applications increased dramatically throughout the blockade process conducted in countries affected by the Covid-19

pandemic. This includes matters of entertainment, shopping, employment, and virtual learning [6].

The GM app also has a feature's white board where teachers can teach with writing, painting, and so on simultaneously Chalk and Talk method in the classroom. The advantages of GM will certainly be satisfying the will of the educators in delivering their teaching because it is also one alternative media application for the T&L process which is capable of being displayed on Android applications, web applications, or iOS reported in Wikipedia. The GM platform has become a new norm that needs to be applied in the daily routine of work for most people especially teachers who work in virtual. Like it or not, the Covid-19 epidemic hit this world apparently giving good and widespread wisdom to deep educators the efforts of teachers can explore the benefits through existing information technology now with applying their creativity and abilities [7]. In summary, the Covid-19 pandemic is not alone affecting T&L conventionally delayed, it has also become increasingly challenging to Basic Computer lecturers. Therefore, teachers and students must be prepared for this new norm and make it a daily habit because there is no choice other than to leverage information technology through various online applications for the sake of continuity in the T&L process of students [1]. The current structure of education needs teachers to have ICT knowledge. In the other words, lecturers need to adapt to these new norms for preparing students who are digital technology literate in the face of the challenges of the Industrial Revolution 4.0.

2 Literature review

2.1 Teaching and learning (T&L) by online

T&L online is all that activity involving students and teachers using an online digital platform for running T&L sessions [8]. J.J. Arias et al. [9], have made a comparative study between online learning with learning face to face found that cost online T&L handling is cheaper. Besides that, students from rural areas also can follow T&L online effectively. Despite the low cost, consideration of students' socioeconomic background highly prioritizes in preparing with requirements to follow online T&L. Now it is an obligation as well as the need for the field of education comprehensive in preventing the spread of epidemics Covid-19 on a large scale [10]. Shazarina Zdainal Abidin et al. [11], argues that this change has been worrisome to the students and as well as teachers and faced with anxiety. This is because even the teachers are enthusiastic in providing teaching and learning materials, however, if there is no participation and readiness of the students then the objective of the T&L session cannot be achieved perfectly [7]. This statement is supported by Siti Balqis Mahlan and Muniroh Hamat [3], who stated the results a survey of their studies found there a handful of students did not cooperate and still not ready with online T&L. Students need to adjust with online T&L enabled them to build skills with self-learning because of prior thinking for example, waiting for the teacher to start learning which depends solely on assistance teachers, do not fit into this new norm [7]. According to Nor Fauziana & Mohd Salleh [1], this online T&L requires cooperation and commitment from all parties in particular teachers in terms of knowledge in skills Information and Communication Technology (ICT).

Lecturers need to adapt to the new norms this is because it will be an opportunity to lecturers in deepening knowledge in terms of technology that will help diversify their teaching patterns in the era of the pandemic Covid-19 and for the continuity of the learning session effectiveness. However, the results of a study by Briliannur et al., [12], found that T&L online for school students is less effective because of the existence of economic constraints in terms of facilities and infrastructure as well as teacher preparation in terms of levels of knowledge is also highly emphasized. Constraints the economy has caused students not to be able to provide digital devices, speed less comprehensive broadband network, difficulty accessing the internet, and so on. Technological advances not only make it easier for the T&L process even improve its quality. Ministry of Education Malaysia (MOE), has also emphasized on the use of ICT in Malaysia Education Development Plan (MEDP) 2013–2025 on the 7th shift. MEDP practices the production of students and teachers who are proficient in the use of technology for the sake of meeting future demands [13]. In a way directly it will be a platform useful to students and teachers to master technological skills in facing the 21st century [10]. This statement is supported by Amirudin Mohd Salim et al., [14], findings, who stated that T&L does not as far as traditionally practice even in line with current technological developments. Thus, teachers and students should not behave complacent and inattentive to the digital age prioritizing ICT is even necessary to utilize it for the needs of the T&L effective [3]. According to Nor Fauziana Mohd Salleh [1], without any ICT knowledge and skills, someone will have difficulty competing in this new norm.

