ENGAGEMENT AND CHALLENGES IN DIGITAL LEARNING AMONG SMK TIRAM JAYA STUDENTS

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Abstract

Digital learning provides opportunities that make the teaching and learning process become more effective and meaningful in a classroom. This study examines the "Engagement and Challenges in Digital Learning among SMK Tiram Jaya Students." In this study, 30 students were surveyed in order to assess their engagement and challenges in digital learning. In other words, this study aimed to investigate the usage frequency of digital media, benefits, and challenges faced by the school to engage with digital learning. Research design is a quantitative method and questionnaire is the instrument that has been used to collect data of 30 students in SMK Tiram Jaya, Tanjong Karang. Data collected were analyzed using percentages. Findings revealed that desktop computers, internet-enabled and multimedia projector are the most frequently used devices in school. Meanwhile, the most significant challenges faced by the students in digital learning are limited access to digital media and inadequate digital media tools. Suggested solutions were proposed in this study and most of the respondents strongly agree that the school needs to improve access to digital media and provide development activities to upgrade students' ICT skills. After this very specific student engagement and challenges in digital learning, the implications were structured that special emphasis should be taken into account that the school has limited access towards digital learning and teachers need to be trained with ICT skills as well. Hence students will engage in learning actively.

Keywords: Engagements, Challenges, Digital learning, ICT

INTRODUCTION

According to the Glossary of Education Reform (2018), student engagement defines how students express their motivation levels such as optimism, enthusiasm, and curiosity when participating in the learning process. As we live in this technology advancement era, children are more easily get various information than any previous generations. Grabe and Grabe (2007)

stated that Information and Communication Technology (ICT) has gone beyond human expectations and revamped society's daily life. Due to this, ICT should be diffused in the school syllabus and higher educational institutions as well in order to equip "a knowledgeable society" (Ghavifekr et al., 2012). The term "digital learning" defines as the use of modern tools which require a combination of technology, digital content and instruction to engage students in order to enhance learning. Digital media technologies such as satellite television, Internet websites, smartphone, and multimedia equipment which are pod-cast facilities, audio, and video, will improve the effectiveness of the teaching and learning process (Samuel et al., 2019). The importance of ICT in education is undeniable due to the capability of ICT to equip proactive and positive attitudes towards the teaching-learning environment to generate more ideas (Hatlevik & Arnseth, 2012).

After this realization, the Ministry of Education (MOE) in Malaysia amalgamated ICT into the national curriculum and established the Transform shift of ICT focus named "Leverage ICT to Scale-up Quality Learning across Malaysia." The shift focused on stiffening the ICT capacity at different levels in order to improve the quality of ICT skills in remote areas and taper the gaps of ICT capacities between rural and urban areas. Thus, Smart School Flagship Application had inaugurated in 1997 and launched by the Prime Minister as the constituent of Multimedia Super Corridor's Flagship Application (Khalid, 2007). Chan and Fong Mae (as cited in Ismail et al., 2018) stated that the objective of Smart Schools is to accomplish the National Philosophy of Education and to achieve vision 2020. This was done through a pilot study on the selected schools which were situated in urban areas in 1999 and renowned with academic standing (Ismail et al., 2018). According to Multimedia Super Corridor (MSC) Malaysia, 15 rural schools were chosen for the implementation of the rural smart school programmes back in 2009. Effective use and engagement of new digital technologies in facilitating teaching and learning provide adequate information, which is a catalyst for personal and national development (Umunandi, 2009).

Problem statement

ICT should be incorporated in teaching and learning. According to Onasanya et al.(2014), digital learning offers great opportunities that make teaching and learning more concrete, meaningful, and effective. It provides the potential to reconfigure the physical spaces in which

people learn, to open spaces of learning and are best originated as enlarging the affordances of the physical environment (Wong & Looi, 2011) and accelerating the changing dynamics of learning in terms of when, where, what and how learning takes place. However, there are some challenges to implementing digital learning in schools. As for teachers, the problems encountered when teaching in a classroom are lack of teaching materials such as audio-visual aid (AVA), limited digital media facilities, lack of teachers, and low quality of teachers. Dutta and Bilbao-Osorio (2012) averred that developing countries all over the world encountered various problems pertaining digital learning such as slow acceptance, the availability of devices such as Internet-enabled, computer laboratories, e-mails facilities, wireless applications and multimedia systems, and courseware development. Besides, Tinio (2003) claimed that the stakeholders' issue might be a challenging task and result in failure, especially at premature stages of implementation if the school resists change from the stakeholder.

