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## A Systematic Literature Review on the Use of Digital Media among Malaysian Teachers and Students During the Covid-19 Pandemic

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### Abstract

Current developments with technology are significantly altering the teaching and learning in the classroom. With the lockdown due to the COVID-19 pandemic in the past two years, digital media are used by the teachers to conduct their lessons for students who learn from home. In the sudden transition from traditional printed media to digital media, both teachers and students have to be versatile to the changing environments in their readiness to adapt themselves accordingly. This study aims to collect and analyse previous studies on the use of digital media among the teachers and students and their perceptions, as well as the issues and challenges for online teaching and learning in Malaysia during the pandemic. A systematic literature review was conducted by using the four-phase in Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) for this study and the findings show that teachers and students use various digital media for online teaching and learning in Malaysia. Though they had positive perceptions towards its use for online lessons, the five issues and challenges were related to stress and anxiety, lack of motivation, overloading with information and work, lack of knowledge in the usage of technology, and lack of infrastructure.

The implication is for the curriculum policy makers and educators to provide a more comprehensive technology course that equips the graduating teachers with the necessary knowledge and skills in using digital media for their classrooms.

**Keywords:** Digital Media, Online Teaching and Learning, COVID-19 Pandemic, Systematic Literature Review

### Introduction

Traditionally, teachers use printed media such as textbooks, modules, handouts, and explanation notes for instructional purposes. Recent global issues and changing times has led

to the rise of a need for a new approach to teaching and learning. With new forms of communication made possible by emerging technologies and the rising expectations of educators and learners to maximise learning potentials, dynamic learning environments have been explored to facilitate education of the future. Digital-based teaching media such as World Wide Web (internet), mobile technologies, film, video games, television, comics, and software are used to facilitate students' learning (Haryati & Cahyaningrum, 2018). Digital learning involves various media forms that provide text, audio, images, animation, and video sharing, which involves technologies and processes such as audio or video tape, satellite TV, CD-ROM, and computer based learning, as well as local intranet, extranet and web-based education (Kannadhasan et al., 2020).

Due to the lockdown during the COVID-19 pandemic, schools had no option but to resort to online teaching and learning. On March 18, 2020 the education ministry directed all schools to be closed (Ministry of Foreign Affairs, March 16, 2020). To facilitate that closure, teachers and students were abruptly introduced to online teaching and learning as an alternative and to ensure that learning can still take place without coming to school. Digital-based teaching media makes communication available and fun and removes the barrier of location for people in different parts of the world (Haryati & Cahyaningrum, 2018). This is very useful during the COVID-19 pandemic as online learning took place when students learnt from different locations. By sending an invitation link, teachers could conduct online classes through Google Meet with the students. Teachers could also share a video link or ask students to answer online quizzes or live worksheets without giving students the hardcopy. This saves a lot of time, money and energy in sending the modules and worksheets to students' homes.

However, the transition from the use of printed media to digital media foresaw tension and anxiety among teachers, students and parents. The long-term lockdown of universities and schools has resulted in negative results such as the disengagement of education and psychosocial disadvantages (Yu et al., 2022). The students lost motivation and learning performance after using online learning methods during the lockdown period (Tan, 2021). On top of the battle against COVID-19, parents had to cope with their children's online learning at home. The home had to replace the school which means that the parents had to prepare learning facilities such as tables and chairs for learning equipment with internet accessibility and digital devices to connect with the teachers. The home-based teaching and learning experience showed that not all parents were able to deal with the situation amicably ("Teachers, students", 2021; Rajaendram, 2021; Rafidi, 2020).

Online learning also had its toll on teachers. Teachers had to move from the physical face-to-face classroom to online teaching. The forced situation put a lot of stress on how they were to carry out the teaching, including preparing online materials, managing the online class, providing effective learning experience, monitoring their students' progress and class participation. By integrating technology, pedagogy and content knowledge (TPACK) in teaching and learning, teachers need to possess the ability to flexibly navigate the spaces defined by the three elements and the complex interactions among these elements in specific contexts (Koehler & Mishra, 2009). However, teachers often lack the experience with using digital technologies for teaching and learning (Koehler & Mishra, 2009).

Hence, this study aims to collect and analyse previous studies on the use of digital media among the teachers and students and their perceptions, as well as the issues and challenges for online teaching and learning in Malaysia during the pandemic. The research questions formulated for this study are:

1. What are the digital media used among the teachers and students in Malaysia during the COVID-19 pandemic?
2. How do the Malaysian teachers and students perceive the use of digital media for online teaching and learning during the COVID-19 pandemic?
3. What are the issues and challenges faced by the Malaysian teachers and students regarding the use of digital media for online teaching and learning?