The statistics of internet users by individuals in Malaysia in 2020 and 2018 as released by the Malaysian Communications and Multimedia Commission (MCMC) which showed an increasing percentage of internet users by the community i.e. by 1.3 percent from 87.4 percent on in 2018 to 88.7 percent in 2020. From the statistics, it is clearly proven that only 11.3 percent do not use the internet which means society does not have accessible digital devices internet. Statistics also indicated that out of 11.3 percent of users who do not use the internet is a group that consists of the elderly, children, and the class poor. As such, online T&L is the best solution for ensuring the continuity of the current T&L process during pandemic Covid-19 [15]. According to the statistics released by MCMC found that 98.7 percent of people use the internet through smartphones followed by 37.9 percent of society also uses the internet through laptops, netbooks and notebooks. The remaining that is, 16.2 percent of the community uses the internet via computer (PC) and Desktop. These statistics are findings from the Report Survey of ICT Usage and Access in Malaysia in 2020. According to Nor Fauziana Mohd Salleh [1], various devices, ICT are offered at low cost which has been attracted the community to use these ICT facilities. This clearly shows generations Y and Z are vulnerable to ICT facilities since childhood [16]. This situation indicated that T&L online can be carried out effectively and efficiently if the teacher plays an important role in diversifying the teaching patterns. However, emphasis on the role of parents in monitoring the development of children following T&L online is necessary in order to motivate them in terms of support and encouragement as well as being able to control misuse of ICT facilities [1].

The results of the study of Ramakanta Mohalik and Sonali Suparna [17] found that students and teachers are ready with digital devices as well finance to follow T&L online

throughout the MCO period but some previous studies proved students and teachers experiences constraints. This statement can be proved in the study of Mohd Fairuz Jafar et al, [8], who stated that students are prepared to follow T&L online but faced with constraints that include poor internet connection, lack of access to the internet, device problems, as well as stifling socio-economic factors affects their learning sessions. According to Rohaida Mazlan et al. [18], students from the group income of the poverty line are in trouble in pursuing online learning because of the possibility of not having any digital device to proceed with learning because parental income is more to support the family. Muniroh Hamat et al. [7] stated that even if students have facilities ICT but in terms of internet access needs to be considered because the situation cannot be resolved in the absence of online facility improvements internet in their area. This statement is supported by Muhammad Izzat et al., [10] for example online T&L will be effective if internet access can enjoy in every area no matter the city, rural as well as rural areas. In the other words, those constraints have been affecting students' physical readiness and mental to follow T&L online throughout the period of MCO [11].

In this digital era, there is a variety type of mediums or platforms that can be used by teachers as well as students in helping the implementation of online T&L sessions with the integration of ICT facilities so that students are not left behind in their learning [10]. ICT platforms such as WhatsApp, Telegram, Google Classroom (GC), and YouTube become a priority for teachers but this medium does not establish communication between the two sides where students and teachers cannot make questions and answer or discussion [1]. Therefore, the selection of the appropriate medium is necessary so that the T&L is carried out more meaningfully. There are varieties of new applications that have been produced as appropriate with the field of education. For example, applications Google Meet, Zoom, Microsoft Teams, etc. can create a two-way interaction between students and teachers [13]. Results of the study Muhammad Izzat et al., [10] prove that effective communication significantly affects an increase in someone's understanding as well as mastery students because it becomes an opportunity for them to discuss the problems encountered in their lessons.

