

English teachers' readiness to teach online during the COVID-19 outbreak

Siti Norbaya Mohd Radzuan

Faculty of Languages and Communication
Universiti Pendidikan Sultan Idris (UPSI), Malaysia

SK Bandar 2 Paloh Hinai, Malaysia

Farah Hazwani Ghazali

SK Tok Muda, Malaysia

Khairunnisa Yusoff

SK Padang Kala, Malaysia

Muhammad Lintang Islami Hakim

Faculty of Teacher Training and Education
Universitas Islam Kalimantan Muhammad Arsyad Al Banjari, Indonesia

*email: sitinorbaya37@gmail.com, waniel22011@gmail.com, valsanine9@gmail.com,
lintang14januari@gmail.com*

Received: 12 August 2020; **Accepted:** 03 June 2020; **Published:** 07 June 2021

To cite this article (APA): Mohd Radzuan, S. N., Ghazali, F. H., Yusoff, K., & Islami Hakim, M. L. (2021). English teachers' readiness to teach online during the COVID-19 outbreak. *AJELP: Asian Journal of English Language and Pedagogy*, 9(1), 16-27. <https://doi.org/10.37134/ajelp.vol9.1.2.2021>

To link to this article: <https://doi.org/10.37134/ajelp.vol9.1.2.2021>

Abstract: The study aimed at investigating Malaysian English teachers' readiness to teach online during the recent COVID-19 outbreak and the problems they faced while conducting online lessons. Data for the study were randomly obtained online from 103 respondents, using a questionnaire. Findings showed a positive indication of English teachers' readiness for online teaching yet there were a few problems that need to be addressed, especially pertaining to the equitable network coverage and facilities, implying the needs for the authorities to provide ample support and innovations to assist both teachers and learners in achieving meaningful online learning.

Keywords: e-learning, online teaching, online learning, digital learning, remote learning, teachers' readiness, COVID-19

INTRODUCTION

The 21st century revolution has brought major changes in the world of education especially with the integration of information and communications technology (ICT) to better facilitate and support the teaching and learning process. As part of the effort to improve education quality as well as bridge the global gap, it is important to have global education reforms that will enable learners to develop useful and productive knowledge, skills, and qualities. Therefore, the goals of education are no longer bound to simply providing basic literacy skills but high demand for a system that could provide higher-order thinking skills and competencies for all learners (Anagün, 2018).

To realize these goals, many countries have started to integrate 21st century skills related to the current economic and social developments, which include collaboration, communication, digital literacy, citizenship, problem-solving, critical thinking, creativity, and productivity (Voogt et al., 2013) into their curriculum and education systems, as an effort to transform the teaching and learning process into meaningful and progressive experiences for the learners. In connection with the recent COVID-19 outbreak, the whole world suddenly has to switch to online learning as a solution to provide continuous learning (Doghonadze et al., 2020) for pupils when they are prohibited from going to schools. This phenomenon has received mixed feelings and responses from pupils, teachers, parents, as well as stakeholders. Despite being there for years, online learning still provides an unversed and awkward transition for certain people, especially when it has to be fully implemented in the education system.

This could be seen in a recent study of the same issue and phenomenon by Doghonadze et al. (2020) which shows that many countries are still rather far from ready for online learning to be implemented although the samples are not representing the situation as a whole. They have also identified that some teachers, especially the ones teaching in schools that are not accustomed to online learning are not technically well-equipped. As a consequence, more time is needed to only prepare and adapt suitable materials, but also to familiarize themselves with the use of technology as well (Doghonadze et al., 2020; Martin et al., 2019).

BACKGROUND OF THE STUDY

In early 2020, the world was surprised by the sudden outbreak of the coronavirus pandemic, also known as the COVID-19. It was first identified in Wuhan, China, in December 2019 and started to abruptly spread worldwide. Due to the mass outbreak, the governments and authorities in many countries have responded with severe actions like travel restrictions, lockdowns, the closure of buildings and facilities such as shopping malls, theme parks, government agencies, universities, colleges, as well as schools, as part of the effort to control the outspread of the virus, which further damage and disrupt our economy and society. According to the United Nations Educational, Scientific and Cultural Organization's (UNESCO) data as of the time of writing, these nationwide closures have affected over 60% of the world's student population and 107 country-wide school closures. The Trade Union Advisory Committee (TUAC) Secretariat Briefing on the 16th of April 2020 confirmed that during the pandemic outbreak, teachers and education professionals have been asked to equipped students with teaching materials and directly giving instructions using remote digital tools with the expectation that students could learn from home under their parents' supervision.