### **Methodology**

For this systematic search, a search strategy was conducted to identify relevant literature using four-phase in Preferred Reporting Items for Systematic Reviews and Meta-analyses (Moher et al., 2009). This search strategy was tailored to the database of Scopus and the search terms used were “teaching and learning”, “digital media”, “digital medium”, or digital means”. A total of 35,082 studies were found. Then, all searches spanned from database inception since 2020 in the subject area of Social Sciences and included journal articles, published in English in 500 studies were found, but only 44 of past studies were found in Malaysia. After a careful reading of the full texts and some studies were excluded as they were not conducted in Malaysia (for example, Pakistan, Bangladesh, Indonesia, Nigeria, Oman), contained irrelevant topic (for example, entrepreneurship, fake news, cyberbullying, vaccine doses, and lifelong learning), and out of educational scope (for example, journalism, nursing, tourism, religion, and business), the final number of studies that were included for this study was only 12.

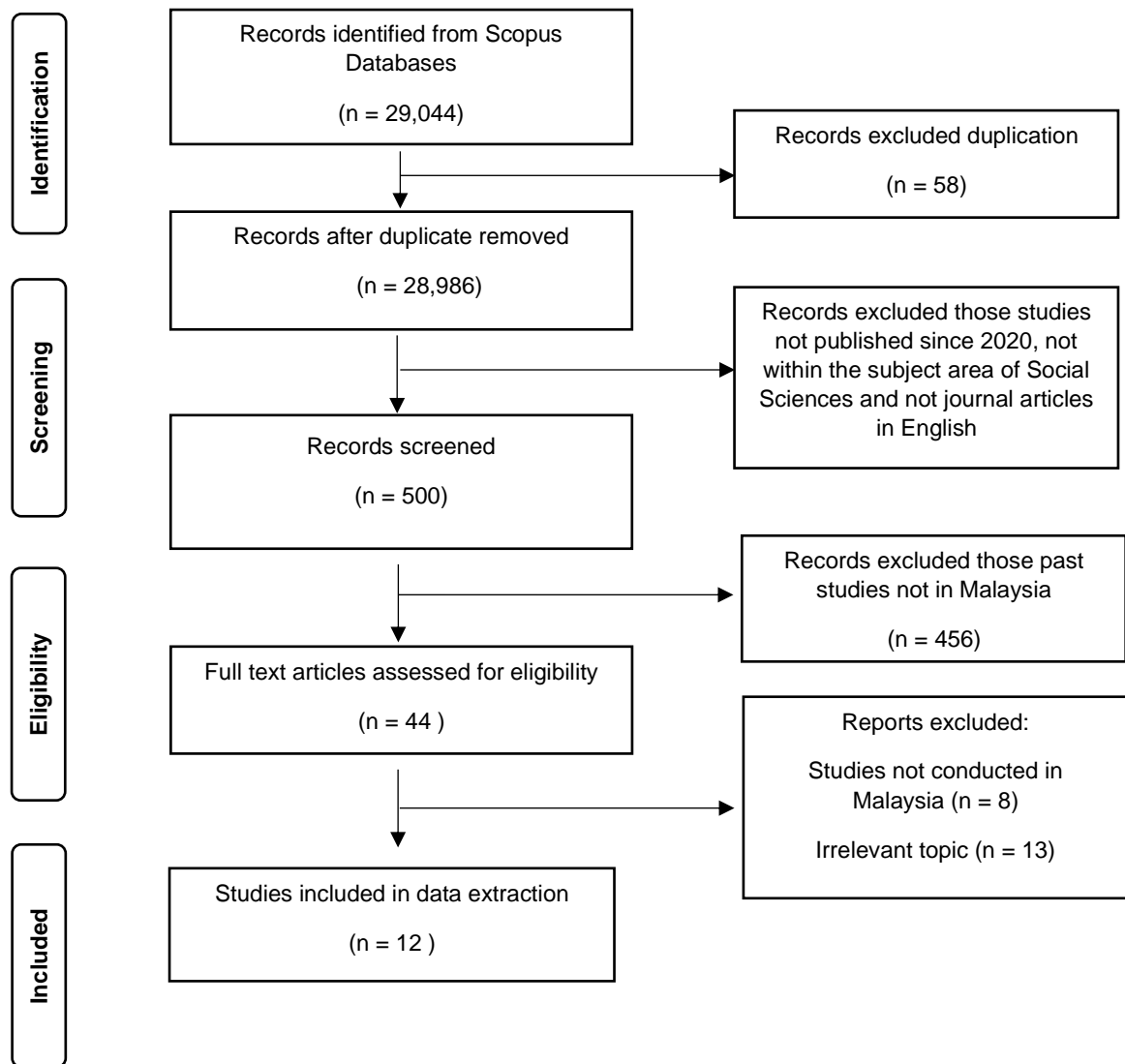


Figure 1. PRISMA flowchart for a systematic review on the use of digital media for online teaching and learning among the teachers and students in Malaysia

### Findings and Discussions

There were 12 studies included in this study (Alakrash et al., 2021; Raju et al., 2021; Roslan et al., 2021; Temban et al., 2021; Huei et al., 2021; Tan, 2021; Sia et al., 2021; Yunus et al., 2021; Al-Kumaim et al., 2021; Mansor et al., 2021; Ibnu et al., 2021; Mazlan et al., 2021). All studies are summarised in Table 1 according to the scope of study, method, sample, and type of educational institute.

