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The Role of Teacher Readiness as a Mediator in the Development of ICT Competency in Pahang Primary School

Zuraidah Baharuldin[1], Shahrir Jamaluddin[2], Mohd Shahril Nizam Shaharom[3] & Sumaia Mohammed Radman Zaid[4]

University of Malaya

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E-mail adress:

**corresponding Author :*
**mujahidpahang@gmail.com*
syammars76@yahoo.com
badariahmohamed@oum.edu.my
drkhaisaid@gmail.com

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Abstract

This study is aimed to look at the role of teacher readiness as a mediator between the ICT infrastructure and ICT competency of primary school teachers in Pahang. The total survey design method was used in this study. The researcher used random stratified cluster sampling method to select the pilot study sample and the actual study. A total of 514 teachers were involved in the pilot study as respondents and 530 teachers for the actual study. The Cronbach's Alpha value for instrument reliability is .935 while the construct validity of the study instrument was established using SEM-AMOS, Chi-square = 220.632; DF = 111; p <.001; CMIN / DF = 1.988; GFI = .951; CFI = .968; and RMSEA = .044. The findings show that there is only an indirect effect of teacher readiness on teacher ICT competence. There is a significant relationship between infrastructure to teacher readiness and teacher readiness to teacher ICT competence. There is no significant relationship between infrastructure on teacher ICT competence. In conclusion, infrastructure alone cannot contribute to teacher ICT competence but teacher readiness is also crucial in the successful use of ICT infrastructure in schools. Therefore, teacher readiness is the catalyst for the use of the ICT infrastructure provided by the ministry for the integration of ICT in the classrooms. In this study teacher readiness plays a full mediator.

Keyword: ICT infrastructure, teacher readiness, teacher ICT competency, SEM, mediator, ICT integration in education.

Introduction

1. Background of research.

The efforts of the Ministry of Education Malaysia (MOE) to enhance teachers' capabilities and competencies in the teaching and learning process are outlined in the Interim Strategic Plan 2011-

2020 (Wei, Piaw, Kannan, & Moulod, 2016). Referring to the PPPM 2013-2025 Report (MOE, 2013), MOE has developed and enhanced existing training programs so that teachers' ICT competence is at least at a minimum level in ICT literacy by 2015. Both the need for use of ICT in education and the emphasis on teacher competencies in ICT have been also emphasised in the National Education Policy 2012 (MOE, 2012). This is supported by the PPPM 2013-2025 Report (MOE, 2013) which states that teachers are important agents responsible for successful ICT literacy in education. Hence, teachers need to achieve the outlined ICT standard so that teachers are competent enough to integrate ICT in the classroom. Teachers must facilitate and inspire student learning and creativity, design and develop digital learning and assessment experiences, demonstrate how to work and learn in the digital age, promote and model responsible digital communities as well as engage in professional development and leadership.

The efforts taken to implement ICT in schools is an important starting point in keeping up with the rapidly expanding modern world that is entering the 21st century. Therefore, to enable ICT transformation in education, UNESCO and all the government agencies around the world have developed an ICT standard for developing teachers' competencies in teaching and learning whilst integrating ICT in the world of education (Ziden, Fook, Hoong, & Rahman, 2017).

According to the Asia-Pacific Ministerial Forum (2017), ICT plays a role in helping teachers to develop their professionalism beginning from pre-service to in-service period. Teacher ICT competence can be achieved through a transformational approach with improved pedagogy. Lau and Yuen (2014) asserted that ICT infrastructure and teachers' ICT competencies are closely linked to successful implementation and integration of ICT in schools.