2.2 Google Meet application (GM)

Siti Balqis Mahlan and Muniroh Hamat [3], stated at first the teachers had used the Zoom platform for convenience the T&L process is online but available the shocking news is that the level of security, using the Zoom medium is a bit of a hassle where information loss occurs user privacy. Therefore, lecturers have chosen another medium, namely the GM medium to deliver their teachings as it is having a high level of security as well does not require an email to log in anywhere to facilitate all students to attend online classes. There are several previous studies Zakaria Saad et al., [19], Rahayu Ahamad Bahtiar et al., [20], Siti Nurbaizura & Nurfaradilla, [21] and Muhammad Izzat et al., [10], stated that flexibility of implementing T&L through applications GM is trending on this new norm. GM is a new application launched in 2017 by replacing Google Hangouts developed by Google. This application was launched as a concept video conferencing at first. In fact, the Covid-19 outbreak has made Google take the opportunity to develop again GM with an additional 30 advantage factors which are

quite satisfying. The use of GM developed throughout the Covid-19 pandemic due to some advantages that do not find in other applications. For example, GM can be integrated with other Google applications such as Google Classroom, Google Docs, and many more reported by Wikipedia. It will directly facilitate lecturers in handling online learning effectively. Siti Balqis Mahlan and Muniroh Hamat [3], stated that teachers can record online classes through the GM application and share the materials with their students who face any constraints to follow the T&L session based on the schedule. It will also be a reference at any time to the student for their self-learning. According to Bani Hidayat Mohd Shafie [22], in the presence of multiple integrations, other applications can be integrated with GM to increase the productivity levels in terms of knowledge as well as creativity among students and teachers. Teachers must be proficient in using multimedia mediums to diversify patterns in their teaching in order to maintain the level of willingness of students to follow the online class on a regular basis online throughout the MCO period [8]. A study of readiness on using GM was implemented by Zakaria Saad et al., [19], to see the effectiveness of the use of GM throughout the period of the MCO. The results of the study found that students are positive towards the use of GM during their online learning sessions which is their readiness level is at a high level. This is because teachers provide a variety of learning foundations via online using the GM platform has helped them understand the objectives of T&L as a whole [23]. The students also thought that they often use the elements as well the icons that have been provided in GM because it is very interactive. According to Muhammad Izzat et al., [10] supports the following argument which the majority of students actively communicate and ask questions with their teachers through forums and chats provided in GM. In the other words, GM applications can be an appropriate medium for continuing the T&L session online because GM's advantages are quite satisfying for teachers and students. Thus, this study aims to identify;

1. The level of online learning method for university students when using GM applications as a medium of Basic Computer online learning.
2. The relationship between GM features with students' self-motivation during Basic Computer online learning.

3 Methodology

The survey method approach used for data collection is a quantitative survey to obtain information from samples through a set of questionnaires. The population consists of 73 Diploma students from Universiti Islam Antarabangsa Sultan Abdul Halim Mu'adzam Shah (UniSHAMS) who were taking the Basic Computer subjects and have been used the GM application in their online class. From the total number of students, a total of 43 students were volunteered as the study sample. The questionnaires instruments were developed by the researcher based on the study objectives. This instrument is used for students to obtain information on the level of readiness and self-motivation when using GM application as an online learning medium. There are three parts consists of part A: *Online Learning Medium*, part B: Online Learning Using Application,

and part C: Relationship Between Online Learning Application's Features with Self-Motivation, which is measured using a Rensis - type Likert scale [24].

Data analysis procedures were performed based on the objectives that have been put forward by analyzing descriptively and inferentially through Statistical Package for the Social software Sciences (SPSS) version 26 where descriptive analysis will be recorded in the form of mean, standard deviation, frequency, and percentage.

4 Result and analysis

4.1 Demographic profile of the respondents

The respondents' profiles are presented in Table 1 below. The finding shows more than half of the respondents (65.1%) were female and the other 34.9.% were male. The table also indicates that around 95.3% or 41 respondents fall into the age group of 18 to 23 years, followed by age group 24 to 30 years (4.7%).

Table 1. Demographic profile of the respondents (n = 43)

Demographic Variable	Frequency (n)	Percentage (%)
Gender		
Male	15	34.9
Female	28	65.1
Age Group (years)		
18–23 years old	41	95.3
24–30 years old	2	4.7

4.2 To determine the level of students' self-motivation

This section specifically addresses the level of students' self-motivation. This analysis consists of frequency and percentage, measure of central tendency (mean), and measure of variability (standard deviation) to describe the student self-motivation. The variables were in continuous form; therefore, they were categorized into three categories; low (1.00–2.33); moderate (2.34–3.67); and high (3.68–5.00) for further descriptions.