The use of computers is not fully implemented as part of classroom technology. Hence, the traditional use of textbooks, chalk, chalkboard and the duster approach still dominates in secondary school classroom activities (Amedu, 2014). Teachers cannot be relied solely upon to cope with the barriers when using technology without both good technical support in the classroom and whole school resources (Lewis et al., 2003). This is a signal that the students are still lagging behind in the dynamic trend of instruction in the world due to insufficient access to digital devices. One of the yardsticks to determine student's corresponding improvement in academic performance lies in the teacher's ability to adapt the digital lifestyles and use bundles of related technologies professionally, socially in order to strengthen and maintain student's high level of engagement when delivering instruction (Haythornwaite & Andrews, 2011). Organizing intensive seminars to facilitate students in utilizing digital media and encouraging positive attitudes about the significance of engaging them with digital media would be recommended solutions to face the challenges in digital learning.

Significance of the study

The significance of the study is to determine if the students face challenges to engage with digital learning in SMK Tiram Jaya. The reason to conduct the study is to investigate students' awareness of digital media availability, the frequency of use and the benefits of using digital media, the challenges perceived by the secondary school students in remote areas with limited

access to the Internet, especially during Corona Virus Diseases (COVID-19) outbreaks. By researching this study, researchers could help the school to enhance students' engagement in digital learning and cope with the perceived challenges when using digital media in school.

Besides, this study will also benefit the government as researchers gained feedback from the secondary school students to improve Internet access, upgrade the digital media facilities in order to narrow the gap between urban and rural school accessibility and provide sufficient funds to implement digital learning in school.

Objective of the study

This research is constructed on the following objectives:

1. To identify the frequency of digital media usage in the teaching and learning process.
2. To identify the benefits of using digital media for students' improved instruction.
3. To identify the challenges encountered by the students in using digital media.
4. To identify the solutions for the challenges faced by the school to engage in digital media.

Research question

The research questions to be answered are:

1. How often do the students utilize digital media in the teaching and learning process?
2. What are the benefits of using digital media for the teaching and learning process?
3. What are the challenges faced by the students when using digital media?
4. What are the suggested solutions for the problems faced by the school to engage in digital media?

LITERATURE REVIEW

This study investigates students' awareness of digital media availability, frequency of digital media usage, the benefits, the challenges, and proposed solution to the perceived challenges. The formulation of the conceptual framework for this study was based on Technology

Acceptance Model (TAM) founded by Davis in 1989. This theory aimed to examine the acceptability of information systems. Technology acceptance is commonly used to predict technology use and describe its impact. In other words, it will envision the acceptability of a tool and pinpoint the modification that must be brought to make the system acceptable (Davis, 1989). In this study, TAM theory can be applied to students in order to evaluate how they diffused technology tasks and skills in education. Hence, student engagement is essential to the success of digital learning. Over the years, the TAM has its fundamental in the Theory of Reasoned Action (TRA) and many researchers have invented its variations. It provides intuition into how behavioral intention is generated. Later, this theory highlights the TRA model into two important attitudes, which are perceived usefulness and perceive ease of use. Davis (1989) stated that:

> *"Perceived usefulness refers to the degree to which person believes that using a particular system would enhance his or her job performance whereas perceive ease of use refers to the degree to which person believes that using particular system would be free of effort."* (p.320)

