Evaluating TPACK Knowledge and Skills Among Arabic Pre-Service Teachers in Implementing Online Assessment During Movement Restriction Control (MCO) Of COVID-19

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ABSTRACT
The importance of having the knowledge and skills in Technological Pedagogical Content Knowledge (TPACK) among teachers when dealing with teaching via technology is very clear. In TPACK, there are three essential components that need to be practiced during teaching and learning in using technologies, including the current situation of COVID-19 pandemic. This study was conducted to evaluate the level of TPACK knowledge and skill among Arabic trainee teachers in implementing online teaching and assessment during Movement Restriction Control (MCO) of COVID-19 by the Malaysian government, whereby the schools are closed to face-to-face learning activities. The pre-service teachers were purposively selected among final year students of Bachelor of Education in Teaching Arabic as a Second Language, from the Kulliyah of Education, International Islamic University Malaysia (IIUM). They weresentto various secondary schools in Selangor to complete the graduation requirement of Bachelor of Education degree in teaching practicum. The research instruments were investigating the teachers' knowledge about three essential components of TPACK, which include technology, content, and pedagogy as well as open-ended surveys on obstacles and challenges in home-based teaching and online assessment of Arabic language

before and during MCO, online learning platforms used and further suggestions to improve the use of technology in implementing online assessment of Arabic language teaching in schools during pandemic. Thefindings showed that the understanding of the trainee teachers' level of knowledge and understanding of TPACK is very good towards implementing online teaching and assessment during the home-based and online teaching during pandemic. The responses of online learning platforms used and proposed suggestions to improve the use of technology in implementing online assessment may also beneficial to teachers in preparing the online teaching and assessment in home-based setting during COVID-19 pandemic.

Keywords: TPACK, home-based learning, online assessment, Arabic language, pre-serive school teachers.

INTRODUCTION

The educators and teachers are in the dire need of mastering the TPACK knowledge and skills in teaching and learning by using technology and online platform. This generic framework of TPACK is a reform and clearer integrated three elements of technology, pedagogy, and content (Thompson & Mishra, 2007–2008). It was previously known as TPCK (Mishra and Koehler, 2006) and PCK (Shulman, 1986). A number of researchers also are elaborating similar concept in technology, content, and pedagogy such as Niess (2005) who is referring the TPCK as the technology-enhanced of PCK. In conclusion, TPACK is built on Shulman's (1986) study of PCK, with enhanced technological knowledge by Mishra and Koehler (2006), in order to adapt and adopt effective teaching and learning with technology. TPACK with these essential componentshave to be fully taken in account into any teaching and learning session via various technological platforms, especially in the current situation of COVID-19 pandemic, which requires the teachers and educator to adapt suitable online and offline teaching and learning strategies including online assessment.

IMPLEMENTING ONLINE TEACHING DURING COVID-19 PANDEMIC

The employment of instructional technology in teaching and learning has becoming a crucial requirement among teachers and educator especially in the 21st century education. Moreover, the current global emergence situation of COVID-19 pandemic has been forcing the educators towards emergency remote teaching and learning (ERTL) and home-based learning (HBL) by using various online platforms and technologies (Leon, Trian, Ellen and Yogi, 2021). In addition, it is essential for the educators to master the TPACK knowledge and skill in order to ensure the proper conduct of online teaching and learning assessment. The integration of three components of learning including content, pedagogy and technology in TPACK conceptualizes the pedagogical approaches (Mishra & Koehler, 2006). Based on Hodges, Moore, Lockee, Trust, and Bond (2020), ERTL is "well-planned online learning experiences for the courses offered in response to a crisis or disaster". In addition, the learners have to opt in for the online learning option in some circumstances such as learning activitiesin a war situation(Rajab, 2018), remote places (Chen &Koricich, 2014), 2018), attending regular learning for working adults (Bourne, et. al., 2005) and biological crisis (Alshehri. et. al., 2020). In the other hand, home-based learning (HBL) is an unavoidable option during the current spread of COVID-19 global pandemic. Based on Holt (2020) - who is the Father of HBL defines "home-based learning as it doesn't need to be like school; instead, it can be a continuation of how your family lived before your children became "school age".