2. Problem Statement

Teacher readiness and infrastructure are among the key factors in shaping teacher ICT competency in schools. However, according to the PPPM 2013-2025 Report (MOE, 2013) the opposite is happening. Teachers are not fully ready to use ICT equipment. This is due to the lack of training in the management of ICT equipment, the lack of technicians provided for the maintenance of ICT equipment and the lack of long-term strategies for upgrading the infrastructure and teacher competencies. At the same time, the schools' effort to integrate ICT is not succeeding as the lack of good infrastructure can adversely affect the expansion of ICT use amongst the students and school staffs (MOE, 2016). Recent studies (Bindu, 2017; Goktas, Gedik, & Baydas, 2013; Maimun, Wan, & Isa, 2017; NorIzzati & NorShakirah, 2017; Simin & Ibrahim Mohammed Sani, 2015; Singh & Samli, 2014; Vitanova, Atanasova-Pachemska, Iliev, & Pachemska, 2015; Zaira, Zolkefli & Kasri, 2016) also noted that infrastructure needs to be improved to enable ICT integration in schools. However, Gil-Flores, Rodriguez-Santero, & Torres-Gordillo (2017) argue that teacher characteristics are more relevant than school-based readiness. The mere role of infrastructure as a factor influencing the use of ICT in the classroom is not adequate.

The findings of previous studies suggest that generally the factors of teacher readiness for ICT use still remains low (Al-Awidi & Aldhafeeri, 2017; Alazzam, Bakar, Hamzah, & Asimiran, 2012; Baya'a & Daher, 2013; Maimun et al., 2017; Singh & Samli, 2014). In particular Al-Awidi and Aldhafeeri (2017) state that some of the other factors that hinder teachers' readiness to integrate ICT in PdPc are time, knowledge and skills in using ICT, infrastructure and the availability of technical equipment. This is supported by Maimun et al., (2017) by stating time, school infrastructure, cost, teacher skills and the relevance of the current topic of teaching and learning as some of the factors that hinder teachers' readiness to implement ICT during teaching and learning. Lack of time to use ICT in schools, heavy workload and lack of knowledge to fully utilise

ICT are obstacles to teachers' readiness to integrate ICT in the classrooms (Singh & Samli, 2014). The majority of teachers also agree that the use of ICT is important during teaching and learning and that they are willing to use it even if teachers do not have sufficient knowledge of ICT (Baya'a & Daher, 2013).

Therefore, based on the research findings, the researcher developed and subsequently tested a model to obtain the latest explanation on the level of ICT competency in primary schools. The development of this model looks specifically at the role of infrastructure and teacher readiness as a mediator of ICT competency of primary school teachers in Pahang.

3. Purpose of Study.

This study aimed to explain the role of teacher readiness as a mediator in the study by examining the direct and indirect effects of infrastructure on primary school ICT competencies. Based on the purpose of the study, the researcher has postulated the following research hypotheses:

Null hypothesis (Ho): Infrastructure has no direct and indirect effect on ICT competency of primary school teachers with the teacher readiness as a mediator.

Alternate hypothesis (Ha): Infrastructure has a direct and indirect effect on ICT competency of primary school teachers with the teacher readiness as a mediator.

Literature Review

1. ICT in education in Malaysia.

According to MOE (2016) the use of ICT is an important element in achieving the goals that have been formulated and proposed through the Malaysian Education Development Plan 2013-2025 Report (MOE, 2013). There are three main ICT policies outlined by MOE:

i. All students have skills in using ICT
ii. ICT as the main focus and serves as a teaching and learning tool; and
iii. Emphasis on the use of ICT to enhance productivity, efficiency and effectiveness of management system.

In addition, the school infrastructure development requirements for ICT integration have also been formulated and proposed by the PPPM Report (MOE, 2013) based on three guidelines and phases:

i. Initial phase (2013-2015). In the first phase at least 20 students for each ICT device in the school;
ii. Intermediate phase (2016-2020). The second phase involves 24 hours of internet access at a speed of at least 2-10 Mbps. At least 10 students per ICT device in all schools; and
iii. The future (2021-2025). The third phase involves at least 10 Mbps for all schools.