However, TAM had a weakness in which it did not provide a profundity explanation about how these attitudes (perceived ease of use and perceived usefulness) formed and modify the user behaviour. In addition, Venkatesh and Davis (2000) created Technology Acceptance Model 2 (TAM2) to investigate the motive of some people use computers and their attitudes towards it. This model correlates with the objectives of this study as it aims to investigate the development of digital learning at the school in terms of its availability, frequency of digital media usage, benefits, and challenges. The solutions for the problem faced by students are proposed in this study in order to improve digital learning. The model shown in Figure 1 links the perceived usefulness and ease of attitude towards using ICT and actual use. Venkatesh and Davis (2000) described when students are perceived with new technology. There are two key factors that would influence their decision from the extended variables around them about how and when they utilize it. External variables represent the challenges that students encountered which come from outside their sphere of control when incorporating new technology in their learning.
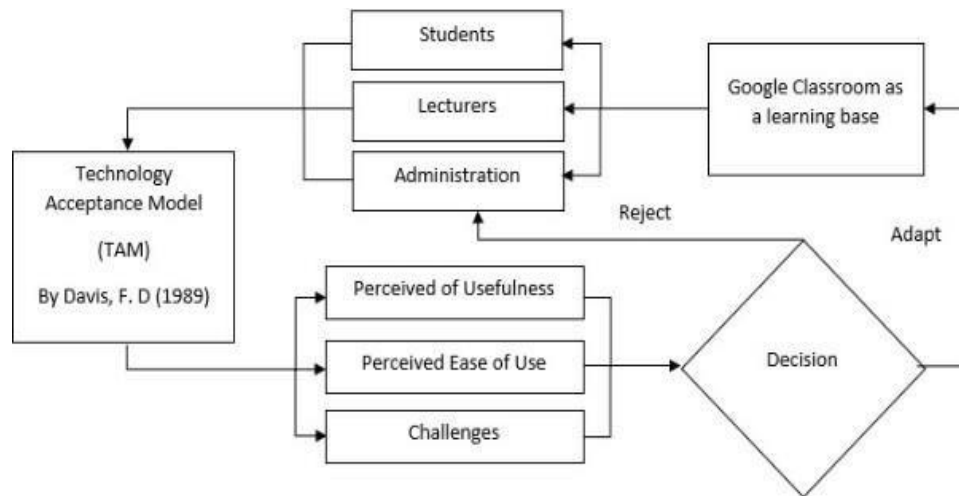
Figure 1. Technology Acceptance Model (TAM)

According to Schepers and Wetzels (2007), user attitudes refers to how students react when they perceived technology, either positive or negative and it is not solely determining how they use it but based on their performance impact. In addition, the intention has been discovered as an indicator of system use (Taylor & Todd, 1995). Since its inception, Venkatesh et al. (2003) TAM has become a well-known of related research and there are eight models that were similarly related to it and combined into a single model called Unified Theory of Acceptance and Use of Technology (UTAUT). As a result, UTAUT synthesized various models, as Venkatesh and Davis (2000) replaced the term "perceive usefulness" to "performance expectancy" and" perceive ease of use" to "effort expectancy" without changing the underlying definitions. Another research that most notably was TAM2 proposed by Venkatesh and Davis (2000), which aims to identify the precursor of perceived usefulness, such as subjective norms, image, job relevance, output quality, and result demonstrability and continued the perceived ease of use in the same year. Venkatesh and Bala (2008) had come out with TAM3 to suggest the intervention of those two important attitudes.

Not only that, there is a proposed framework adapted from TAM theory in Malaysia by Ismail et al. (2013) to examine the ICT usage in rural school libraries. Due to this, they underlined four aspects that determine the ICT usage among the students, namely the availability of facilities, access, skills, and purpose of use. Availability defines as the readiness of the ICT facilities that can be utilised in the school to pursue learning (Ismail et al., 2013). In 2003, Furlonger (2002) mentioned that urban schools had been provided with better access

to ICT facilities in terms of internet access and skillful teachers, in contrast with rural schools, which are lacking digital media equipment and skillful teacher in the ICT field. United Nations (2003) has reported that people in developing countries are secluded from ICT development because of geographical factors and this issue should be taken into account as the availability of technology facilities is a determinant for students to have good access to digital learning. In terms of access, Gutterman (as cited in Ismail et al., 2013) stated that insufficient access to computers is one of the barriers to digital learning and it is relevant with the current scenario in rural schools. Students in rural schools have limited access of network as it cost a lot in terms of electricity and maintenance.

ICT has a notable role in enhancing learning in the digital era. Thus, there is a requirement of ICT literacy to be mastered from the basic, which is the ability to read text, learn how to operate and comprehend the meanings delivered by devices encapsulate that skills often antecedents the acquisition of traditional literacy (United Nations, 2003). The term skill itself refers to the ability to use technology or the ability involved to resolve problems in knowledge-rich domains, work collaboratively in digital learning with the aid of ICT access intensively (Ismail et al., 2013). Last but not least, the purpose of using ICT. In this study, the term refers to the use of ICT facilities in order to achieve the specific vision as a user and the intention to utilise it.