Although there are various positive reports of using Information and Communications Technology (ICT) inteaching and learning process, Romeo (2006), Cox and Graham (2009)

alsoconfirmedthe importance of TPACK in helping the educators to understand the potential contributions of new technologies in education. Graham (2011) also added that TPACK can be used to assess and evaluate how the teachers' professional development affects their performance in the classroom with the use of ICT. The enhanced value of TPACK can support the students in their learning through technology, as well as their development of conceptual, and procedural attributes (Voogt, Fisser, Pareja Roblin, Tondeur& Van Braak, 2013). These three integrated components of content, pedagogy and technology in TPACK conceptualises the pedagogical approaches and commonly used for understanding, learning, and describing different knowledge types needed by educators and teachers (Mishra & Koehler, 2006). Hence, general teaching skills are required in order to revise with the use of advanced technologies for effective teaching (Bransford, Brown and Cocking, 2000). At the same time, Lee (2002) suggested that with the integration of ICT into schools, teachers ought to play the role of mentors, rather than expert in formation givers. Moreover, technological advancements in education should not only be focused, but there is the need for more effective learning tools (Romeo, 2006). Proper guidance also should be provided by the decision and policy makers while formulating the education policy in order to improve the implementation of technologies in teaching and learning (Lee, 2002).

COVID-19 PANDEMIC AND HOME-BASED LEARNING (HBL)

On 31st of December 2019, there was a growing report on the acute respiratory illness that started in Wuhan. The virus, which is later identified as COVID-19, attacks the human respiratory system and caused death to several thousands of individuals worldwide(Hasan & Hossain, 2020; Chen, et. al., 2020; Ali, et. al., 2020).Rapid transmission of COVID-19 from human to human occurs through droplets or direct contact (Lai, Shih, Ko, Tang, & Hsueh, 2020), which spreads when someone who is infected with COVID-19 coughs, sneezes or exhales (Williams, 2020).Hence, the temporary closure of schools all over the world have been announced, impacting more than 91 per cent of students worldwide around 1.6 billion children and young people (Miks. J. and McIlwaine, J., 2020).Due to the seriousness of the rapid spread of this pandemic and to further prevent the spread, almost 1 billion people across the globe are put on home confinement (lockdown/movement control order) (NST Online, 22, March 2020) and Malaysia is of no exception of this.

The Prime Minister of Malaysia announced the first phase of the Movement Control Order (MCO) to start from 18th March 2020 until now as of June 2021 through various phases of movement controls with certain standard of procedures (SOP). As such, all sectors including the education sector especially the Higher Education Institutions including schools are badly affected. Since the partial lockdown or MCO is unprecedented, teachers have been urged to explore the best teaching or instructional methods or strategies in teaching their students remotely. Hence, the teachers, support staff are busy trying and adapting with online learning activities with the hope of providing a support system for parents and a semblance of routine for the school students. This prompted, the Ministry of Education (MOE) to issue a circular on Teaching and Learning Implementation Guidelines (PdP) during the Movement Control Order (MCO) due COVID-19 pandemic. The circular on Teaching and Learning Implementation Guidelines (PdP) consists of KPM's commitment to ensure that students are not left behind and are able to continue their learning in a safe manner.For this purpose, teachers are not allowed into the school and must perform all homework assignments from their homes (MOE, 2020-a). The Ministry of Education Malaysia has also issued a general manual or guideline for teachers to conduct teaching and learning activities at home, but so much in details on how to implement certain teaching and learning activities including the assessment (MOE, 2020-b).

In Malaysia, computers havebeen making their way into schools since the late 1990s through Smart Schools programme. Until now, e-learning has been a feature in education since 2006 (TunkuBadariah, 2020). The Malaysian national e-learning policy (DePAN 2.0) was then officially announced on April 16, 2011 to open the path towards e-learning and online teaching more clearly nine years ago(MOHE, 2011).The online teaching and learning in Malaysia alsohave yet to reach the level of satisfaction for educators and students. For some teachers, this is difficult because today, there are still many teachers who are lack of skills in the use of information technology to enable them to deliver teaching materials online (Tunku, 2020; Simin et.al, 2020). Issues like students' attention in online classes and achievement, as well as the efficacy of online teaching are also among the concerns (Tao Tang, Atef M. Abuhmaid, MeladOlaimat, Dana M. Oudat, Maged, Aldhaeebi& Ebrahim Bamanger (2020). Despite all challenges faced until now, Malaysian teachers are optimistic and positive with the change (TheSundaily,2020). Among the challenges faced is taking attendance as one of the most difficult task to do online as educators wonder if the learners are really checked in or not (Sakilandeswari, 2020, Haslindar Nor Ismail, 2020, Agatha Wong 2020), the effectiveness of teaching writing online (Sakilandeswari, 2020), students' attention in online classes and their achievement, as well as the effectiveness of online teaching are also raised (Tao Tang, Atef M. Abuhmaid , MeladOlaimat , Dana M. Oudat , Maged, Aldhaeebi& Ebrahim Bamanger (2020). The biggest challenge as stated in most literature is the level of readiness and optimism among the educators to accept and implement the new norm in teaching and learning (Sueraya, et. al. 2021). Despite of facing the challenges of teaching and learning at schools, various online webinars were conducted in order to facilitate online guide and instructional supports, such as conducted by the ICESCO Centre of Education, Malaysia in collaboration with the Ministry of Education, Malaysia as shown in Figure 1 and Figure 2.

