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Exploring Online Teaching Approaches Via Tpack in Conducting Home-Based Teaching Among Arabic School Teachers for Post Covid Education Sustainability

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ABSTRACT

Conducting home-based teaching especially during COVID-19 pandemic has been an unforgotten history in the educational system all over the world from 2019 until 2021. Although the world education system has returned to its norms by conducting face-to-face instructions, some of the online approaches are still being adopted due to their flexibility and effectiveness in conducting online instructions. This study was conducted to investigate the level of technological pedagogical content knowledge (TPACK) skill among Arabic school teachers in preparing online teaching and assessment in a training workshop organised by the Malaysian branch of Islamic World Educational, Scientific and Cultural Organisation, ICESCO-KUIS and Islamic Education Unit, Ministry of Education, Malaysia. This research team conducted the TPACK training module among 113 purposively selected Arabic school teachers from various states in Malaysia in 3 different full online workshops on 9 October, 16 October and 23 October 2021. The selection of participants was done by Bahagian Pendidikan KPM and Jabatan Pendidikan Negeri at the state level. At the end of every programme, the participants were requested to answer a survey on the teachers' knowledge about three essential components of TPACK, which include technology, content, and pedagogy as well to provide their suggestions and feedbacks towards employing online assessment and on the effectiveness of conducted workshop. The findings are expected to contribute towards the understanding of the teachers' level of technological knowledge and skills in designing and implementing online, blended and hybrid teaching activities especially during disaster risk reduction efforts in the world or any affected region in order to provide sustainable education for the post COVID era.

Keywords: *Technological knowledge, online teaching and learning, TPACK, sustainable education, post COVID era.*

Introduction

Technological Pedagogical Content Knowledge (TPACK) framework is crucial for all educators and teachers when dealing with teaching and learning by using technology. TPACK was introduced by Mishra and Koehler (2006) as a conceptual framework for teacher knowledge specifically with regard to technology integration in teaching and learning. TPACK is built on Shulman's (1986) study of PCK, with the addition of technological knowledge by

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Mishra and Koehler (2006), to explain effective teaching with the use of technology. Although, TPACK was mentioned by Mishra and Koehler (2006), this idea is not recent, as several researchers have addressed a similar concept while describing the associations between technology, content, and pedagogy. The term TPCK referring to technology enhanced PCK has been also utilised by Niess (2005). There are three essential components of TPACK which have to be fully mastered by them in order to conduct any teaching and learning session through any kind of technological platforms and applications, especially in the current situation of COVID-19 pandemic which requires the teacher to adapt with suitable teaching and learning strategies including online assessment.

The Importance of Tpack In Conducting Teaching Activities

The use of computer in teaching is widely used by school teachers since before the COVID-19 outbreak. According to Abdul Wahab, Kamaliah and Hasrina (2006), there is no significant difference between male and female respondents, age categories and major subjects taught using computers in teaching and learning as found in a case study in Penang, Malaysia. However, the study finds that other factors such as knowledge, attitude, personality, organisational support and innovation attributes of the computer were affecting computer usage in teaching and learning among teachers (Abdul Wahab, Kamaliah and Hasrina, 2006).

The use of technology in teaching and learning has become a crucial skill among teachers and educator especially in 21st century education. Moreover, the current global emergence situation of COVID-19 pandemic has been manoeuvring the educators towards emergency remote teaching and learning (ERTL) by using various online platforms and technologies. However, it is essential for the educators to master the TPACK knowledge and skill in order to ensure the proper conduct of online teaching and assessment. The development of three overlapping components of learning including content, pedagogy and technology in TPACK conceptualises the pedagogical approaches (Mishra & Koehler, 2006). Although there is positive impact of Information and Communications Technology (ICT) on various learning processes as reported by Romeo (2006), Cox and Graham (2009) have argued that TPACK is important to help educators in understanding the potential contributions of new technologies in education. According to Graham (2011), TPACK can be used to assess the way in which teachers' professional development affects their performance in the classroom with the use of ICT. The added value of TPACK can be found in the support it provides students through technology in their learning, and their development of conceptual, and procedural attributes (Voogt, Fisser, Pareja Roblin, Tondeur & Van Braak, 2013).