The Malaysian government has also implemented a similar confinement measure namely the Restriction of Movement Order (Prime Minister's Office of Malaysia, 2020) or also known as the Movement Control Order (MCO) under the Prevention and Control of Infectious Diseases Act 1988 and the Police Act 196. The order that began on the 18th of March 2020 and is expected to end on the 31st of August 2020 is implemented in 3 stages, starting with the Movement Control Order, Conditional Movement Control Order (CMCO), and Recovery Movement Control Order (RMCO).

Similarly, during the MCO, government and private schools, as well as public and private higher education institutions were to remain closed, causing a long break in the formal traditional teaching and learning process conducted in classrooms. Children were also asked to study at home assisted by their parents, which could be challenging as there are a few issues that need to be addressed such as educational resources at home, parental level education, and parents' fluency in the language of school instruction, as pointed by the Organisation for Economic Co-operation and Development (OECD).

As a solution, many teachers opted for remote learning where no traditional classroom existed. Instead, teaching and learning processes were conducted using technology and online learning began to serve as a means of communication between teachers and learners. In Malaysia, the use of ICT in education has been introduced long before through the implementation of Malaysia Education Blueprint (Pelan Pembangunan Pendidikan Malaysia) 2013-2025, which aspires to bridge the education gap across the nation producing a more technologically literate workforce that is relevant to the 21st century knowledge and skills; improving the quality of education to be on a par with the ones in developed countries. At the school level (in both primary and secondary schools), the Ministry of Education has come up with many online learning platforms as a medium for ICT integration such as the previous Frog VLE (Virtual Learning Environments) and the current learning management system (LMS) that is Google Classroom; both as the mediums for teachers to digitize their teaching.

These changes have resulted in changes in our education in which more considerations should be made for online teaching and learning. Learning has shifted from teacher-centered to be more student-centered, and learners have more opportunities to be autonomous and responsible for their own learning experience. These changes require more openings for both teachers and learners to utilize ICT; technologies with no boundary to knowledge and information, thus making knowledge and skills of using these technologies more of a basic necessity rather than an additional skill to acquire. Despite being widely known to be supportive in autonomous learning, cheaper than traditional education, and flexible in terms of time and place to conduct, teachers, schools, as well as other education institutions are having different views and readiness pertaining to its implementation (Doghonadze et al., 2020). In fact, teachers especially are still struggling to juggle between the traditional teaching method and the online method. However, the unexpected outbreak of the COVID-19 hence the sudden implementation of online teaching and learning caused little to no time for teachers to adapt to the method (TUAC Secretariat Briefing, 2019). Therefore, it is important to ascertain our teachers' readiness to conduct online teaching during the COVID-19 outbreak so that further assistance and facilitation could be provided to them.

LITERATURE REVIEW

Online learning is no longer a new phenomenon in the education system. In fact, the growth of technology in our everyday life has urged for a critical need for digital learning and digital classroom. Quite a number of studies pertaining to teachers' readiness to conduct online lessons (Cheok et al., 2017; Kumar et al., 2020; Norazlin, 2018; Thi et al., 2017) found a significant result showing positive feedback and acceptance from the teachers. Despite having to face barriers like lacking of time, facilities, and skills, teachers perceived online learning as beneficial in creating great interest among students and helping in making their teaching job easier (Cheok et al., 2017). With properly adequate training, assistance, and support from the authority, they are prepared to implement online learning in their classrooms.