Figure 1: Online Webinar on Teaching Arabic During Pandemic in December 2020

Figure 2: Online Webinar on Remote Teaching and Learning of Arabic Language and
Literature in June 2021

Figure 3 shows an example of online teaching and learning session in secondary schools that
were conducted by pre-service school teachers in teaching Arabic language during Movement
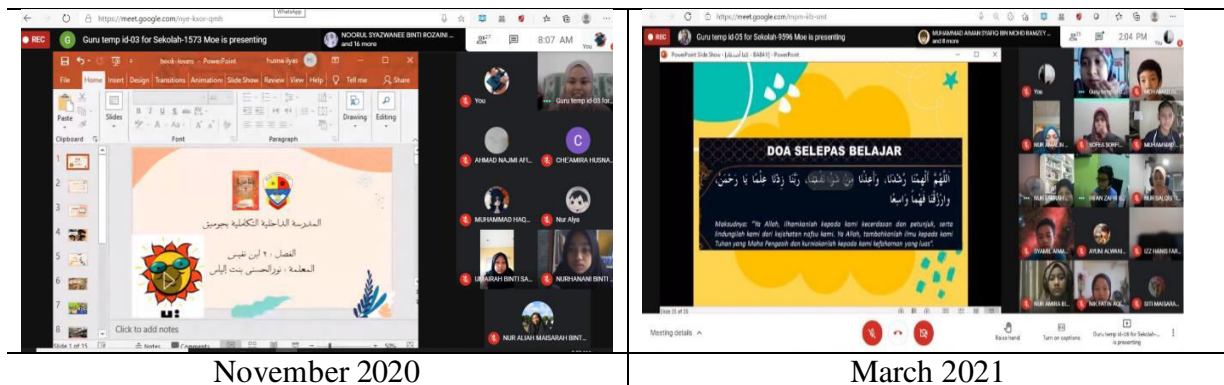Restriction Control (MCO) since November 2020 until March 2021.

| November 2020 | March 2021 |

Figure 3: Samples of online teaching and learning session in secondary schools during
MCO by pre-service teachers in teaching Arabic language

RESEARCH OBJECTIVES
This study embarks on the following research questions:
1- What is the level of Arabic school teachers' knowledge of technology, pedagogy, and
content, including the combinations of these domains after undergone into the TPACK
training in designing teaching and online assessment?
2- What are comments and suggestions to improve the use of educational technology in
Arabic online assessment?

RESEARCH METHODOLOGY

As mentioned before, this study is conducted to investigate the level of technological pedagogical content knowledge (TPACK) skill among Arabic trainee teachers in implementing online teaching and assessment during closure of schools due to Movement Restriction Control (MCO) of COVID-19 by the Malaysian government. The trainee teachers were purposively selected among 32 final year students of Bachelor of Education in Teaching Arabic as a Second Language, from the Kulliyah of Education, International Islamic University Malaysia (IIUM), distributed into various secondary schools in order to fulfill the teaching practice and practicum requirement of Bechelor of Education completion. This research instruments were investigating the teachers' knowledge about three essential components of TPACK, which include technology, content, and pedagogy as well their suggestions and feedbacks towards employing online assessment via Google Form.

The respondents were were requested to complete the adapted TPACK survey by (Mishra & Koehler, 2006; Shulman, 1986) in their own chosen place at a time that was convenient to them, via self-administered survey (Robson, 2002) after the completing the teaching practice and practicum period in December 2020. The first part of the survey is concerned with the collection of demographic information such as participants' gender. The second part of questionnaire is based on adapted TPACK as a guiding framework that enhanced the level of knowledge among the teachers in designing online assessment in 10 questions and 4 open-ended surveys (Mishra & Koehler, 2006; Shulman, 1986; Archambault & Barnett, 2010; Roberts, 1999; Schmidt, 2009), followed by open-ended surveys on problems and challenges faced during the use of educational technology in online assessment of Arabic learning at home before and during MCO, platforms used and further suggestions to strengthen the use of educational technology in implementing online assessment of Arabic school teaching in Malaysia.