In TPACK, the development of three overlapping components of learning including content, pedagogy and technology conceptualises the pedagogical approaches. It is commonly used for understanding, learning, and describing different knowledge types needed by educators and teachers (Mishra & Koehler, 2006). Hence, it supports the argument by Bransford, Brown and Cocking (2000) that general teaching skills are required in order to revise with the use of advanced technologies for effective teaching. At the same time, Lee (2002) suggests that with the integration of ICT into schools, teachers ought to play the role of mentors, rather than expert information givers. Moreover, technological advancements in education should not only be focused upon, but additionally, there is the need for more effective learning tools (Romeo, 2006). Proper guidance should also be provided by the decision and policy makers while formulating the education policy in order to develop and implement technologies in teaching and learning (Lee, 2002).

Designing Sustainable Curriculum-Based Instructions For Disaster Education

On 31st of December 2019, there was a growing report on the acute respiratory illness that started in China, specifically in the area of Wuhan City, Hubei Province. The virus, which is later identified as coronavirus disease 2019 (COVID-19), attacks the respiratory system and can be fatal if patients do not get immediate treatment. Hence, a majority of countries have announced the temporary closure of schools, 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 disease and to further prevent the spread, almost 1 billion people across the globe were put on home confinement (lockdown/movement control order) (NST Online, 22, March 2020) and Malaysia is of no exception.

The Prime Minister of Malaysia announced the first phase of the Movement Control Order (MCO) to start on 18th March until 31st March and then the MCO was extended to the third phase that ended on 12th May 2020. As such, all sectors including the education sector especially the Higher Education Institutions including schools were badly affected. Since the partial lockdown or MCO was unprecedented, teachers were urged to explore the best teaching or instructional methods or strategies in teaching their students remotely. Hence, the teachers, support staff were 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 during the Movement Control Order (MCO) due to the COVID-19 pandemic. The circular on Teaching and Learning Implementation Guidelines consists of the Ministry's commitment to ensure that students were not left behind and were able to continue their learning in a safe manner. For this purpose, teachers were not allowed into the school and must perform all homework assignments from their homes (MOE, 2020-a). The MOE also introduced an updated guideline for the implementation of teaching schedule and learning at home to be followed by the school teachers. (MOE, 2021). As such, this study is conducted to investigate the level of TPACK skill among Arabic language school teacher in Johor due to the situation of COVID-19 pandemic which required the teacher to adapt with suitable remote teaching and learning strategies including online assessment.

In post-Covid education, the implementation of online, blended and hybrid teaching activities are still relevant and practiced especially during disaster risk reduction efforts in the world or any affected region in order to provide sustainable education for the post-COVID era. For instance, the universities in Malaysia have been implementing certain percentage of online instructions in every semester since 2022, as well as schools in allowing teaching and learning activities during natural disasters such as flash floods, haze transmission, influenza A infection, and for conducting flexible educational schedules during festive holidays. According to Torani et. al. (2020), the disaster education is important as a functional, operational, and cost-effective tool for risk management during disasters, calamities, and emergencies. Hence, it is very important for the teachers to explore and adapt suitable digital curriculum-based instructions for sustainable flexible education during disaster and emergency periods as proposed in a model of online language strategies for Malaysian higher education institutions (HEIs) for post-Covid era by Fitri Nurul 'Ain (2022 & 2023) as shown in Figure 1.0 below.