The MOE has also implemented several implementation strategies to enable the implementation of ICT in educational attainment (Chan, 2002). These are as follows:

i. Providing the latest and sufficient infrastructure that has been tested and appropriate with all educational facilities;

ii. Implementation of ICT curriculum and emphasis on ICT integration in teaching and learning process;
iii. Increase ICT knowledge and skills among students and teachers; and
iv. Increased use of ICT in education management.

2. Previous studies

The study by Goktas et al. (2013) shows that the main factors that impede ICT integration are lack of ICT equipment, lack of appropriate software, limited equipment, lack of in-service training, and lack of technical equipment. Key supporting factors include more budget allocation, special unit allocation for peer support, teacher support provision and better quality ICT training for pre-service teachers. Supporting teachers to use ICT more effectively, providing technology planning, offering more quality courses during training, and designing programmes with appropriate course content are also considered as supporting factors.

This is supported by the study of Singh and Samli (2014) who found that lack of technical support (24%), lack of knowledge in handling ICT equipment (76%), lack of software or web site (76%) and lack of computer and ICT equipment (70%) are some of the obstacles teachers have to face in integrating ICT in schools.

The study conducted by Vitanova et al. (2015) suggests that ICT infrastructure is one of the important factors that should be taken into account by school administrators. Multiple regression analysis showed ICT capacity ($\beta = .22$, $p<.05$) with teacher ICT competence. Researchers have also discussed the ongoing efforts to improve technical equipments in schools that have positive impact teachers' use of ICT. Furthermore, the researcher has explained that easy access to computers has contributed greatly to the development of teacher ICT competency.

Simin and Ibrahim Mohammed Sani (2015) have also studied the role of ICT infrastructure factors in their study. Most teachers agree with the view that all ICT equipment provided to schools is a waste. Although schools were equipped with ICT facilities, lack of internet access prevented teachers from using them (mean = 2.02, SD=.69). There were also schools that did not have a computer lab where students had the opportunity to integrate ICT into their learning process (mean = 2.79, SD=.96). Existing technical support (mean = 2.83, SD=.96) was also unable to cope when teachers faced technical difficulties as well as lack of training and development of teacher professionalism (mean = 2.86, SD=.81) on the use of ICT in teaching and learning. In addition, ICT facilities in schools were not functioning properly and were not well maintained (mean = 2.94, SD=.96).

Other than that, the study conducted by Maimun et al. (2017) found that time constraints, school ICT infrastructure, costs and teacher skills need to be taken into account as these factors influence the level of teacher readiness and knowledge of teachers to use ICT during teaching and learning. However Gil-Flores et al. (2017) find that the mere role of infrastructure as a factor influencing the use of ICT in the classroom is inadequate. According to the study by Payal Kumar and Vinod Kumar (2018), they found that although teachers are positive about the advantages of using ICT infrastructure in schools but there are still various obstacles for teachers to fully utilize ICT infrastructure.

Some other researchers have also viewed teacher readiness to integrate ICT in the classroom. A study done by Baya'a and Daher (2013) measured teacher readiness using teachers' perceptions of their ability to use ICT, teachers' attitude toward ICT contribution to PdPc of Mathematics, teachers' attitude towards ICT contribution to students studying Mathematics, teachers' emotions

when using ICT in Mathematics class, teachers' self-esteem when using ICT and teachers' intent on using ICT. In conclusion, the study concludes that a majority of teachers agree that the use of ICT is important during teaching and learning and that teachers are willing to use it even though they do not have sufficient knowledge of ICT.

Furthermore, Singh and Samli (2014) have found that the level of teacher readiness was high for integrating ICT in education, but teachers have been facing obstacles such as lack of time to use ICT in school, heavy workload and lack of skills and knowledge to make full use of ICT in the classroom. The researchers concluded that the level of teachers' knowledge of ICT usage was average based on their findings.