Froelich (2009) argues that designing lessons that focus on students' activities can arouse their interest to engage and participate in the lessons, yet sometimes teachers overlook this matter and design the flow based on what they want or will do (teachers-centred). Therefore, for an effective online lesson to take place, teachers must be ready to design lessons that fulfill those criteria while making sure that the instructional materials are organized and taught according to the guidelines (Martin, et al., 2019), which is the yearly scheme of work for Malaysian context. Other than that, it is important to provide ample opportunity for pupils to communicate during online lessons. As facilitators, teachers must be able to initiate meaningful communication with the learners and give timely adequate information and feedback. In terms of time management, teachers should be able to complete the processes governing online teaching, starting from the lesson planning until the assessment and reflection within the time allocated.

However, the platform like Google classroom, Frog VLE, and other online classes studied in those researches are only used recurrently, as a regular lesson still takes the form of a formal face-to-face interaction in a physical classroom (Cheok et al., 2017). Moreover, not all teachers really practise online teaching as it is not made compulsory to them, especially in relation to Malaysian classrooms. Teachers were also struggling to juggle between the traditional teaching method and the new proposed online teaching. Despite the so-called digitized teaching, teachers are still required to document their lesson notes, reports, and assessments in hard copies, which doubles their workload. Consequently, having to effectively infuse technology into their pedagogical practice demotivates the teachers as the ongoing transitions from face to face to online settings tend to tire them out. As a result, teachers begin to perceive that online learning requires extensive time and this perception has become the key obstacle to online teaching which demotivates them to implement this innovation (Cheok et al., 2017). Online lesson designing and planning could be time-consuming especially for a first-timer (Martin et al., 2019) or those who have difficulties managing ICT tools, yet it is a crucial aspect to be addressed to ensure the smooth sailing of online lessons.

As for English teachers, not only they have to cope with technical competency in the use of ICT, there is a need for them to put the extra translating effort into teaching English as a second language. Until the recent COVID-19 outbreak finally paves a way for online lessons to be fully conducted, now this study will fill in the contextual gap in which previously recurrent online lessons could not shed light on the reality behind English teachers' readiness to teach

online. Therefore, the goal of this study is to identify teachers' readiness, specifically English teachers', if they were given full opportunity to explore, master, and consequently conduct the lessons online, as an alternative to teaching and learning process just as what they have been experiencing since the first day of the confinement during the COVID 19 outbreak. It will also allow school administrations and respective authorities to identify problems that need to be solved regarding the implementation of online learning. Their readiness is assessed in terms of lesson planning, lesson communication, time management, and technical competence.

These four areas were chosen with reference to the instrument adapted from Martin et al. (2019). These four areas were chosen with reference to the instrument adapted from Martin et al. (2019) as they are aligned to the seven principles of effective pedagogical practices for online teaching as synthesized by Bailey & Card (2009) and eight roles of an effective online teacher proposed by Goodyear et al. (2001), as described in Table 1.

Table 1: *Teachers' Readiness to Conduct Online Lessons During the COVID-19 Outbreak*

Areas of online teaching in the instrument adapted from Martin et al., (2019)	The seven principles of effective pedagogical practices by Bailey & Card, (2009)	The eight roles of an effective online teacher proposed by Goodyear et al., (2001).
<ul style="list-style-type: none"> • Lesson planning 	<ul style="list-style-type: none"> • Active learning 	<ul style="list-style-type: none"> • Designer • Researcher • Manager / administrator
<ul style="list-style-type: none"> • Lesson communication 	<ul style="list-style-type: none"> • Encourage contact between students and faculty • Team-effort learning • Communicate higher expectation 	<ul style="list-style-type: none"> • Content facilitator • Advisor / counselor • Assessor
<ul style="list-style-type: none"> • Time management 	<ul style="list-style-type: none"> • Appropriate and timely feedback • Time management 	<ul style="list-style-type: none"> • Process facilitator
<ul style="list-style-type: none"> • Technical competence 	<ul style="list-style-type: none"> • Provide diverse delivery system 	<ul style="list-style-type: none"> • Technologist

By having this research, it is hoped that we can identify the true scenario of to what extent our teachers are ready to conduct full online lessons when it is essentially mandatory for them, and whether or not they will be able to cope with the distant learning, should school remain to be closed due to the pandemic. This research will also allow school administrations and respective authorities to identify problems that need to be solved regarding the implementation of online learning.