Table 1

*Summaries of previous studies*

No.	Authors	Scope of Study	Method	Sample	Type of educational institute
1	Alakrash et al (2021)	Use of digital media (Various digital tools)	Survey	Students and teachers	Secondary school
2	Raju et al (2021)	Students' perceptions of online learning	Survey	Students	Higher education
3	Roslan et al (2021)	Challenges of online learning	Cross-sectional study	Students	Higher education
4	Temban et al (2021)	Use of digital media (YouTube Kids)	Mixed-methods	Students	Primary school
5	Huei et al (2021)	Use of digital media (Quizizz)	Mixed methods	Students	Primary school
6	Tan (2021)	Challenges of online learning	Survey	Students	Higher education
7	Sia et al (2021)	Challenges of online learning	Qualitative	Lecturers and students	Higher education
8	Yunus et al (2021)	Students' behaviour for online learning	Survey	Students	Higher education
9	Al-Kumaim et al (2021)	Challenges of online learning	Qualitative	Students	Higher education
10	Mansor et al (2021)	Teacher readiness for online teaching	Survey	Teachers	Secondary school
11	Ibnu et al (2021)	Students' perceptions of online learning	Qualitative	Students	Higher education
12	Mazlan et al (2021)	Students' perceptions of online learning	Survey	Students	Higher education

Table 1 shows that there were three studies on the use of digital media, four studies on challenges of online learning, three studies on students' perceptions of online learning, and only one study on students' behaviour for online learning and teacher readiness for online teaching respectively. The majority of the studies (6) were conducted through survey questionnaire while three studies were conducted qualitatively. Only two studies were carried out through mixed methods and one study was a cross-sectional study.

As for the sample, the previous studies involved mostly among the students as there were nine studies while two studies involved lecturers, teachers and students. Only one study involved the teachers as the sample. In terms of the types of educational institutes, most of

the previous were conducted at the higher education (8). Only two studies were carried out in the primary and secondary school respectively.

There are several limitations identified such as scope of study, method, sample, and type of educational institutes. As most of the studies were conducted among the students, the teachers' perceptions, readiness and use of digital media were rare. Besides, the samples were mostly from the higher education rather than primary and secondary schools. The students in secondary school and university are more mature and they could learn by themselves without the teacher through online learning. The only two studies conducted in the primary school were on the students' use of digital media in YouTube Kids and Quizizz. Teachers in the primary school need to prepare more online materials and digital media as their students are young. Given that the teachers' perceptions and readiness of digital media is important, there is a need to explore the use of digital media by the teachers in primary school in future studies.

### ***Use of Digital Media***

Besides the two digital media of YouTube Kids (Temban et al., 2021) and Quizizz (Huei et al., 2021) that were used for online learning, other digital media found in the studies were WhatsApp, Telegram, and YouTube (Roslan et al., 2021). Alakrash et al (2021) discussed the various digital media used for teaching English language skills. They found that most of the teachers and students preferred to use digital media such as YouTube and Netflix (listening), Skype, Zoom and Google Meet (speaking), Grammarly, Grammar Checker, Google Docs (writing), e-dictionary and gamifying such as Cross Words, Puzzles, Word Finder (vocabulary), and e-books and online learning websites (reading). Mazlan et al (2021) found that Google Classroom was used as the main platform for online learning activities, followed by WhatsApp (86.4%), Google Meet (75.7%), Telegram (67.4%), I-learn (44.6%), YouTube (29.3%), Zoom (7.8%) and Skype (6.4%).

Through a systematic literature review, Wiwin et al (2022) had also found that the reviewed articles indicated seven apps: Schoology, Multimedia-assisted Instruction (MAI), Information Communication Technologies (ICTs), Memrises, Quizlet, Socrative, Sli-do, and Three-Dimensional (3D) that allow students to promote their autonomous learning. There are many benefits of using digital media for student online learning, but there were very few local studies in this area. Though the search terms used for the past local studies were on "digital media" or "digital means" or "digital mediums", but most results were on "online learning", very few results are found in these terms.