In addition, Al-Awidi and Aldhafeeri (2017) conducted a study to assess technology readiness and teacher pedagogical readiness in integrating digital curricula in Kuwait. Interviews found that factors affecting teacher readiness were time constraints (85%), lack of knowledge and skills (71%), lack of infrastructure (62%) and technical assistance (57%).

Following that, Norizan, Hussien and Yasmin (2018) conducted a study on teacher readiness to apply technology in teaching English. They find that teachers do not have adequate skills to use technology in the classrooms. Infrastructure is also seen as a major obstacle for English teachers to use technology in their classrooms.

Researchers have also looked at teachers' ICT competencies in their research. Vitanova et al. (2015) found that 58% of teachers are competent in ICT, 25% of teachers have low ICT competencies, while only 17% of teachers have basic knowledge and skills for using computers. The findings show that the four most important factors influencing teachers' ICT competence are ICT use, school ICT capacity, personal computers, teacher attitude and teacher motivation.

Aslan and Zhu (2016) found that the level of teachers' ICT competency was high. However, they have concluded that although teachers have confidence in integrating ICT in their teaching, there is no guarantee that teachers will be competent in integrating ICT in teaching.

Ammah (2017) conducted a study on Indonesian language teachers aimed at understanding the problems faced by teachers when integrating ICT in teaching and learning. The findings show that ICT is not being used optimally by teachers during the teaching and learning process even though schools are equipped with various ICT facilities. In fact, most teachers think they can still teach even without using ICT. At the same time, most teachers do not know how to integrate and develop ICT in the learning process. Teachers' understanding of the use of ICT is limited to personal use only. Most teachers do not understand the proper way to innovate and integrate ICT as a support tool in the teaching process.

Additionally a study by Baturay et al., (2017) observes the relationship between pre-service teachers and computer competence, attitude towards computer and the intention towards technology acceptance. The findings show that the more frequent the day-to-day use of the computer, the higher the teacher's computer competence. At the same time there is a positive and significant relationship between computer competence, computer attitude and technology acceptance intention.

Based on previous studies that have been discussed above, this study focused on three variables: infrastructure, teacher readiness and teacher ICT competency. The researcher has developed a model based on the variables identified through the literature review.

3. Related Theories.

This study uses three main theories: The Technology Acceptance Model [TAM] by Davis (1989), Theory of Planned Behaviour [TPB] by Ajzen (1991) and Technological, Pedagogical and Content Knowledge (Technological) Pedagogical Content Knowledge) [TPACK] by Mishra and Koehler (2009). The researchers chosed TAM, TPB and TPACK based on the model's suitability.

Olumide (2016) states that TAM Theory is best used to study the relationship between humans and technology through perceptions of use (Perceived Usefulness) and ease of use (Perceived Ease of Use). The infrastructure contribution in this study is based on the TAM Model.

The TPB model explains that individual intention depends on the behaviour of the individual based on the appropriate time and place (Academic Technology Services A Division of Information Technology Services, Minnesota State University, 1998). Teacher readiness in this study is based on TPB, which is intentionally equivalent to willingness to take action. Intention to do something is an indication of one's willingness to do so. Willingness to act can be defined as a person's desire to perform a behaviour, the expectation of performing it, planning to do it and the willingness to do so (Ajzen, 2011).

Meanwhile, ICT competency are based on TPACK. Koh, Chai, and Tsai (2013) state that TPACK is a framework that tests teachers' ICT integration of technological knowledge, pedagogical knowledge and content knowledge. The TPACK framework is a technology integration model that focuses on effective technology integration in teaching processes involving teacher competence (Kabakci Yurdakul et al., 2012).

Methodology

1. Research Design

This study uses a total survey design (Fowler, 2014) which requires researchers to focus on three important aspects namely sampling, instrumentation and data collection methods. Every aspect needs to be given proper attention so that the data collected is of valid. If there is a weakness in the implementation of any of the above aspects, the data collected may be questionable in terms of validity. According to Fowler (2014) it is easier for researchers to control errors if data is collected using only one method.