METHODOLOGY

This study employed a quantitative research design in which a cross-sectional survey was done to collect data and information from a small sample that has been drawn from a population of English teachers across Malaysia. To avoid problems such as inability or unwillingness to answer among the respondents, a self-administered questionnaire was used as the survey instrument to elicit information about English teachers' readiness to teach online during the COVID 19 outbreak. The questionnaire was adapted from a readiness instrument to assess faculty readiness to teach online (Martin et al., 2019) and divided into six sections named alphabetically from A to F. Section A contains items that elicit demographic details about the respondents. Sections B to E were prepared as sets of statements to be rated using a five-point Likert scale that allows the respondents to express their level of agreement, which ranges from Strongly Disagree (1) to Strongly Agree (5).

The choice made by the respondents would describe their readiness for different aspects in conducting online lessons (lesson planning, lesson communication, time management, and technical competence). The final section (F) was meant for further investigating problems that the respondents faced while conducting the online lessons to see whether there was any similarity or difference in problems faced by them. Therefore, a simple attitude scaling (Yes/No) was given and the respondents only had to further elaborate their answer if they choose "Yes". A total of 103 valid samples were used for analysis out of 107 questionnaires returned.

FINDINGS AND DISCUSSION

English Teachers' Readiness to Teach Online During the COVID-19 Outbreak

The data on English teachers' readiness to conduct online lessons during the COVID-19 outbreak was gathered using a questionnaire. The scales for all the items in the questionnaire were divided into three categories of different levels of readiness. Since there were 22 items in total, the minimum score would be 5 whereas the maximum score would be 110. Scores that ranged from 5 to 50 were labeled as not ready, 51 to 80 as neutral or not sure, and 81 to 110 were considered to be ready.

Table 2: Teachers' Readiness to Conduct Online Lessons During the COVID-19 Outbreak

Readiness Level	Frequency	Percentage (%)
Not ready	2	1.9
Neutral/not sure	27	26.2
Ready	74	71.8
Total	103	100.0

Based on the analysis made, it could be seen that the majority of the respondents (71.8%) took a positive view about themselves and their ability to prepare, plan, conduct, and assess online lessons, as illustrated in the questionnaire. It shows that they are ready to conduct online lessons, especially in the course of the COVID-19 pandemic. This result is aligned with the significant findings made by Kumar et al. (2020), Cheok et al. (2017), Norazlin (2018), and Phan and Dang (2017) who found positive feedback and acceptance from the teachers regarding the implementation of digital learning. There were 26.2% of them who had neutral feelings and a small percentage of 1.9% who were not ready to teach online. Despite the small number, they are equally important groups to reflect upon for a successful implementation of digital learning throughout the nation, as well as worldwide. To understand these differences, the respondents' readiness was further analyzed according to different aspects in online teaching as in the following Table 3.

Table 3: Teachers' Readiness Based on Different Aspects in Online Teaching

Readiness Aspects	Strongly Disagree %	Disagree %	Neutral / Not Sure %	Agree %	Strongly Agree %
Lesson planning	3.2	7.4	24.7	41.5	23.3
Lesson communication	1.2	2.7	19.4	46.4	30.3
Time management	2.7	4.1	25.4	46.6	21.2
Technical competency	2.5	3.5	17.9	42.3	33.8

Based on the data above, there were still a number of the respondents who were not sure and not ready for the shift to teach online, especially in terms of lesson planning (24.7% + 7.4% + 3.2%), and time management (25.4% + 4.1% + 2.7%). This finding corresponds to teachers' view on lack of time and struggles to plan online lessons as barriers to digital learning as mentioned by Cheok et al. (2017). They found it a bit challenging to organize instructional materials, create instructional videos and use a variety of teaching methods in the online environment as highlighted in the aspect of online lesson planning. They also disagreed that

they had ample time to mark their students' homework or exercises given and received online, besides did not manage to allocate time to learn about new strategies or tools to use during online teaching.

Problems Faced by Teachers While Conducting Online Lessons

To further analyze their readiness, another question was posed to identify problems that the respondents faced while conducting online teaching and learning. 51.5% of the respondents pointed out several problems that could be categorized into four main aspects; lacking in pupils' participation, network and technical problems faced by both the teachers and the learners, as well as poor time management among the learners.