Other researchers that adapt TAM in their research to investigate the use of inter-organisational ICT in United States construction project were Adriaanse et al. (2010) as they mentioned that the core idea of this model depends solely on intention and the ability to decide whether to carry out or not a certain behaviour. A previous report from International Communication Union (ITU) in 2009, which is an international organisation had initiated a framework in order to measure the ICT development index (IDI). This framework defines IDI as a composite index combining several indicators into one benchmark measure that offers monitor and compare development enablers if applied and used appropriately, which is crucial for developing countries to form an "ICT driven society." It aims to capture the development of the information society as it goes through its different stages and contemplates the technology convergence and emergence of new technologies. This framework from International Communication Union (2009) consists of three stages:

Stage 1: **ICT readiness** (aims to reflect the level of ICT accessibility in terms of network)

Stage 2: **ICT intensity** (focused on reflecting the level of ICT utilization)

Stage 3: **ICT impact** (reflect the result of efficient and productive ICT usage)

METHODOLOGY

Research design

Oppenheim (1992) avers that research design makes the problem systematically investigate by shaping the study in order to obtain the exact responses regarding the problems. He adds that a questionnaire is not solely a list of questions or a survey to be accomplished. It is an instrument for collecting specific data from the research. The quantitative approach was used by collecting and analyzing the data from the questionnaire via Google form as it is more appropriate compared to the qualitative approach.

Participants

Sekolah Menengah Kebangsaan Tiram Jaya (SMKTJ), is a daily basis secondary school which was wholly funded by the government. It is located in Kampung Seri Tiram Jaya, which is 8 kilometres from the town, Tanjong Karang in Kuala Selangor district. Under the World Bank Project of Third Malaysia Plan (RMK-3) for Kuala Selangor district, this school was set up in 1984 on 20 acres palm oil farm and adjoint with vast paddy fields area. The student population is approximately 700. The population surveyed consists of students in Sekolah Menengah Kebangsaan (SMK) Tiram Jaya, Tanjong Karang. The sample consisted of 30 secondary school students, female and male students. They volunteered to complete the questionnaires via Google Form. All of the samples came from different forms and classes of the same school with ages between 13 to 17 years old.

Instrument

A set of questionnaires has been used in this study. The questionnaire was adopted from the study of Samuel et al. (2019). The draft of the questionnaire of this study was constructed and

has undergone modification and revision based on the feedback received from the respective lecturer. The questionnaire consisted of 4 sections. Section A is referring to the frequency of use of digital media with a two-point Likert scale (frequently used and not frequently used whereas Section B, C and D referred to the benefits, challenges faced by the students in learning and suggested solutions for the problem faced respectively. In the last three sections, a four-point Likert scale in format has been used to assess students' responses (1= strongly agree, 2= agree, 3= strongly disagree, 4= agree). The reason behind the use of a four-point Likert scale instead of a five-point Likert scale was to avoid partially agree or disagree opinion and the result might be ambiguous to this study.

Data Collection Procedures

Data collection occurred via random distribution. The researchers distributed the survey questionnaire via Google Form to two students from SMK Tiram Jaya. The researchers reached the contacts via a social platform, which was via WhatsApp Messenger and asked them to spread the Google form link. Due to COVID-19 outbreaks, data gathered has been made via an online platform or virtually and Google Form summarized the feedback of each participant and no interview session had been conducted. Once the survey has been sent through a social platform, the participants were given three days to complete it.