Table 2. The level of students' self-motivation

Level	Frequency (n)	Percentage (%)	M	SD
Self-Motivation Low (1.00 – 2.33)	0	0	4.3163	.72
Moderate (2.34 – 3.67)	8	18.6		
High (3.68 – 5.00)	45	81.4		
Total	43	100.0		

Note: n = 43, M: Mean, S.D.: Standard Deviation.

Based on Table 2, the overall sample mean was 4.316 (SD = .72). This indicates that the level of students' self-motivation was at the high level. More specifically, 100% of the respondents perceived self-motivation was at the high level. This results shows that students were ready to adapt and adopt the online learning application as their online learning medium and explored the GM features that helps them gain the motivation.

In order to identify the relationship between online learning medium, online learning method using application, and students' self-motivation, this study had applied inferential statistics namely Pearson product-moment Correlation Coefficient analysis. This analysis interprets the relationship between independent variables and dependent variables of the study and could determine the strength and direction of the relationship (Fields, 2005). The strength of the relationship was interpreted using Guilford's rule of thumb as in Table 3 as follows.

4.3 To determine the level of online learning application medium and online learning method using application

After all mean summated of each variable were computed as a mean score ranged from 1 to 5. The computed mean score was then categorized into three levels, namely low (1.00–2.33); moderate (2.34–3.67); and high (3.68–5.00).

Table 3. Level of independent variables

Level	Frequency (n)	Percentage (%)	M	SD
Online Application Medium Low (1.00–2.33)	3	7.0	3.99	.80
Moderate (2.34–3.67)	8	18.6		
High (3.68–5.00)	32	74.4		
Total	43	100.0		
Online Learning Method Using Application Low (1.00–2.33)	2	4.7	3.92	.85
Moderate (2.34–3.67)	12	27.9		
High (3.68–5.00)	29	67.4		
Total	43	100.0		

Note: n = 357, M: mean, S.D.: Standard Deviation.

Table 3 shows that majority of the respondents (74.4.%) perceived high level of online application medium. Followed by 3 respondents (18.6%) perceived moderate level, while 8% perceived low level of readiness. The results also indicated that the overall mean score of teachers' attitude is 3.99 (SD = .80) exposing that respondents were generally perceived high level of readiness for online learning application.

Table 4. Pearson correlation coefficients of relationships between online learning medium, online learning method using application, and students' self-motivation

	r	α	Strength of the Relationship
Online Learning Medium	.661**	.000	High
Online Learning Method using Application	.773**	.000	High

Based on the results exhibited in Table 4, there was a positive and statistically significant relationship (r = .661, p = .000) between online learning medium and students' self-motivation. The strength of correlation was identified as moderate correlated. Similarly, the results also exhibited in Table 4, that learning application (r = .773, p = .000) indicated a positive and statistically significant relationship with students' self-motivation. Based on Guilford's Rule of Thumb, the strength of the correlation between the online learning using application and students' self-motivation is high.

5 Discussion & conclusion

The study affirms that the use of the Google Meet (GM) application for teaching and learning (T&L) as a medium for online learning during pandemic Covid-19 has a significant effect on students learning performance. The findings of this study also confirmed that online learning medium improves students' self-motivation and directly encourages students to adopt technology into their learning and the level of students's readiness using online learning application in their learning process. Furthermore, learning application directly affects their self-motivation. Online learning medium, as mediated by online learning applications, can affect self-motivation. The finding recognizes the urgent need for technology in education particularly in times of emergencies like the Covid-19 pandemic. This is in line with an earlier assertion by Onyema [25], that integration of emerging technologies in education is no longer a choice, but a need for all educators considering the changing learning environment. To this end, MOHE must encourage the use of online learning application for teaching and learning in their schools to align with the rapid growth of the technology and encourage the teachers and learners to embrace the paradigm transformation shift to the online learning system.

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