For lacking of pupils' participation, the respondents listed out problems like passive learners, avoidance to teachers' questions, difficulties to get pupils' participation, pupils were not fully ready or prepared and pupils failed to comply with the time table given. Some of the network and technical problems faced included the absence of electronic and digital devices especially among lower socio-economic background, some pupils need to share or take turn to use the device with their siblings, limited data, poor network coverage in rural areas, and pupils' inability to concentrate during online lessons. Other problems included the longer time needed by pupils to understand the lesson, which resulted in the exceeding of the duration of a lesson.

Table 4: *Problems Faced by Teachers While Conducting Online Lessons*

Problem	Frequency	Percentage (%)
Lacking in pupils' participation	23	43.4
Network and technical problems faced by pupils	25	47.2
Network and technical problems faced by teachers	4	7.5
Poor time management by pupils	1	1.9
Total	53	100

Basically, the problems faced by teachers while conducting online lessons were caused by the shortcomings from the pupils' side (43.4% + 47.2% + 1.95) which makes up a total of 92.5%. In other words, if problems faced by pupils were solved, teachers would not be having any crucial problem to implement online learning except for the poor network coverage and technical issues (7.5%), which were beyond their control.

CONCLUSION AND RECOMMENDATION

Findings from this study suggest that majority of the respondents were ready to conduct online lessons, especially during the COVID-19. Yet, they still faced problems while conducting the lessons due to shortages faced by their pupils in terms of digital devices, network coverage, and facilities. These findings concur with other researchers' (Bailey, 2009; Goodyear et al., 2001; Hawati & Jarud, 2020; Martin et al., 2019) views that adequate equipment and ample ICT knowledge are vital for successful online teaching and learning. Adequate facilities will ensure a conducive setting and environment as both teachers and pupils are still grappling with the implementation of online teaching and learning as their previous lessons (when using the Google Classroom platform) were normally conducted with the presence of both the teachers and the learners in one same place, whereas the ones they had during the pandemic outbreak was more of remote learning.

It could be even more challenging for young learners who need more guidance and assistance to perform online tasks. However, since the results pointed out that the problems that occurred were caused by shortcomings in pupils' participation and technical equipment, further effort could be made to ensure these problems are curbed before such online learning could be implemented. We could also make use of this information to carry out the same readiness investigation for pupils to confirm whether or not they are having problems learning online, as revealed by teachers in this study.

Another crucial aspect of a successful teaching and learning process is lesson planning and preparation. Compared to the traditional classroom, online learning requires totally different materials and mediums of instruction. Teachers are required to adapt to a new environment and teaching method thus it is important to properly sequence the online teaching and learning process to ensure meaningful outcomes. According to Prozesky (2000), learning can be either superficial or deep, depending on how it is conducted. Superficial learning, whereby knowledge is only memorized is easily forgotten and does not have a significant impact on a learner. However, good learning in which the learner is directed to use the knowledge actively will result in deep and meaningful learning, and this is what is desired with the implementation of online learning.

In light of the present development and needs in education, one of the pedagogical implications that could be drawn from the findings is that there is an urgency to curb this problem first, before making any online learning further implemented and enforced in the education system as digital learning in Malaysia still has a long way to go due to poorly unequal network coverage and facilities. If these problems continue to persist, there is no way to achieve the aspirations to improve access to education, raising standards (quality), closing achievement gaps (equity), fostering unity amongst students, and maximising system efficiency as proposed in the National Education Blueprint (2013-2025). Therefore, ample support and innovations should be made to assist both teachers and learners in achieving meaningful online learning. To ensure equal readiness and competency among teachers, it is vital to have continuous training and monitoring by the authorities.

Teachers, on the other hand, should also portray exemplary roles as facilitators and initiators thus they should always be ready with changes and shifts in education. They should initiate their own learning and start experimenting and experiencing digital learning themselves (Cheok et al., 2017). As the world is moving rapidly towards advancement in this digital age, any information can be retrieved with just a click hence all parties must have the urgency to improve and progress on their own, without waiting to be told or taught to.

