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The Readiness of Teachers In Vocational Colleges To The Implementation Of Online Teaching

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Abstract: This study aims to review the level of readiness of teachers at Vocational Colleges from the aspects of knowledge, skills and attitudes towards the implementation of online teaching. Therefore, a set of questionnaires consisting of three parts was used as a research instrument. A pilot study was conducted at Vocational Colleges around Johor and involved a total of 30 teachers. Based on the pilot study conducted, Cronbach's Alpha coefficient values for all questionnaire items have excellent reliability. In addition, the study sample consisted of 86 teachers at Vocational Colleges who were involved under the Mechanical and Manufacturing Department, namely Welding Courses, Refrigeration and Air Conditioning Courses, Industrial Machinery Courses and Automotive Courses in four schools around Johor, namely Vocational Colleges in Kluang, Colleges Vocational in Segamat, Kota Tinggi Vocational College and Muar Vocational College. The data obtained was analyzed with the help of computer software, which is the Statistical Package for Social Sciences (SPSS) version 23 program. The statistics used are descriptive statistics involving frequencies, mean scores and percentages. The average result of the mean score of the study shows that 3.11 for the level of knowledge, 3.00 for skills and 3.03 for the teacher's attitude towards the implementation of online teaching is moderate. Therefore, it can be clearly concluded that the smooth implementation of online teaching cannot be fully achieved due to the factors of the level of knowledge, skills and attitudes of teachers in applying technology in education.

Keywords: Readiness, Online Teaching, Vocational College

1. Introduction

The emergence of technology in education is in line with the Malaysian Education Development Plan 2015-2025 which is under the 9th leap which is Globalized Online Learning (Azmi & Rasalli, 2018). This surge is to make online learning a key element in higher education and Malaysia should change from a large-scale delivery model to an innovation model in line with technology for the development of educational access and provide more effective and appropriate learning opportunities for individuals according to current trends.

Along with the current needs and the consequences of the spread of the Covid-19 virus in Malaysia, it has caused huge changes to the country. In relation to the statement of Salim et al. (2020) the increase in positive cases of Covid-19 has moved the Malaysian government to introduce a Movement Control Order (MCO) for all Malaysians starting on March 18, 2020. The system that has been implemented in this Movement Control Order (MCO) has had an impact which is big to the sectors namely family, economy, social, society and education in Malaysia. In order to prevent the Covid-19 epidemic from spreading further, the Malaysian education system has encouraged distance learning. The closure of the education sector from school to higher education in Malaysia as a result of the Covid-19 virus has been carried out by the ministry.

Referring to the view of Gonzalez et al. (2020) that the norms of the Covid-19 pandemic have opened up a positive space in the context of fostering the use of online digital learning platforms. Therefore, this urgent situation has forced educators and students to make more efforts to improve knowledge on the aspects of using digital platforms and apply virtual learning to be effective. According to Mokhtar & Lakman (2021), the teachers and lecturers of the institution had to make adjustments and changes to the teaching aids (ABBM) to meet the requirements for the objectives and needs of online learning. This will bring many challenges to teaching staff, especially to Vocational College educators who implement skills-based learning when these changes occur drastically due to the Covid-19 pandemic.

The teaching and learning system for Vocational Colleges is based on two categories, the main one being skills as much as 70% and only 30% representing academics. The purpose of establishing Vocational College institutions is to produce more graduates who have high skills in line with the latest technological development and meet the needs of the industry. According to Ishak & Talaat (2020), the TVET program is an integration between the theoretical and practical learning process and will necessarily provide different challenges compared to other education systems. Therefore, thorough preparation in terms of knowledge, skills and attitude towards online teaching nowadays is very important for Vocational College educators so that the teaching and learning process related to practical and theoretical students can be delivered effectively, smoothly and in accordance with the teaching goals. Therefore, this study was conducted to identify the level of preparedness of teachers in Vocational Colleges for online teaching and learning based on three measured characteristics, namely knowledge, skills and the actual attitude of the teacher to determine whether their level of preparedness for these three elements and has the level of this element played a role in the teacher's readiness to implement online teaching.