RESULTS AND FINDINGS

The results for the results and findings are presented in separate subsections such as the followings:

a)   Demographic Information:

As shown in Table 1, it is very clear that most of the respondents are male with 22 respondents (55)%, while the rests are female (45)%. They were distributed in various secondary schools in Selangor to fulfill the teaching practice and practicum requirement of Bachelor of Education degree in their fourth year of study. The details of school names and locations are not disclosed in this study due to classified category of information.

Table 1: Gender

Gender	Frequency (N)	Percentage (%)
Male	5	15.6
Female	27	84.4
Total	**32**	**100**

b)   Competency Level on Technological Pedagogical Content Knowledge (TPACK)

The results competency level on technological pedagogical content knowledge (TPACK) among Arabic school teachers are displayed in Table 2 as the following:

Table 2: Results of TPACK Knowledge and Skill

No.	Item	Frequency and Percentage				
		SD	D	N	A	SA
1	I can search for materials with the help	0	0	0	18	14

	of educational technology to understand Arabic and use them in the teaching process.				(56.3%)	(43.6%)
2	I can use the internet to understand Arabic and use it in the T&L process.	0	0	0	18 (56.3%)	14 (43.6%)
3	I can use a teaching strategy that combines Arabic content, educational technology and pedagogy.	0	0	2 (6.3%)	21 (65.6%)	9 (28.1%)
4	I can choose Arabic resources and educational technology innovations based on suitability to meet the needs of the Arabic T&L.	0	0	2 (6.3%)	23 (71.9%)	7 (21.9%)
5	I can teach Arabic by combining pedagogy, Arabic content and educational technology.	0	0	3 (9.4%)	20 (62.5%)	9 (28.1%)
6	I can assess Arabic resources and educational technology innovations to meet the needs of the Arabic T&L.	0	0	8 (25%)	19 (59.4%)	5 (15.6%)
7	I can use educational technology to understand Arabic to support the Arabic T&L.	0	0	1 (3.1%)	20 (62.5%)	11 (34.4%)
8	I can use educational technology to understand Arabic to support Arabic research.	0	0	2 (6.3%)	21 (65.6%)	9 (28.1%)
9	I can demonstrate leadership in helping others coordinate the use of Arabic content, educational technology and pedagogy in schools.	0	0	9 (28.1%)	17 (53.1%)	6 (18.8%)
10	I can find materials with the help of educational technologies to understand Arabic language and use them in the process of evaluating and assessment of Arabic language.	0	1 (3.1%)	4 (12.5%)	20 (62.5%)	7 (21.9%)
	Average Score (Frequency and Percentage)	0	0.1 (3.1%)	3.1 (9.7%)	19.7 (61.6%)	9.1 (28.4%)

Based on above Table 2, the average frequency and percentage results and findings are showing a clear high level TPACK competency level among the respondents. The Arabic language trainee teachers are having high confidence of TPACK skill in searching and using Arabic resources and educational technology to meet the needs of the Arabic teaching and learning (item 1,2 and 7). However, few of them are still not sure and weak in selecting and assessing Arabic resources and educational technology to facilitate the needs of the Arabic teaching, learning and research (item 6, 9 and 10). Item 10 is the alarming indicator that shows the lowest TPACK skill in finding materials with the help of educational technologies to understand Arabic language and use them in the process of evaluating and assessment of Arabic language. This finding is showing that the trainee teachers are still in need of continuous teaching training and career development when they are appointed officially at the schools as licensed teachers by the Ministry of Education.

c)   Open-ended survey onproblems and challenges faced during the use of educational technology in conducting Arabic online assessment in home-based learning during MCO.