RESULT AND DISCUSSION

Table 1: The frequency use of digital media in teaching and learning process

Item	Frequently used	Not frequently used
Desktop computer	96.7% (N:29)	3.3% (N:1)
Laptop	10% (N:3)	90% (N:27)
Tablet pc	3.3% (N:1)	96.7% (N:29)
Internet enabled	96.7% (N:29)	3.3% (N:1)
Multimedia projector	96.7% (N:29)	3.3% (N:1)
Television	0% (N:0)	100% (N:30

Digital compact disc (DVD)	3.3% (N:1)	96.7% (N:29)

Table1 illustrates that desktop computers, Internet-enabled and multimedia projector gained the highest score for the frequent use of digital media with 96.7%. These digital media equipment are the medium for teachers to deliver instruction and considered as audio-visual aid (AVA) to trigger students' interest when learning. The need for a computer desktop in teaching and learning ICT subjects, in accordance with its requirement, also contributes to the highest score. In line with 21st-century learning, students need to integrate ICT into their learning. Therefore, the use of the Internet for seeking information will generate more ideas and increase the student's engagement in the classroom. On the contrary, items 3 and 7 shared the percentage of not frequently used devices with 96.7% and the remaining 3.3% respectively, while television gained 100% of not frequently used digital media as all of the respondents agreed with it. In addition, 27 respondents (90%) voted that laptop is not frequently used in the classroom while 3 respondents (10%) against it. The reason might be laptops meant for the usage of educators and administration staff to manage their tasks; hence students are not allowed to use them without the school permission.

Table 2: The benefits of using digital media for teaching and learning process

Item	Strongly Agree	Agree	Disagree	Strongly Disagree
Digital media improves learning	43.3%	50%	6.67%	0%
Digital media facilitates student's engagement in learning	43.3%	43.3%	13.3%	0%
Digital media motivates students to learn	40%	50%	10%	0%
Digital media promotes self- learning	36.7%	50%	13.3%	0%

Table 2 indicates the benefits of digital media for teaching and learning process that most respondents agreed that digital media improves learning, facilitates student engagement

in learning, motivates learning, and promotes self-learning. It can be seen from the table that digital media improves learning (43.3% strongly agree and 50% agree), facilitates student's engagement in learning (43.3% for strongly agree and agree), motivates learning scored strongly agree and agree with 40% and 50% respectively. Lastly, digital media promotes self-learning gained 36.7% (strongly agree) and 50% (agree) as students feel free to search for information or make a decision independently. It is good for their learning process because they are exposed to various information and be able to apply it in their physical classroom.

Table 3: The challenges faced by the students when using digital media

Item	Strongly Agree	Agree	Disagree	Strongly Disagree
Limited access to digital media	53.3%	43.3%	0%	3.3%
Teachers' failure to use digital media	23.3%	20%	50%	6.7%
Inadequate digital media tools	50%	46.7%	0%	3.3%
Not understand teachers' style	10%	40%	43.3%	6.7%

Based on Table 3, the majority of respondents agreed that limited access to digital media and inadequate digital media tools are the most perceived challenges in digital learning. Limited access to digital media obtained 53.3% (strongly agree) and 43.3% (agree) whereas inadequate digital media tools perceived 50% and 46.7% for strongly agree and agree respectively. This finding indicates that this school has limited access to digital media as the 'chalk and talk' teaching style is prevalent in the classroom. In addition, inadequate digital media equipment is another barrier to digital learning. Providing sufficient digital media tools will contribute to collaborative learning as they are able to find a solution independently. During COVID-19 outbreaks, digital learning is pivotal for students in the entire world to pursue learning. Without good access to this platform, it will curb the learning process. However, more than half of respondents disagreed with teachers' failure to use digital media, with 50% disagree and 6.7% strongly disagree, respectively. Meanwhile, not understand teachers teaching style shared the same total score for agree and disagree with 10% (strongly agree) and 40% (agree) whereas 43.3% (disagree) and 6.7% (strongly disagree).

Table 4: The suggested solutions for the problem faced by the school to engage in digital media

Item	Strongly Agree	Agree	Disagree	Strongly Disagree
More training should be given to teachers	16.7%	33.3%	46.7%	3.3%
School needs to provide appropriate access to digital media	60%	40%	0%	0%
Encouraging positive attitudes towards digital learning among students	50%	40%	10%	0%
Provide development activities related to digital media to upgrade ICT skills among students	66.7%	33.3%	0%	0%

Table 4 demonstrates the suggested solution for the problem faced by the school in digital learning. Most of the respondents agreed with the given solution, which requires the school to provide appropriate access to digital media with strongly agree 60% and agree 40%, encouraging positives attitude towards digital learning among students obtained 66.7% of strongly agree and 33.3% of agree while provide development activities related to digital media to upgrade ICT skills among students scored 66.7% for strongly agree and agree 33.3% respectively. In contrast, half of the respondents agreed that more training should be given to teachers, with 16.7% (strongly agree) and 33.3% (agree). The remaining was 46.7% (disagree) and 3.3% (strongly disagree). Therefore, they shared the same total score for agree and disagree. As a verdict, teachers need to possess ICT skills in this digital era; hence they will be able to educate students on developing positive and ethical behaviours in the use of the Internet effectively.