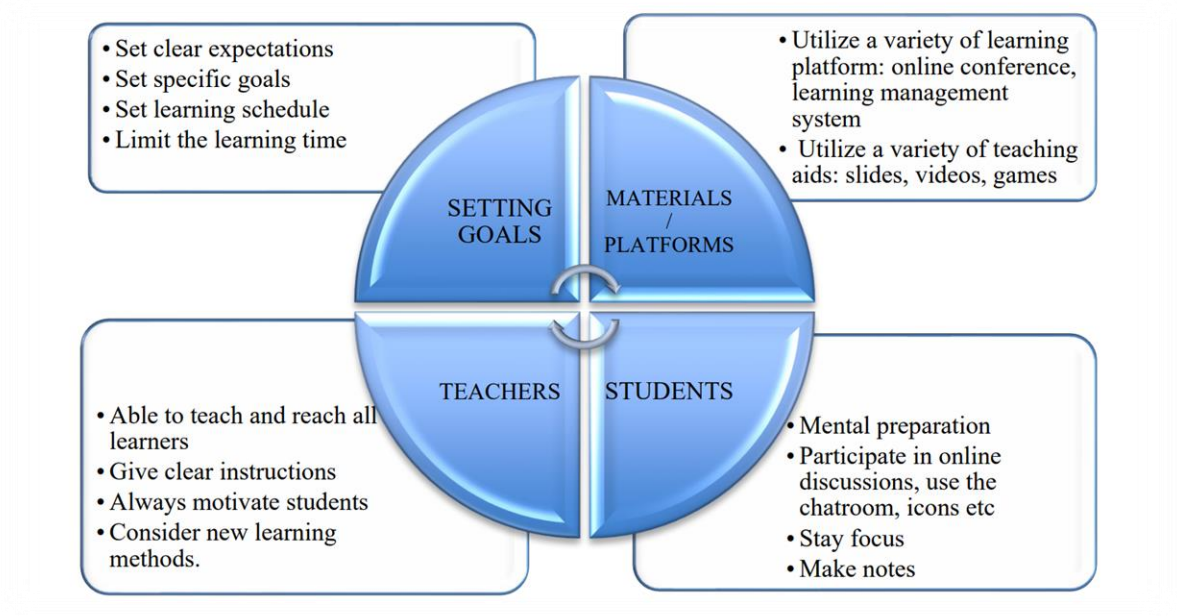

Figure 1: Proposed model of online language strategies: Malaysian HEI for post-COVID education

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 having undergone the TPACK training in designing teaching and online assessment?
2- What are the comments and suggestions to strengthen the use of educational technology in the teaching of Arabic in remote learning?
3- What are comments and suggestions to strengthen the use of educational technology in the assessment and evaluation of the Arabic language in remote learning?
4- What are proposed remote learning activities which are suitable for technology-assisted teaching of Arabic in the endemic and post-COVID-19 era?

Methodology

This study was conducted to investigate the level of technological pedagogical content knowledge (TPACK) skill among Arabic school teachers in preparing online assessment for remote teaching and learning. The respondents were purposively selected among 113 Arabic school teachers from various states in Malaysia in 3 different full online workshops on 9 October, 16 October and 23 October 2021. The selection of participants was done by Bahagian Pendidikan KPM and Jabatan Pendidikan Negeri at the state level. This research instruments were used in investigating the teachers' knowledge about three essential components of TPACK, which include technology, content, and pedagogy as well as in obtaining their suggestions and feedbacks towards employing online assessment and effectiveness of conducted workshop organised by the Malaysian branch of Islamic World Educational, Scientific and Cultural Organisation, ICESCO-KUIS and Islamic Education Unit, Ministry of Education, Malaysia.

The respondents were allowed 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). The first part of the survey was concerned with the collection of demographic information such as participants' gender, highest academic qualifications, school location and years of teaching experience. This aspect is useful to understand the background of all the respondents that facilitated in testing the different variables. 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).

Results And Findings

The results for the results and findings are presented in separate subsections as follows:
a) Demographic Information:
As shown in Table 1, most of the respondents are female with 89 respondents (78.8%), while the rest are male (21.2%).

Table 1: Gender

Gender	Frequency (N)	Percentage (%)
Male	24	21.2
Female	89	78.8
Total	**113**	**100**

According to Table 2, the majority of respondents are between 41-50 years old (35.4%), while the second largest of them are between the ages of 31-35 (17.7%). The age groups of 26-30 and 36-40 recorded similar results of frequency (19) and percentage (6,8%) This result shows a balance distribution of ages of participants in general.

Table 2: Age of Respondents

Category of Age	Frequency (N)	Percentage (%)
Below 25	5	4.4
Between 26 and 30	19	6.8
Between 31 and 35	20	17.7
Between 36 and 40	19	6.8
Between 41 and 50	39	35.4
51 and above	11	9.7
Total	**113**	**100**

In terms of the highest academic qualification as shown in Table 3, most of the respondents hold Bachelor degrees with 82.3%, while a small number of them have Doctorates (0.9%) and Diploma degrees (1.8%).

Table 3: Highest Academic Qualification

Category of Qualification	Frequency (N)	Percentage (%)
Diploma	2	1.8
Bachelor	92	82.3

Master	19	16.8
PhD	1	0.9
Total	**69**	**100**

As displayed in Table 4, the respondents have different range of teaching experience at school from less than 5 years (19,6%), between 5 and 10 years (20.5%), between 11 and 20 years (44.6%) and more than 20 years (15.2%). The majority is from the age of 11 and 20 years old.

Table 4: Teaching Experience at Schools

Number of Years	Frequency (N)	Percentage (%)
Less than 5 years	22	19.6
Between 5 and 10 years	23	20.5
Between 11 and 20 years	50	44.6
More than 20 years	17	15.2
Total	**69**	**100**

The selected participants were initially selected by MOE from different states in Malaysia. Based on Table 5, most respondents are teaching at schools at Johor (33%), while the second largest group is from Kelantan (26.8%). The smallest number is 1,8% from Selangor.