2. Population and Sample

This study was conducted in the state of Pahang. The state of Pahang consists of 11 districts. The population of teachers teaching in National Schools (SK), National-type Schools (Chinese) (SJKC), National-type Schools (Tamil) (SJKT) and Government Funded Religious Schools (SABK) totaled 14648 people across the state of Pahang (EPRD, Ministry of Education, 2018). In this study only SKs were involved. Teachers who teach in SJKC, SJKT and SABK are excluded from this study.

Hair, Anderson, Tatham, and Black (2010) suggested that for each item used in the survey, five respondents were required with a ratio of 1 to 5. Thus, in this study according to Hair et al., (2010) 625 respondents (125 items x 5 respondents) were proposed as a sample for the pilot study and the actual study.

The random stratified cluster sampling method was used by the researcher to randomly select the pilot study sample and the actual study. 668 teachers were selected for the pilot study and 685 teachers were involved in the actual study.

The respondents (N=1353) of this study were all teachers from selected schools. School administrators, principals, senior administration assistant teachers, senior student affairs teachers, senior co-curriculum teachers and evening supervisors were excluded from this study.

3. Instrument Development

The instrument of this study consists of four sections. Part I collects information on the demographic background of respondents. Part II measures the ICT infrastructure, Part III measures teachers readiness, and Part IV measures teachers ICT competency. All of the items in Part II to Part III and Part IV are adapted from instruments that have been used in the previous studies. Please refer to Table 1.1 below.

Table 1.1
Number of Items based on the Parts of Instrument

Variable	Instrument (Source)	Number of Item
Infrastructure	Simin and Mohammed Sani Ibrahim (2015)	5
Teacher Readiness	Maimun et al. (2017)	11
Teacher ICT Competency	Koh et al. (2012)	29
Total Item		45

The table above shows the original sources of instruments used in this study namely infrastructure (Simin and Mohammed Sani Ibrahim, 2015), teacher readiness (Maimun et al., 2017) and teacher ICT competency (Koh et al., 2012).

Researchers have used the back translation method (Brislin, 1970) to translate items written in English into Malay, namely items associated infrastructure and teacher ICT competency. The items were translated and verified by two content and language experts and one language expert. All items in Part II to Part IV were measured using Likert Scale: 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Undecided (U), 4 = Agree (A) and 5 = Strongly Agree (SA). All three parts of the instrument use the Five-Point Likert Scale for all 45 items.

4. Pilot Study

A pilot study has been conducted to determine the reliability and validity of the study instrument. The researcher used the random stratified cluster sampling method to select a pilot study sample. Researcher distributed a total of 668 questionnaires in the Kuantan district of Pahang involving three urban schools and six rural schools. After the data screening process, only 523 sets of questionnaires were analysed for pilot study. Researcher has excluded nine cases of outliers based on Mahalanobis Distance (MD) (Byrne, 2010). The total number of respondents for the pilot study was 514 teachers. The Cronbach's Alpha scores for this study instrument are displayed on the table below.

Table 1.2
Reliability of Study Instruments

Construct	Number of Item	r_α (Cronbach's alpha)
Infrastructure	3	.709
Teacher readiness	7	.851
Teacher ICT Competence	29	.939
Overall	39	.935

The table above shows the number of items after data screening. For the infrastructure actual, the researcher has excluded two items and four items for the teacher readiness. All of these items were excluded because the items did not load significantly at p<.05 (Bryne, 2010) followed by items that had a *β weight* lower than .40 (Chin, 1998). Cronbach's alpha value for all items was .935. Therefore, the reliability of this study instrument is sufficient to exceed .70 (Kline, 2011).