Table 5: Problems and challenges faced during the use of educational technology in conducting Arabic online assessment in home-based learning during MCO

No.	Main Theme	Sub Theme
1	Technical support	• It is difficult to get the appropriate response from students due to poor internet access as well as data savings. • Not all students attended online classes and not all have smartphones.
2	E-Learning resources	• Not all students are able to access assessment sections such as the absence of Arabic keyboards on equipment that causes them to write and send. • Students use Google Translate in looking for translation, internet and technology facilities as students share it with the parents.
3	Instructional support	• Too strict scoring like Google Form and Quizzes that marks wrong answers simply because of the existence of points or excessive word distancing. • Some pupils are unable to complete the tasks given for sharing devices.
4	Human resource issues	• There are parents who quarrel with their children when the child wants to use the smartphone to learn. • Every student rarely comes to online classes despite being assigned a simple task. • Some pupils are unable to complete the training given for sharing devices. • Some pupils did not respond despite being asked repeatedly. There are pupils who prioritize other things from performing their classes and tests. • Some students do not attend classes. • A handful of pupils do not cooperate in online classes carried out and don't do the work given.
5	Online Assessment	• Students' understanding and performance through online learning at a moderate level and unable to focus one to one with poor students. • Not all students submit assigned tasks, cannot track the level of understanding of students • Cannot afford to evaluate writing skills even by typing in answers because not all students have Arabic keyboards and not all students responded in the learning process. • There are students who ignore school work when asked to send. Some just want to complete the school work given. • There are a number of students who are unable

to reach a minimum of score to determine their level of understanding from the T&L carried out.
- Homeworks were not completed online, assessments are incomplete.
- Difficulty in ensuring that each student completed the assessment so that they can be assessed by the teachers.
- There are some students missing from the radar; undetectable (materialconstraints) make the assessment not completely running.
- Cannot evaluate all students as there is a family matter and internet line problem.
- Hard to reinterpret the ability of Arabic-speaking pupils with simple answers.
- Students slowly responded, there are students who do answered and did the assesments at all.
- It's hard to mark if a written question. It is suitable for objective nature of questions only.

From the open-ended responses, the findings in general can be divided into 5 main themes of technical support, e-learning resources, instructional support, human resource and online assessment issues for both of comments related to problems and challenges faced during the use of educational technology in conducting Arabic online assessment in home-based learning during MCO.

d)   Open-ended survey on e-learning and technological applications and platforms used in online Arabic language evaluation and assessment in home-based learning during MCO.

Table 6: E-learning and technological applications and platforms used in online Arabic language evaluation and assessment in home-based learning during MCO

No.	Main Theme	Sub Theme
1	Short Messages Service	Whatsapp Telegram
2	Online Video Conference	Google meet
3	Open Educational Resource	Youtube Resources from school worksheets
4	Educational Platform/App	Quizziz Wordwall Google classroom Padlet Kahoot Liveworksheet Word Wall, Quizziz Nearpod Mentimeter Quizalize
5	Computer software/courseware	Googleform PowerPoint Game templates

From the open-ended responses, the findings in general can be divided into 5 main e-learning and technological applications and platforms used in evaluation and assessment in home-based learning during MCO.

e)   Open-ended survey on further suggestions to improve the use of educational technology in the evaluation and assessment of Arabic language in Malaysia.

Table 7: Further suggestions to strengthen the use of educational technology in the evaluation and assessment of Arabic language in Malaysia

No.	Main Theme	Sub Theme
1	Technical support	• Enhance Internet facility and increase the search for interesting resources/ websites /platforms for T&L to the students. • Create a system to evaluate student work throughout online learning. • Provide internet or yes for every teacher and student. • Government subsidies such as internet and telephone or gadgets to students if this situation persists. • Ensure that every student has easy access to basic technology to ensure the continuity of online learning.
2	E-Learning resources	• Explore the use of Whatsapp, Youtube, Live Instagram, Live Facebook. • Innovate existing applications and strengthen their use in the evaluation and assessment of Arabic language in Malaysia. • Increase the number of friendly applications for Arabic. • Teachers need to be further exposed to new apps and platforms for T&L sessions. • Provide training courses to teachers, especially practical teachers in using technology in learning.
3	Instructional support	• Requires skills to attract students. Diverse delivery methods and types of activities for evaluation. • Create more educational technology platforms that do not allow students to imitate friends' answers and simplify the answer review system for the teachers. • Has a specific subject-matter expert to train the use of technology.

		• Organize workshops on the use of technology and applications for final year students before the practicals are conducted. provide a special place and space outside the classroom equipped with screens, projectors and various technologies for the use of teachers and students. • Next, identify the problems of students who are unable to attend classes and do not do assignments. Need to support them so that they do not miss lessons. • Familiarize teachers and students with technology in T&L such as holding seminars or a special day a month that provides online classes.
4	Human resource issues	• The creativity of a teacher is important in creating interesting methods of questioning using technology so that students see the assessment of Arabic language using educational technology is something that is fun and easy to learn. • Teachers need to think creatively and innovate to attract students for the spirit of learning using technology while online.
5	Online Assessment	• Applications or platforms that provide games need to be multiplied so that students can learn while entertaining. • Create a variety of offline applications, so that students can perform assessments easily without limited time.