Table 5: Location of Schools based on States in Malaysia

States of Malaysia	Frequency (N)	Percentage (%)
Selangor	2	1.8
Kelantan	30	26.8
Johor	37	33
WP Putrajaya	21	18.8
WP Kuala Lumpur	3	2.7
Sabah	19	17
Missing	1	0.9
Total	**112**	**100**

b) Competency Level on Technological Pedagogical Content Knowledge (TPACK)
The results of competency level on technological pedagogical content knowledge (TPACK) among Arabic school teachers are displayed in Table 6 as follows:

Table 6: Results of TPACK Survey

No.	Item	Frequency and Percentage				
		SD	D	N	A	SA
1	I can find materials with the help of educational technology to understand Arabic and use it in the teaching process.	0	0	1 (0.9%)	69 (61.1%)	43 (38.1%)

2	I can use the internet to understand Arabic and use it in the remote teaching process.	0	0	1 (0.9%)	67 (59.3%)	45 (39.8%)
3	I can use a teaching strategy that combines Arabic content, educational technology and pedagogy.	0	0	4 (3.5%)	77 (68.1%)	32 (28.3%)
4	I can choose Arabic information sources and educational technology innovations based on suitability to meet the needs of the Arabic remote teaching.	0	0	4 (3.5%)	76 (67.3%)	33 (29.2%)
5	I can teach Arabic by combining pedagogy, Arabic content and educational technology.	0	1 (0.9%)	6 (5.3%)	74 (65.5%)	32 (28.3%)
6	I can assess the sources of Arabic information and educational technology innovations to meet the needs of the Arabic remote teaching.	0	1 (0.9%)	5 (4.4%)	76 (67.3%)	31 (27.4%)
7	I can use educational technology to understand Arabic to support The Arabic remote teaching.	0	0	6 (5.3%)	74 (65.5%)	33 (29.2%)
8	I can use educational technology to understand	0	1 (0.9%)	11 (9.8%)	65 (58%)	35 (31.3%)

	Arabic to support Arabic research.					
9	I can demonstrate leadership in helping others coordinate the use of Arabic content, educational technology and pedagogy in schools.	0	3 (2.7%)	18 (16.1%)	69 (61.6%)	22 (19.2%)
10	I can find materials with the help of educational technology to understand Arabic and use it in the process of assessment and administration of Arabic in remote teaching.	0	0	5 (4.4%)	80 (70.8%)	28 (24.8%)

Based on Table 6, the average frequency and percentage of the results and findings show a clear high level TPACK competency level among respondents of school teachers. It shows that after participating in the workshop, the Arabic language teachers have high confidence of TPACK skill in searching and using Arabic resources and educational technology to meet the needs of the Arabic teaching and learning in item 1 until 10.

The weakest elements recorded in this TPACK study are related to demonstrating leadership in helping others coordinate the use of Arabic content, educational technology and pedagogy in schools (item 9), followed by teaching Arabic by combining pedagogy, Arabic content and educational technology (item 5), assessing the sources of Arabic information and educational technology innovations to meet the needs of the Arabic remote teaching (item 6) and using educational technology to understand Arabic to support Arabic research (item 8). This indicates that the teachers need special training for the use of technology in TPACK leadership and mentoring system, selecting suitable digital resources for remote teaching and research innovative purposes.

c) Further suggestions to strengthen the use of educational technology in the teaching of Arabic remotely.

The responses gathered from the respondents in this open-ended questionnaire can be summarised as shown below:

Table 7: Further suggestions to strengthen the use of educational technology in the teaching of Arabic remotely

No.	Main Theme	Sub Theme
1	Technological support	• Creating educational TV programmes for teaching Arabic.

		• Providing continuous trainings needed by the teachers.
2	E-Learning resources	• Providing diversity of mediums to further boosts remote teaching activities. • Providing courses for less skilled teachers. • Disseminating the use of educational technology among teachers by sharing of remote teaching materials and resources.
3	Instructional support	• Exposing the teachers to the latest applications and technologies in implementing educational technology workshops in Arabic. • Regularly conducting programmes to improve skills in the use of educational technology among Arabic language teachers. • Conducting workshops that focus on specific technologies by specific Arabic language trainers who are proficient. • Increasing the number of courses or workshops for the purpose of strengthening technology education for the Arabic teachers. • Creating mentoring system among the teachers.