To conclude, it is hoped that this study will trigger more researches exploring the readiness for online teaching and learning in the Malaysian education system so we could identify the real problems that hinder the successful implementation of online learning. Further studies concerning pupils' readiness or possible factors affecting the readiness levels such as genders, teaching experience, subjects, or skills could also be made to further understand the course of online teaching and learning in Malaysia. These would help the schools, teachers, and community to work for improvement to optimize the outcomes from online learning in the future.

REFERENCES

- Anagün, Ş. S. (2018). Teachers' perceptions about the relationship between 21st century skills and managing constructivist learning environments. *International Journal of Instruction*, 11(4), 825–840. <https://doi.org/10.12973/iji.2018.11452a>
- Bailey, Craig, J., & Card, K. A. (2009). Effective pedagogical practices for online teaching: perception of experienced instructors. *Internet and Higher Education*, 12(3–4), 152–155. <https://doi.org/10.1016/j.iheduc.2009.08.002>
- Bao, W. (2020). COVID -19 and online teaching in higher education: A case study of Peking University . *Human Behavior and Emerging Technologies*, 2(2), 113–115. <https://doi.org/10.1002/hbe2.191>
- Baran, E., Correia, A. P., & Thompson, A. (2011, November). Transforming online teaching practice: Critical analysis of the literature on the roles and competencies of online teachers. *Distance Education*. <https://doi.org/10.1080/01587919.2011.610293>
- Baran, E., & Correia, A.-P. (2014). A PD framework for online teaching. *TechTrends*, 58(5), 96–102. Retrieved from <https://link-springer-com.proxy.library.uu.nl/content/pdf/10.1007%2Fs11528-014-0791-0.pdf>
- Basilaia, G., & Kvavadze, D. (2020). Transition to Online Education in Schools during a SARS-CoV-2 Coronavirus (COVID-19) Pandemic in Georgia. *Pedagogical Research*, 5(4). <https://doi.org/10.29333/pr/7937>
- Bolliger, D. U., & Wasilik, O. (2009). Factors influencing faculty satisfaction with online teaching and learning in higher education. *Distance Education*, 30(1), 103–116. <https://doi.org/10.1080/01587910902845949>
- Cheok, M.L., Wong, S. L., Ahmad Fauzi Ayub, & Rosnaini Mahmud. (2017). Teachers' perceptions of e-learning in Malaysian secondary schools- frog VLE. *Malaysian Online Journal of Educational Technology* 5(2) .
- Conrad, D. (2004). University instructors' reflections on their first online teaching experiences. *Journal of Asynchronous Learning Network*, 8(2), 31–44. <https://doi.org/10.24059/olj.v8i2.1826>
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: qualitative, quantitative, and mixed methods approaches* (5th ed.). Los Angeles: SAGE Publications, Inc.
- Daniel, S. J. (2020). Education and the COVID-19 pandemic. *Prospects*, 0123456789. <https://doi.org/10.1007/s11125-020-09464-3>