The validity of the study instrument was determined using CFA method. Bryne recommends that model fit be evaluated using the following index fit: *CMIN / DF <5.00; GFI> .90; CFI> .90* and *RMSEA <.05*. Based on Bryne's recommendation, the Pahang Primary School ICT Teacher Competency Measurement Model fits the pilot study data with *Chi-square value = 220.632; DF = 111; p <.001; CMIN / DF = 1.988; GFI = .951; CFI = .968; and RMSEA = .044*.

6. Data Collection

The Self-Administered Questionnaire (SAQ) method (Lavrakas, 2008) was used by the researcher to collect the data for the pilot and actual study. The researcher personally distributed the questionnaire to the respondents and the respondents answered the questionnaire either individually or in groups without any intervention from the researcher.

7. Data Analysis

The researchers used two softwares, *Statistical Package for Social Sciences (SPSS) version 23, 2015*) and *Analysis of Moment Structures software (AMOS version 23, 2015*) to fit the model and test hypotheses related to the role of mediators in the model. Hypothesis was tested at a significant level of *p <.05*.

From an analytical standpoint, SEM describes causal relationships [Byrne (2010), Hoyle (1995), Kaplan (2011), Kline (2011), Schumacker & Lomax (2004)] among the three variables that have been identified.

Results and Discussion

1. Respondents' Demographics

Table 1.3
Respondents' Demographic Profile for Real Studies

Subject	Frequency	Percentage
1. Gender		
Male	135	25.5
Female	395	74.5
Total	530	100
2. School Location		
Urban	129	24.3
Rural	401	75.7
Total	530	100
3. Teaching Experience		
Less than 10 years	121	22.8
11-20 years	262	49.4
21-30 years	119	22.5
More than 30 years	28	5.3
Total	530	100
4. Attendance of ICT-related In-Service Training (LDP) courses		
Yes	426	80.4
No	104	19.6
Total	530	100
5. Level of ICT teacher competency		
Level 1 (Low)	131	24.7
Level 2 (Average)	135	25.5
Level 3 (High)	264	49.8
Overall Mean	2.25	
SD	.827	

Table 1.3 shows the demographic profile of the respondents for the actual study. Researcher distributed 685 questionnaires to three districts in Pahang involving seven schools in Raub district, 22 schools in Lipis district and five schools in Bentong district. After the researcher performed the data screening process, only 540 usable sets of questionnaires were analysed. After the researcher excluded 10 outliers the total number of respondents for the actual study was 530. Researcher reported respondents' demographics in terms of gender, school location, teaching experience and attendance of ICT courses throughout their service as an education service officer.

The findings show that the majority of the respondents in this study are female teachers. More study data was obtained from teachers in rural schools compared to urban schools. Nearly half of the teachers have 11 to 20 years of experience in education and a large number of teachers have

said that they have attended ICT-related courses in-service compared to teachers who have never attended any ICT-related in-service training courses.

The researcher divides teacher ICT competency levels by Level 1 (low), Level 2 (average) and Level 3 (high). The findings show that the level of ICT competency of primary school teachers in Pahang is still at an average level of 2.25 and *SD* = *.827*.