From the open-ended responses, the findings in general can be divided into 5 main themes of technical support, e-learning resources, instructional support, human resource and online assessment issues for the comments related tofurther suggestions to strengthen the use of educational technology in the evaluation and assessment of Arabic language in Malaysia.

DISCUSSION OF FINDINGS
In general, this study show that the Arabic language trainee teacher are having high confidence of TPACK skill when they are dealing with teaching and learning Arabic language at schools. However, few elements are still in need to be improved based on the results and findings which are related to higher technological element of TPACK.

From the open-ended responses, the study found that the issues related to be improved as the followings:
a)   *Technical support*

Internet accessibility is found to be major problem of conducting online assessment during pandemic. Besides, the limited technical support of laptops and gadjets may distrupt the learning process. As such, a full online synchronous learning session is not suitable option during the pandemic. The teachers and educators may explore the asynchronous learning session with the mixed option of online and offline learning activities and assessments, depends on the nature of lesson plan and objectives especially in Arabic. The use of one-stop centers such a community learning facility with enhanced IT support is one of the options to solve this Internet bandwith constraint.

b)   Instructional support

Based on the findings, the instructional support is also need to be improved and enhanced. The support may relate to the manpower support, teaching and learning resources, assessment resources and language support particularly in Arabic. The improvement can be done primarily by the training institutions of the teachers, followed by the continuous professional teaching development by the Ministry of Education and school administration, with the collaboration of various parties. The need to create more educational technology platforms that do not allow students to imitate friends' answers and simplify the answer review system for the teachers is also a vital need as the online learning is exposed to the risk of 'copy and paste' phenomenon. The comments also suggested few e-learning and technological applications and platforms that can be used in online Arabic language learning activities and assessment in home-based learning during pandemic.

c)   Educational human resources

Based on the findings, the educational human resource is in a dire need to be improved and enhanced. The support may relate to the teachers' skills in using IT applications and platforms especially during pandemic, supportive assistance by school technical facilities and technical or administrative personnel, in order to overcome the challenges and problems faced by the teachers and students. It is also can be done collaboratively with the parents as the teaching assistants at home-based learning setting. Creating a system that is able to evaluate student work throughout online learning during the pandemic is also a good suggestion that can be explored.

d)   Instructional support

The ministry of education may need to empower the aspect of selecting and assessing Arabic resources and educational technology to facilitate the needs of the Arabic teaching, learning and research especially during the pandemic. In addition, there is a need to empower trainer or mentor for other peer school teachers helping others to use Arabic content, educational technology and pedagogy in schools and at home-based learning setting. As also mentoned in the comments, the creativity of a teacher is also playing a vital role in creating interesting instructional support system in using technology so that students see the assessment of Arabic language using educational technology is something that is fun and easy to learn.

e)   Various methods of online assessment

This study found that the asynchronous learning session with the mixed option of online and offline learning activities and assessments is more suitable to be implemented by teachers in a home-based learning setting. In addition, the selection of e-learning platform and application should be properly selected within the students' logistic and available IT facilities.

f)   Conducting the analysis needs before conducting online assessment

The online assessment methods should consider the learners' needs prior to the implementation. Without analyzing the learning needs and supports, whatever learning objectives and platforms opted will fall into learning disaster same as the pandemic.

CONCLUSION

This study was conducted to investigate the level of technological pedagogical content knowledge (TPACK) skill among Arabic school trainee teachers in preparing online assessment for home-based learning environment during MCO of COVID-19 pandemic. In light of the findings, it is implicit that this study has revealed few pertinent issues that needs to be improved and enhanced in terms of the implementation of TPACK skill and teaching and assessment especially among Arabic language school trainee teachers particularly by the Kulliyyah of Education before sending the teachers for teaching practice and practicum during this pandemic period. The comments and suggestions can also be collaboratively addressed by various levels of authorities and personnel such as teachers, expert teachers, schools, school administration divisions at the district, state and national levels. Better coordination between these parties may be more useful and fruitful in order to maximize the effective implementation of TPACK skill and teaching and assessment.

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