From the open-ended responses in Table 7, the findings in general can be divided into 3 main themes of technological support, e-learning resources and instructional support for both of comments and suggestions in light of the use of educational technology in Arabic teaching and learning.

d) Further proposals to strengthen the use of educational technology in the assessment of the Arabic language in remote teaching.
The responses gathered for this this open-ended questionnaire can be summarised as follows:

Table 8: Further comments and suggestions for the use of educational technology in Arabic language assessment in remote teaching

No.	Main Theme	Sub Theme
1	Technological support	• Providing a platform to strengthen technology at the national level • Providing an appropriate platform that facilitates teachers to carry out assessment and evaluation • Providing a stable internet access.

		• Providing free Internet for Arabic teachers
2	E-Learning resources	• Providing more opportunities for Arabic language teachers to be involved in upskilling training programmes constantly and continuously. • Conducting workshops that focus on specific technologies by expert trainers in Arabic language. • Providing examples of assessment and evaluation modules • Creating a diversity of mediums in facilitating assessment and evaluation to be carried out during remote teaching. • Providing resources for teachers who are less skilled in obtaining materials. • Exploring the use of Telegram channel to store, collect, record, evaluate and assess students' achievement during assessment in an orderly and systematic manner.
3	Instructional support	• Conducting more frequent workshops and trainings. • Smart sharing and partnerships between different zones and districts such as PPD. • Increase practical courses on a regular basis. • Creating an online assessment system at the national level.

From the open-ended responses, the findings in general can be divided into 3 main themes of technological support, e-learning resources and instructional support for both of comments and suggestions in light of the use of educational technology in preparing Arabic assessments.

e) Proposed PdPc and remote teaching activities suitable for technology-assisted teaching of Arabic in the endemic and post-COVID-19 era.
The responses gathered for this open-ended questionnaire can be summarised as shown below:

Table 9: Proposed suitable home-based learning activities for the teaching and assessment of Arabic language with technology

No.	Main Theme	Sub Theme
1	Technological support	• Providing more stable Internet access.
2	E-Learning resources	• Providing quizzes activities. • Providing more activities for teachers and students in group presentations • Producing a project such as creative video recordings, art projects, creative cards, showing existing materials, etc.

3	Instructional support	• Creating various mediums as reinforcement and enrichment Arabic Channel Activities in the form of gamification challenge activities
4	Suggested applications	• Wordwall game • Kahoot • AZ Screen Recorder application • Liveworksheet • Googleform application • Google meet/cloud meeting • Canva/google form application • Classroom screen • Edpuzzle • Padlet • Arabic game course Gamilab • Quizwizzer • Kumospace • Whiteboard.fi • Coursera • Myviewboard

Discussions

In general, this study shows that the Arabic language teachers had 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. The ministry of education may also need to constantly and continuously strengthen the aspect of selecting and assessing Arabic resources and educational technology to facilitate the needs of the Arabic teaching, assessment and innovative research in education, in addition to demonstrating leadership in mentoring others to use Arabic content, educational technology and pedagogy in schools which may indicate the competency that enables the teachers to be the trainer or mentor for other peer school teachers. This teaching mentorship is practised in the schools known as "*Jurulatih Utama*" or Main Trainer.

From the open-ended responses, the findings in general can be divided into 3 main themes of technological support, e-learning resources and instructional support for both of comments and suggestions in light of the use of educational technology in Arabic teaching and assessment. The comments and suggestions can 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 and collaborations between these parties may be more useful and fruitful in order to maximise the effective implementation of TPACK skill and teaching and assessment. The respondents were also suggested suitable home-based learning activities for the teaching and assessment of Arabic language with technology as shown in Table 9. Interestingly this study found that the Arabic teachers have high level of exposure to various types of recent new technologies in conducting online teaching and assessment activities. In the era of enormous usage of artificial intelligence (AI) tools in education recently, the

educators are in a dire need to learn new knowledge and skills in adapting AI tools in implementing post-Covid education in schools, colleges and universities.

Conclusion

This study was conducted to investigate the level of technological pedagogical content knowledge (TPACK) skill among Arabic school teachers in preparing online remote teaching and learning. In light of the findings, it is implicit that this study has revealed few pertinent issues that need to be improved and enhanced in terms of the implementation of TPACK skill and teaching and assessment especially among Arabic language school teachers in Malaysia. The findings are still relevant for educators in adapting and adopting suitable online approaches due to their flexibility and effectiveness in conducting online instructions during disaster risk reduction efforts in the world or any affected region in order to provide sustainable education for the post-Covid era.

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