1.1 Research Background

Online learning has been known as 'Home Based Learning (HBL)'. According to Li Mingyong et al. (2020) definition of HBL is a learning method that is conducted from home without involving sessions that require students to attend school or campus. The online learning method does not happen like the situation at school, but instead provides an opportunity to shape teaching and learning in an alternative way using digital tools. Teaching and learning instructions through this online platform seem so difficult to apply in education, especially to the TVET sector.

Referring to Mazura and Wak Chu Wok (2018) that as many as 80% of teachers who have shown data about the low level of knowledge about Learning and Facilitation (PdPc). This study is supported by the findings of Valtonen et al. (2020) stated that it was found that teachers' level of Content

Pedagogy Technology Knowledge (PTPIK) was still low despite having a positive attitude towards the integration of technology. This has resulted in teachers having to face challenges in the process of developing their knowledge and skills about current teaching approaches. Furthermore, teachers also have to add to their daily routine not only to teach but also to increase their knowledge by learning knowledge and skills related to Internet Communication Technology (ICT).

In addition, following insufficient knowledge and skills among teachers to integrate technology in education has also caused computer and internet facilities not to be widely used (Kariki et al., 2017). The integration of technology is not an important norm in the field of teaching, nor is it a discipline of knowledge that is suitable for a certain matter (Simsek & Yazar, 2019). However, as a Vocational College teacher should be aware that the application of technology in teaching should be expedited so that the success of online learning can be achieved.

Therefore, this situation will return to the attitude that is the level of self-efficacy of Vocational College teachers in integrating technology. This level of efficiency will reflect the attitude and belief of teachers in taking risks to implement PdPc online (Dong et al, 2020). Based on Ab Aziz & Maat (2021) in identifying the level of teacher efficiency found that there was no significant difference in the gender factor and the teacher's teaching period regarding the integration of technology. The findings of Magesvaran (2018) found that teachers with more than 11 years of experience are more capable of integrating technology than teachers with less than 10 years of experience. Hence, the researcher looked at the gap in the study to determine whether the problem of the teacher's level of readiness for online teaching is caused by the teacher himself or there are other factors that have contributed to the teacher's unwillingness to do the virtual teaching process effectively.

1.2 Problem Statements

Based on the background of the problem that has been stated by the researcher, there are several factors that are the cause of the problem from the point of view of readiness to undergo teaching and learning and virtually to the teacher through three factors namely knowledge, skills and attitude. Those three elements have played an important role in the process of planning and implementing online teaching approaches and strategies so that the most appropriate methods can be applied and students can master the knowledge presented.

Therefore, consideration of the teacher's readiness in knowledge is important to form creativity in learning. Skills in the use of technology are described as important so that teachers can always be prepared with every technological development and apply those skills in the PdPc process. The teacher's attitude also plays a major role in their level of competence towards the online teaching and learning process. Therefore, it is clear that this knowledge and skills cannot be produced without the existence of a positive attitude towards technology.

In relation to that, the researcher chose to identify the level of readiness of teachers in Vocational Colleges for three elements in learning theory and skills to assess whether these three factors play a role in encouraging teachers to carry out the learning and teaching process effectively through online.

1.3 Research Questions

The research questions of this study are:

1. What is the level of knowledge of teachers at Vocational Colleges regarding the implementation of online teaching?
2. What is the skill level of teachers at Vocational Colleges regarding the implementation of online teaching?
3. What is the level of attitude of teachers at the Vocational College towards the implementation of online teaching?

1.4 Conceptual Framework

The conceptual framework of this study is made to serve as a guide for researchers during the research. The main goal of the researcher was to find out the level of readiness of teachers at Vocational Colleges for the implementation of online teaching.