2. Research Findings

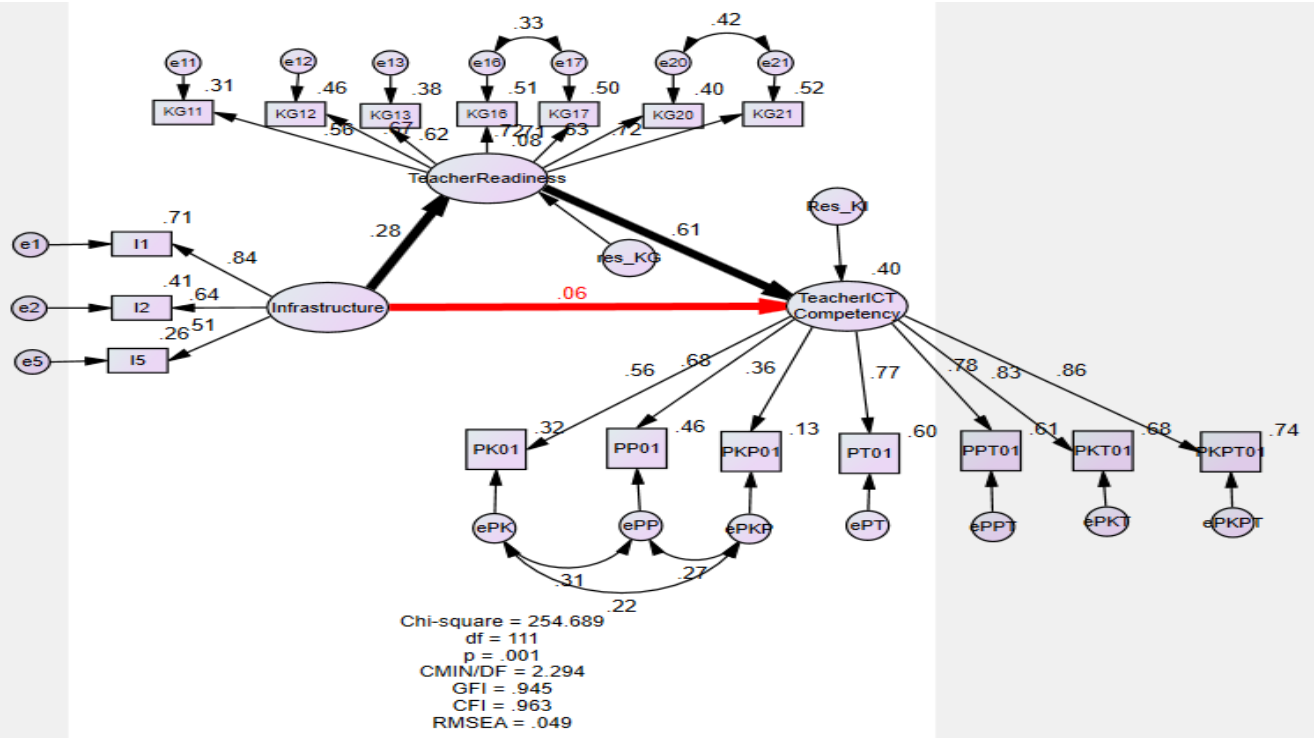

Figure 1.1. The Direct and Indirect Effects of ICT Infrastructure on Teacher ICT Competency: Teacher Readiness as a Mediator

Figure 1.1 shows a structural model of teacher ICT competency with teacher readiness as a mediator. *Chi-square = 254.689; DF = 111; p <.001; CMIN / DF = 2.294; GFI = .945; CFI = .963;* and *RMSEA = .049*. Since the model fit data, teacher readiness serves as a mediator in the above model.

The findings showed a non-significant direct effect of infrastructure → teacher ICT competency (*β = .061, p> .05, CI95% = -.048, .163*). Infrastructure → teacher readiness (*β = .285, p <.05, CI95% =. 179, .405*). Teacher readiness → teacher ICT competency (*β = .609, p <.05, CI95% = .530, .715*). Indirect effects of teacher readiness was *.285 * .609 = .173, p <.05*. Hence, the total effects was *.061 + .173 = .234*. The researcher concluded that there was a significant indirect effect of teacher readiness on teacher ICT competency.

In addition, the researcher also postulated a statistical hypothesis test to the mediating effect of the study:

Infrastructure → teacher ICT competency: Teacher readiness as a mediator.

$$H_0: \gamma_{xy3} = \gamma_{xy10} = \gamma_{xy13} = 0$$

$$H_a: \gamma_{xy3} = \gamma_{xy10} = \gamma_{xy13} \neq 0$$

The researcher rejected *Ho: γxy3 = γxy10 = 0* and accepted *Ha: γxy3 = γxy10 ≠ 0*. The null hypothesis, infrastructure → teacher ICT competency (*γxy13 = 0*) was accepted. The researcher concluded that there is a significant relationship between infrastructure → teacher readiness (*p <.05*) and teacher readiness → teacher ICT competency (*p <.05*). Infrastructure hypothesis → teacher ICT competency was found to be not significant (*p> .05*). Therefore, teacher readiness plays a role as a full mediator.