Technology seemed to be a pivotal element in educational institutions around the world. According to Malaysia Educational Blueprint (2013), ICT offers repertoire potential towards learning such as provide an abundance of information, unlimited access towards learning and as a catalyst to strengthen the cognitive skill among students. Usage of digital

media in the classroom enables students to participate actively with the task in a wider range of information and knowledge during the learning (Ghavifekr et al., 2014). The findings from this study indicate that students are frequently used desktop computers, Internet-enabled computers and multimedia projectors compared to the other digital media provided in school. However, television is the most unfrequent used digital media because the teacher does not see the benefits of using television for educational purposes and the school needs to choose the suitable channel for students to cater to the syllabus needs. Some of the students opined that the facilities are greatly available and to some other students, more initiatives need to be provided and implemented by the school concerning this matter. This study also revealed that most of the respondents agreed with the perceived benefits that digital media improve learning, promote self-learning, motivate students to learn, and facilitate students' engagement in learning. The findings correspond with Grabe and Grabe (2007) as they stated that ICT could assist students in evolving their skills, enhancing motivation, and broadening their knowledge and information when learning.

The findings are supported by Technology Acceptance Model (TAM) by Davis (1989), in which technological usage is determined by behavioural intentions to use a system determined by the user's attitude towards technology use and perceived usefulness (PU). In this study, PU refers to the degree to which students believe that using technology in learning will enhance their performance in their studies. This is supported by Ma et al. (2005) as they claimed the trustworthiness towards ICT usage emerged among the students if it boosts up their performance. Meanwhile, perceived ease of use (PEU) defines the degree to which students believe that utilizing technology equipment is effortless. Thus, it is reasonable to assume that students with positive attitudes in engaging with digital media tend to accept the use of technology in the classroom. As for the challenges faced by students in using digital media, the result demonstrates the most significant challenges in schools which are limited access to digital media and inadequate digital media tools.

CONCLUSION

A previous research study by Poudel (2010) found that even though ICT services gained various benefits, but the present challenges should be considered, such as poverty, lack of digital literacy, infrastructure, and stable political situation, will hinder digital learning in

emergent nations. Based on TAM theory, the researcher found that PEU plays an important role in identifying students' intention to use technology. It is because the students tend to engage in digital learning for personal or academic purposes when they believe in utilising such tools with little effort. Suggested solution for the problem faced to engage in digital learning encapsulates that most of the respondents urge the school to provide appropriate access to digital media and development activities to upgrade students' ICT skills, whereas students need to encourage positive attitudes towards digital learning. Nevertheless, half of the respondents agree that teachers need to be trained more so that they will be ICT-savvy and gain more resources to enhance their teaching practices. As Hamidi et al. (2011) averred that teachers in the digital era need to be well prepared with ICT competencies and portray positive attitudes to serve the opportunities of ICT-based learning opportunities towards students. However, successful integration of learning in the digital era depends largely on the availability of digital media, Internet access, students' motivation, and the attitude of teachers towards digital learning.

To sum up, successful integration of learning in the digital era depends largely on the availability of digital media, Internet access, students' motivation, and the attitude of teachers towards digital learning. There are some limitations of the study. First and foremost, the respondents in this study are limited to students from Sekolah Menengah Kebangsaan (SMK) Tiram Jaya, Tanjong Karang and limitation in generalising occurs due to the small group of participant and researcher does not get varieties of feedback. Even though there are many schools in Tanjong Karang district, but the sampling is limited to SMK Tiram Jaya because the school is far away from the town and secondary students have better proficiency in English than primary school students. This study has been done by many researchers in the past; thus, there are no new elements that can be represented. Moreover, insufficient prior research on this topic as the researcher uses past studies to lay a foundation of understanding regarding the research problem that is investigated.

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