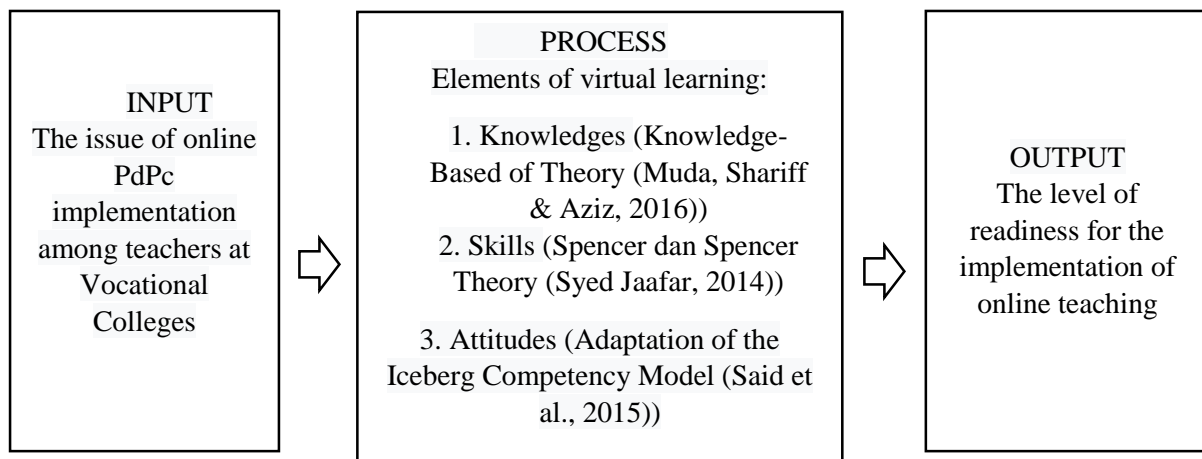


Figure 1: Framework of research concept

In order to achieve the objectives of this study, the unconscious variables are the level of knowledge, skills and attitudes in the implementation of online teaching. In addition, the dependent variable is the level of readiness in the process of implementing online learning and teaching among teachers at Vocational Colleges.

1.5 Changes In The Field of Education

The development of technology in Malaysia has brought many changes to the education sector. The development of the education sector has changed the way learning that makes the learning process more and more beyond the physical space of the lecture hall and more global in nature. As a result of the insistence of foreign countries actively exploring the potential of technology, Malaysia has also optimized its technological capabilities in the education sector. KPM has implemented a proactive method as well as staged reforms through the introduction of the digital lecture room concept. The sophistication of technology in the medium of learning has produced a variety of devices and gadgets that have become a new culture for education that is different from traditional learning that uses books and documents changed to cyberspace and online (Rais, Ahamad and Abd Hadi, 2016). This transformation was introduced to replace the traditional learning concept in line with the Education Development Plan 2015-2025.

1.6 The Role of Technology In Online Teaching

Computer technology is a complex electronics and there are many uses for the education sector, especially in today's era. Therefore, it is not surprising that this technology is very suitable to be used as one of the tools to help teachers in the process of delivering teaching and learning because of its ability to receive and interpret data (Ismail, 2021). In addition, computer technology also uses two formats, namely online and offline. However, most online learning uses online learning methods. This computer technology can be applied in improving learning in the field of ICT for teachers and students.

2.3 Teacher Readiness in Online Learning and Facilitation

The smoothness of the online PdPc process cannot be done if the teacher is found to be not fully prepared. According to Ishak & Talaat (2020), online learning requires help and guidance from teachers for students in conducting self-directed learning, skills in student control and attitudes covering the virtual learning context. Therefore, consideration of teachers' readiness for online learning includes knowledge, self-control, behavior and communication. So, in order to achieve this online experience and action, teachers must be thoroughly prepared.

1.7 Elements of Knowledge in Online Teaching Implementation

One of the objectives found in the study is to identify the perception of vocational college teachers towards online teaching in terms of knowledge. Therefore, the appropriate model for this study is to use Karl Wiig's Knowledge Management Model which states that knowledge will be valuable and more meaningful when the individual can apply it well. Every knowledge will be used according to the situation experienced. Dalkir (2013) there are four aspects that have been measured in the model, namely purpose, relationship, perfection, congruence and perspective. Each of these elements plays an important role in the aspect of knowledge management for individuals.

1.8 Elements of Skills in Online Teaching Implementation

Skills are an important element that should be emphasized to teachers in conveying knowledge virtually. Therefore, teachers should build and practice effective teaching and learning models such as having 21st century skills. The skills of the 21st century involve skills in innovation (learning and innovation skills), life and career skills (life and career skills), information, media and technology skills (information, media and technology) (Ismail & Ismail, 2018). According to Anjakan Bulletin No. 4 (2015) such skills can be applied in the PdPc process that uses the 4C concept which is creativity, critical thinking, communication and collaboration (Yahaya et al. , 2020).