- Doghonadze, N., Aliyev, A., Halawachy, H., Knodel, L., & Adedoyin, A. S. (2020). The Degree of Readiness to Total Distance Learning in the Face of COVID-19 Teachers' View (Case of Azerbaijan, Georgia, Iraq, Nigeria, UK and Ukraine). *Journal of Education in Black Sea Region*, 5(2), 2–41. <https://doi.org/10.31578/jebs.v5i2.197>
- Garba, S. A., Byabazaire, Y., & Busthami, A. H. (2015). Toward the use of 21st century teaching-learning approaches: The trend of development in Malaysian schools within the context of Asia Pacific. *International Journal of Emerging Technologies in Learning*, 10(4), 72–79. <https://doi.org/10.3991/ijet.v10i4.4717>
- Goodyear, P., Salmon, G., Spector, J. M., Steeples, C., & Tickner, S. (2001). Competences for online teaching: A special report. *Educational Technology Research and Development*. Association for Educational Communication and Assn for Educational Communication and Technology. <https://doi.org/10.1007/BF02504508>
- International Association of Universities. (2020). *The impacts of COVID-19 on HE worldwide-Resources for Higher Education Institutions* (p. 27). Retrieved from <https://www.auf.org/nouvelles/actualites/lauf-lancebulletin-de-veille-electronique->
- International Baccalaureate. (2020). Online learning , teaching and education continuity planning for schools. *International Baccalaureate Organization*, 1–13. Retrieved from ibo.org
- Khalidi, J. R., Khalidi, J. R., Sundaram, K., Hamid, H. A., & Romadan, J. (2020). Covid-19 and Unequal Learning. *Khazanah Research Institute*, (April), 1–8.
- Koo, A. C. (2008). Factors affecting teachers' perceived readiness for online collaborative learning: A case study in Malaysia. *Educational Technology and Society*, 11(1), 266–278.
- Kumar, J. A., Bervell, B., & Osman, S. (2020). Google classroom: insights from Malaysian higher education students' and instructors' experiences. *Education and Information Technologies*. <https://doi.org/10.1007/s10639-020-10163-x>
- Martin, F., Budhrani, K., & Wang, C. (2019). Examining faculty perception of their readiness to teach online. *Online Learning Journal*, 23(3), 97–119. <https://doi.org/10.24059/olj.v23i3.1555>
- Norazlin Mohd Rusdin. (2018). Teachers' readiness in implementing 21st century learning.
- Norezan Ibrahim, Siti Fairuz Dalim, Rosilawati Sueb & Azzlina Adzra'ai. (2019). Trainee teachers' readiness towards 21st century teaching practices. *Asian Journal of University Education*, 15(1), 110–120. *International Journal of Academic Research in Business and Social Sciences*, 8(4), 1293–1306. <https://dx.doi.org/10.6007/IJARBS/v8-i4/4270>
- Nyanaambigai, R., & Nur Hidayah Zainul. (2020). Exploring malaysian polytechnic lecturers' readiness in embracing 21st century education: an institutional case study. *International Journal of Advanced Research in Education and Society*, 1(3), 1-7.
- Oliver, R. (1999). Exploring strategies for online teaching and learning. *Distance Education*, 20(2), 240–254. <https://doi.org/10.1080/0158791990200205>
- Phan, T. T. N., & Dang, L. T. T. (2017). Teacher readiness for online teaching: a critical review. *The International Journal on Open and Distance e-Learning*, 3(1), 1-16.
- Prime Minister Office. (2020). *Restriction of Movement Order*. Retrieved from <https://www.pmo.gov.my/2020/03/movement-control-order/>
- Ritanjali, P., Praveen Ranjan, S., & Dheeraj, S. (2018). Online learning: Adoption, continuance, and learning outcome—A review of literature. *International Journal of Information Management*, 43, 1-14.
- Sun, A., & Chen, X. (2016). Online education and its effective practice: A research review. *Journal of Information Technology Education: Research*, 15, 157-190. <http://www.informingscience.org/Publications/3502>
- The Organisation for Economic Co-operation and Development. (2020). *Flattening the covid-19 peak: Containment and mitigation policies*. Retrieved from https://read.oecd-ilibrary.org/view/?ref=124_124999yt5ggxirhc&Title=Flattening%20the%20COVID-19%20peak:.Containment%20and%20mitigation%20policies

- TUAC Secretariat Briefing. (2020). *Impact and Implications of the COVID 19-Crisis on Educational Systems and Households*. Retrieved from <https://tuac.org/news/the-impact-and-implications-of-the-covid-19-crisis-on-educational-systems-and-households/>
- UNESCO. (2020). *COVID-19 Impact on Education*. Retrieved from <https://en.unesco.org/covid19/educationresponse>
- van Laar, E., van Deursen, A. J. A. M., van Dijk, J. A. G. M., & de Haan, J. (2017). The relation between 21st-century skills and digital skills: A systematic literature review. *Computers in Human Behavior*, 72, 577–588. <https://doi.org/10.1016/j.chb.2017.03.010>
- Voogt, J., Erstad, O., Dede, C., & Mishra, P. (2013). Challenges to learning and schooling in the digital networked world of the 21st century. *Journal of Computer Assisted Learning*, 29(5), 403–413. <https://doi.org/10.1111/jcal.12029>
- Zhu, X., & Liu, J. (2020). Education in and after COVID-19: immediate responses and long-term visions. *Postdigital Science and Education*. <https://doi.org/10.1007/s42438-020-00126-3>