### ***Perceptions and readiness for online teaching and learning***

The findings show that the students had positive perceived usefulness, attitude, and use intention in their acceptance of digital tools in online learning (Raju et al., 2021). Students also learned vital lessons about time management, environmental awareness and independence from online learning (Ibnu et al., 2021). Mansor et al (2021) found that in-service teachers' level of readiness was at a high level across all dimensions, although the highest was in attitude and the lowest was in subjective norms which implies that most teachers were most likely not affected by their surroundings, particularly in terms of their working environment. Teachers might be feeling less pressure since they are working from

home and have less contact with their colleagues or principal. Overall, they had positive perceptions for online teaching and learning.

### ***Issues and Challenges of Online Teaching and Learning***

The findings show five issues and challenges faced by the students and teachers as shown in the following:

#### **(1) Stress and Anxiety** (Al-Kumaim et al., 2021; Ibnu et al., 2021; Sia et al., 2021)

Sia et al (2021) found the four reasons of mental stress amongst lecturers in Malaysia for online teaching and learning. Firstly, they lack the time to learn to use the learning management system and are given little training and preparation. Secondly, some lecturers do not subscribe to strong Internet services at home and they use their phone network for online teaching. Thirdly, lecturers need to change the assessments methods, for example, converting the final exams to coursework or take-home exams. Fourthly, marking assessments online exposes lecturers to computer vision syndrome as they have to use computers for long hours to read and provide feedback. All the above cause much anxiety and stress to the lecturers as well as to the students. Ahmad et al (2022) supported that low technological competence was a significant barrier to online teaching during the lockdown and is linked to anxiety among teachers. Stress and anxiety could certainly affect the teachers and students' personal health if they could not cope with it.

#### **(2) Lack of Motivation** (Tan, 2021; Ibnu et al., 2021)

The findings indicated that the students lost motivation and learning performance using online learning methods. As the standardised examination is scrapped, students lack the motivation to study hard as their academic performance is not measured. Besides, the final examination was replaced with take home test or coursework, students could easily copy the answers from internet and friends as there is no teacher to monitor them. In addition, students were also demotivated as a result of the lack of face-to-face interaction with new peers. This happened when they had lost out on the experiences of living on campus during their first year of study.

#### **(3) Overloading with Information and Work** (Al-Kumaim et al., 2021)

This is due to the much information received from lecturers as they only share the online materials such as YouTube video link easily and they think that watching video is easy for the students. However, the students need more time to process the information in the video and do the task given by the lecturer. They learn three to five courses in one day, and if they receive much information from each course lecturer, this would take a lot of time from them and they would feel overloaded.

#### **(4) Lack of Knowledge in the Usage of Technology** (Al-Kumaim et al., 2021; Mazlan et al., 2021)

The lack of knowledge could lead to inadaptability and unfamiliarity of the new online learning environment. Students felt that it was difficult to practice online learning especially in understanding the content for the subjects related with calculations. This lack of knowledge could be caused by the lack of technology training and technical support (Machaba & Bedada, 2022). Most teachers and students are not physically and mentally ready for online teaching and learning when they lack the knowledge and skills in using digital media.



### **(5) Lack of Infrastructure (Tan, 2021)**

There is a lack of infrastructure to support the online teaching and learning and one biggest problem is poor internet connection. Regarding online teaching during the pandemic, teachers had difficulties in contacting students in remote areas due to poor Internet connection or a lack of electricity (Ahmad et al., 2022). The poor internet connection could lead to frustration when students have to upload an assignment for a long time and the teachers could not download the online materials.

Traditionally, teacher education or university providers have opted for isolated technology courses for the students' qualification programme. This approach is ineffective for building broader and deeper understandings of the knowledge and capabilities needed by teachers educating students for future as it focuses on contextually-devoid and isolated technical skills (Falloon, 2020). Therefore, it is suggested to curriculum policy makers and educators to provide a more comprehensive course that equips the graduating teachers the necessary knowledge and skills in using digital media for their classrooms.

### **Conclusion and Recommendation**

This study analyses data extracted from referencing sources in academic journal articles and the findings show that though the teachers and students had positive perceptions towards the use of digital media for online lessons, they faced the five issues and challenges which were stress and anxiety, lack of motivation, overloading with information and work, lack of knowledge in the usage of technology, and lack of infrastructure. These findings would contribute towards aiding curriculum policy makers, educators, teachers and students to have an increase of knowledge and awareness towards the usage of digital media during the online teaching and learning.

There are several limitations to the current study. In the first place, the study failed to include all related documents due to limited library sources. In the second place, the perceptions of teachers and students should be separated to make the study more focused, which needs further exploration.

Future researchers should focus on the term of "digital media" and explore its various forms for teaching and learning. The very small number of local studies indicated a need for researchers to conduct the study in Malaysia. Another direction of future research is to develop a more comprehensive survey questionnaire for teachers and students to identify their perceptions and challenges for online teaching and learning.

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