1.9 Elements of Attitude in the Implementation of Online Teaching

In evaluating the teacher's perception in this aspect of attitude, the researcher has chosen the Technology Acceptance Model of Davis et al. (1989) which is based on the Theory of Reasoned Action (Ajzen & Fishbein 1980). In the Theory of Causal Action it has been stated that beliefs are closely related to attitudes. Through this attitude will affect the intention and then will be interpreted to the behavior of the individual. In addition, the Technology Acceptance Model is used to explain the acceptance of individuals to the use of technology, especially in information. This model also explains a lot that a system will be used like computer software determined by the attitude of the individual in using the system.

2. Methodology

2.1 Research Population and Data Collection

Referring to this study, the researcher has selected the study population consisting of teachers at Vocational Colleges in the southern zone in the Department of Manufacturing Mechanics, which are courses involving Refrigeration and Air Conditioning courses, Welding courses, Automotive courses and Industrial Machinery courses because of their characteristics that meet the characteristics of the survey will be implemented. The population of this study is a total of 113 people consisting of 32 Vocational College teachers in Kota Tinggi, 31 Vocational College teachers in Segamat, 21 Vocational College teachers in Muar and 29 Vocational College teachers in Kluang.

In this study, the researcher has chosen a simple random sampling method. Simple random sampling is a sampling that involves every element in the population having an equal chance of being selected as a sample (De Vaus, 2014). All the teachers at the four Vocational Colleges in the Manufacturing Mechanical Department have been given the opportunity to be the study sample with their consent. Accordingly, in order to determine the number of samples in this study, the researcher has used the sample determination table recommended by Krejcie and Morgan, (1970). Therefore,

referring to the relevant table for a population of 113 people, the total sample size suitable for this study is 86 people.

2.2 Questionnaire Design

The researcher has also chosen to use a Five Point Scale or it is better known as a Likert Scale. This Likert scale is built in the form of a graded scale and is widely used in research studies where it has the power of agreement. This level of agreement covers five levels, which consist of strongly agree, agree, less agree, disagree and strongly disagree. In the set of questionnaires used, there are four main parts which are part A, part B, part C and part D. Part A refers to items related to the respondent's background such as gender information, age and length of service in the vocational college. While part B, part C and part D include the three main elements in the study's objectives, which are knowledge, skills and attitudes

2.3 Instrument Validity and Reliability

There are two processes that must go through in validity before the researcher starts distributing the questionnaire in the pilot study. Among the two important parts of the questionnaire are face validity and content validity. This is so because the quality of this instrument is guided by the validity. In this study, the researcher has chosen three lecturers who are experts in the field of language and experienced in the field of technology at the Faculty of Technical and Vocational Education to examine and verify each construct, sub-construct and item that has been used in forming the questionnaire of this study.

In this study, the researcher also randomly selected 30 respondents among teachers at Vocational Colleges in Johor who have the same characteristics as the study sample. The purpose of this respondent is to get feedback to the questionnaire that has been constructed. The results of this pilot study will be analyzed using the Statistical Package for Social Science (SPSS) software for the purpose of obtaining Cronbach's Alpha values.

3. Results and Discussion

3.1 Descriptive Analysis

Data were obtained from 80 respondents consisting of students of refrigeration and air conditioning Vocational College around Johor. Data and information obtained were analyzed using IBM Statistical software (SPSS) version 23 to obtain information on mean, standard deviation, percentage and frequency. Table 1 shows the demographic distribution of respondents in Section A.

(a) Section A: Demographic of the respondents

Table 1 : Distribution of respondents by demographics

Demographic Characteristics	Number of Respondent (n=80)	Percentage (%)
Gender:		
Male	44	51.2
Female	43	48.8
Age:		
21 to 30 years old	28	32.6
31 to 40 years old	14	16.3
41 to 50 years old	24	27.9
51 to 60 years old	20	23.3
Service period:		
1-5 years	28	32.6
6-10 years	21	24.4
10 years and above	37	43
Department:		
Welding	13	15.1
Automotive	23	26.7