Table 1.4
Mediator Summary: Teacher Readiness

	β	**S.E.**	**C.R**	***p***
Infrastructure-Teacher Readiness-Teacher ICT Competency				
Teacher Readiness<---Infrastructure	.285	.046	4.660	***
Teacher ICT Competency<---Teacher Readiness	.609	.374	9.627	***
Teacher ICT Competency<---Infrastructure	.061	.211	1.293	.196

***significant at *p<.01*

Based on Table 1.4 the researcher conclude that teacher readiness serves as a full mediator. This is evidenced by Table 1.4 which shows that there is a significant relationship between infrastructure to teacher readiness and teacher readiness to teacher ICT competency. The findings show that there is no significant relationship between infrastructure and teacher ICT competency.

Conclusion

Infrastructure plays a major role in integrating ICT in the classroom. Teachers believe that they can use computer labs in their schools for teaching and learning purposes. The ICT facilities provided by the schools also function properly and allow them to use them for teaching and learning purposes. Technical assistance is also provided by the schools if teachers are having problems related to ICT equipment. Previous studies have shown that infrastructure plays an important role in ICT integration in schools (Chan, 2002; Goktas et al., 2013; Maimun et al., 2017; Norizzati & NorShakirah, 2017; Gil-Flores et al., 2017; Simin & Ibrahim Mohammad Sani, 2015; Singh & Samli, 2014; Vitanova et al ., 2015; Zaira et al., 2016).

Teacher readiness to integrate ICT in teaching and learning plays an important role in shaping teacher ICT competency. Teachers who are positive that ICT can be integrated into teaching can enhance students' interest and memory on what they have learned. At the same time, teachers should also be positive in exploring the use of ICT in the classroom. Although teachers face many challenges such as teaching time constraints, as change agents, they play a key role in the integration of ICT within teaching and learning. It is important that teachers equip themselves with ICT knowledge and skills and be positive about ICT integration in the classroom so that they remain prepared to face any future challenges related to ICT.

This is supported by a study conducted by Norizan et al., (2018) who found that teachers are still less prepared to apply ICT in teaching and learning. However, integrating ICT in the classroom with appropriate pedagogy and teaching techniques plays an important role as it provides students with the opportunity to master 21st century skills such as information skills and access to self-learning.

Similar findings were obtained by Al-Awidi and Aldhafeeri (2017), Baya'a and Daher (2013) and Singh and Samli (2014) on the important role of teacher readiness to integrate ICT in education. These also include ICT knowledge, ICT skills, Internet skills, ICT teaching, ICT usage and positive attitude. Their findings are supported by the views of Maimun et al. (2017) who argues that teacher readiness and teacher ICT skills play an important role in the use of ICT in education. Maimun et al. also argues that teachers should always be prepared and equipped with ICT competencies and be positive in providing quality educational opportunities to students.

Teacher readiness to integrate ICT in the classroom acts as a full mediator through the infrastructure of teacher ICT competency. Researcher has concluded that teacher readiness acts as a mediator in this study. Therefore, teacher readiness plays an important role in Pahang Teachers' ICT Competency.

In conclusion, the findings of the study indicate the importance of teacher readiness in mediating the effect of ICT infrastructure on teacher ICT competency. It also indicates that teacher readiness play a vital role in the successful use of ICT infrastructure in schools. In other words, teacher readiness serves as a catalyst for the successful use of the ICT infrastructure provided by the ministry for the integration of ICT in the classroom.

Lastly, researcher recommends that the study sample be expanded to other states in order to obtain a clearer picture of the level of ICT competency of primary school teachers.

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