Industrial Machinery	23	26.7
Refrigeration and Air Conditioning	27	31.4

Table 1 shows the analysis of the background of the respondents who consisted of 86 teachers from four vocational colleges. Referring to the number, a total of 44 male teachers (51.2%) and 42 female teachers (48.8%). In addition, a total of 28 teachers (32.6%) were between 21 to 30 years old, 14 teachers (16.3%) represented the age of 31 to 40 years, 24 teachers (27.9%) represented 41 to 50 years and 20 teachers (23.3%) representing the age of 51 to 60 years. The analysis data for the period of service is as many as 28 people (32.6) for 1-5 years, 21 people (24.4%) represent 6-10 years of service and 37 people (43%) represent 10 years or more of service. This questionnaire was submitted to vocational college teachers under the Mechanical and Manufacturing Department. Therefore, the courses involved are Welding Course which is a total of 13 people (15.1%), Automotive Course which is a total of 23 teachers (26.7%), Industrial Machinery Course which is a total of 23 people (26.7%) and a total of 27 people (31.4%) representing Refrigeration and Air Conditioning Course.

(b) Section B: The Level of Knowledge of Teachers at Vocational Colleges Regarding the Implementation of Online Teaching

Table 2 : The mean score for section B

Item	Item Statement	Mean	Standard Deviation	Mean Interpretation
B1	I have knowledge of using Information Communication Technology (ICT).	3.06	1.24	Moderate
B2	I have knowledge of google classroom.	3.08	1.25	Moderate
B3	I have knowledge of google meet.	3.07	1.03	Moderate
B4	I know search engines like google can be used to find information.	3.17	1.34	Moderate
B5	I know PdP online mode requires knowledge to realize it.	3.17	1.34	Moderate
B6	I know multimedia can help make my teaching more creative.	3.28	1.12	Moderate
B7	I know of several ways to get information online.	3.02	1.20	Moderate
B8	I know the basics of using information and communication technology equipment.	3.01	1.24	Moderate
AVERAGE		3.11	1.22	Moderate

Referring to Table 2, question B6 which is "I know multimedia can help make my teaching more creative" has recorded the highest mean score and standard deviation of 3.28 and 1.12. While for question B8 which is "I know the basics of using information and communication technology equipment" has got the mean score and the lowest average standard deviation of 3.01 and 1.24. Based on the average value of the mean score and standard deviation to determine the level of knowledge of teachers at Vocational College regarding the implementation of online teaching is 3.11 and 1.22, which is at a moderate level in the aspect of knowledge regarding the implementation of online teaching.

(c) Section C : The skill level of teachers in Vocational Colleges regarding the implementation of online teaching

Table 3 : The mean score for section C

Item	Item Statement	Mean	Standard Deviation	Mean Interpretation
C1	I can operate the latest application hardware for PdP online mode like google classroom.	22.83	1.71	Moderate
C2	I can use digital elements like google classroom in my PdP to make it look interesting.	3.08	1.15	Moderate
C3	I was able to use computer software to access information online efficiently.	3.00	1.15	Moderate
C4	I was able to handle the steps of video editing using information technology.	2.95	1.08	Moderate
C5	I was able to handle the steps of editing a graphic picture using information technology.	2.97	1.11	Moderate
C6	C6. I am able to use the internet for communication purposes.	3.03	1.21	Moderate
C7	I use social media to interact with students in a variety of teaching styles.	3.01	1.19	Moderate
C8	I can build my learning activities individually or collaboratively.	3.07	1.20	Moderate
AVERAGE		3.00	1.23	Moderate

Referring to Table 3, question C3 which is "I can use digital elements such as google classroom in my PdP so that it looks interesting" has recorded the highest mean score and standard deviation of 3.08 and 1.15. While for question C1 which is "I can operate the latest application hardware for PdP online mode such as google classroom" has got the mean score and the lowest average standard deviation of 2.83 and 1.71. Based on the average value of the mean score and standard deviation to determine the level of knowledge of teachers at the Vocational College regarding the implementation of online teaching is 3.00 and 1.23, which is at a moderate level in terms of skills regarding the implementation of online teaching.

(d) Section D : The attitude level of teachers in Vocational Colleges regarding the implementation of online teaching

Table 4 : The mean score for section D

	Item Statement	Mean	Standard Deviation	Mean Interpretation
D1	I am comfortable with the use of online learning platforms (examples: zoom app, meet, MSTeams).	2.93	1.16	Moderate
D2	Current technological developments stimulate me to create PdP online.	3.08	1.13	Moderate
D3	The tools in the field of digital education that I have now are very easy to use.	3.00	1.11	Moderate
D4	I am very excited to use the online mode PdP application in my teaching sessions.	2.98	1.06	Moderate
D5	I am interested in learning new educational technologies.	3.06	1.26	Moderate
D6	I love exploring finding apps that are easy for students to understand.	3.21	1.15	Moderate

D7	I feel PdP online is not burdensome.	2.93	1.23	Moderate
D8	PdP in online mode has saved me a lot of time.	3.03	1.18	Moderate
AVERAGE		3.03	1.16	Moderate

Referring to Table 4, question D2 which is "current technological developments stimulate me to do PdP online" has recorded the highest mean score and standard deviation of 3.08 and 1.13. While for questions D1 and D7 which are "I am comfortable with the use of online learning platforms (example: zoom application, meet, MSTeams)" and "I feel that PdP online is not burdensome" got the lowest average mean score and standard deviation of 2.93 and 1.16 as well as 2.93 and 1.23. Based on the average value of the mean score and the standard deviation to determine the level of attitude of teachers at the Vocational College towards the implementation of online teaching is 3.03 and 1.16, which is at a moderate level in the aspect of knowledge towards the implementation of online teaching.

3.2 Discussions

(a) Objective 1

The results of the analysis for the first research question show that teachers have a perception that they have moderate knowledge in the implementation of virtual teaching, which is to record an average mean score of 3.11. This has shown that the level possessed by teachers at the Vocational College for both male and female teachers is at a moderate level regarding the knowledge elements in the implementation of online teaching. This study has been supported by Magesvaran (2018) and the results of the study found that the level of teacher readiness in terms of knowledge is as much as 80% showing a low level of knowledge. The same study was also conducted by Lubis, Hassan dan Hamzah (2017) who stated that it was found that the level of knowledge of Kuala Lumpur Technical High School teachers towards ICT technology was moderate.

(b) Objective 2

The results of this study have shown that the skill level of teachers at Vocational Colleges regarding the level of readiness in the implementation of online teaching is at a moderate level, with a mean of 3.00 and a standard deviation of 1.23. Through the results of this study it can be concluded that the skill level of teachers is still not at the maximum skill level. This study can be supported by a study by Kalaiselvi & Sumathy (2019) who found the results of a study on the level of skills of teachers in Tamil National Type Schools regarding the use of technology is still at a low level. According to Ravendran and Daud (2020), most countries have encountered the same problem, which is that teachers do not maximize the use of technology in the teaching process, whether physical or online.

(c) Objective 3

The results of the analysis for the third research question have shown that the perception of teachers at the Vocational College towards the level of readiness in terms of attitude is moderate, which is the average value of the mean score of 3.08 and the standard deviation of 1.16. This study is supported by the study of Muhamad, Nawi and Daud (2021) who stated that the results of the study on the attitude of teachers in using technology and information in the online teaching process are not encouraging. Attitude is one of the elements of preparedness that needs to be emphasized in the use of technology and information in teaching. Hairia'an and Dzainudin (2020) also stated in their study, the element of teacher attitude and motivation has also become a challenge in the process of implementing online teaching and learning.

3.3 Implication

- a) Expanding the scope of the study by conducting an implementation survey among students to see the impact of the implementation as a whole and not only subject to the teachers.

- b) Conduct a survey on knowledge in a qualitative form to identify the criteria and real needs of teachers in implementing online teaching at Vocational Colleges.
- c) Make a more in-depth study on other factors that contribute to the level of teacher readiness in implementing online-based teaching.

4. Conclusion

Based on the findings about the level of preparedness of teachers at Vocational Colleges, it was found that their level of knowledge, skills and attitudes towards the implementation of online teaching is only moderate. This finding was obtained based on the average mean score and standard deviation for the elements of knowledge, skills and attitudes. Therefore, the researcher can conclude that the implementation of online teaching at the Vocational College cannot run smoothly because of the factors of knowledge, skills and attitudes of teachers in the use of technology and information which are at a moderate level.

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