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FACTORS INFLUENCING THE USE OF ONLINE LEARNING DURING THE COVID-19 PANDEMIC AMONG PRIMARY SCHOOL TEACHERS IN MANDARIN LANGUAGE SUBJECTS



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CHOONG JIN HONG

UNIVERSITI PENDIDIKAN SULTAN IDRIS

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DISSERTATION PRESENTED TO QUALIFY FOR A MASTER'S DEGREE IN
EDUCATION (INSTRUCTIONAL TECHNOLOGY)
(RESEARCH AND COURSEWORK MODE)

FACULTY OF HUMAN DEVELOPMENT
UNIVERSITI PENDIDIKAN SULTAN IDRIS

2024



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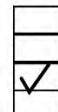
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ACKNOWLEDGEMENT

I wish to extend my deepest gratitude to all individuals who have generously assisted and provided unwavering support throughout the journey of my research. Their kindness in offering advice, encouragement, assistance, and valuable comments significantly contributed to the successful completion of this research. First of all, I would like to express my greatest and sincere gratitude to my supervisor, Professor Ts. Dr. Wong Kung Teck for his continuous guidance and support. He gave me a lot of advice and encouragement that helped me get through the circumstances involved in completing this dissertation, along with the progress of my research. It was a great privilege and honour to study and learn under his tutelage. Furthermore, I wish to express my sincere gratitude to all the respondents who generously devoted their valuable time to participate in my questionnaire survey. I am profoundly grateful for their willingness to invest their precious time and efforts in responding to all the survey questions and sharing their perspectives on the subject matter. Moreover, I would like to thank my family and friends for their endless support and motivation throughout the research. I am appreciative of my family and friends' tolerance and acceptance of my busy schedule while carrying out the research. To wrap things up, I am sincerely grateful to Universiti Pendidikan Sultan Idris (UPSI) for its provision of ample teaching materials and facilities, including all the postgraduate workshops and training by IPS and the digital library. These resources played a crucial role in facilitating a smooth and efficient completion of the research project for all students.





ABSTRACT

This study aimed to identify the relationship between factors influencing online learning and the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects. A quantitative approach using an online questionnaire to gather data through this study. The instrument comprises 36 questions adapted from the Unified Theory of Acceptance and Use of Technology, Technological Pedagogical Content Knowledge, and the Coronavirus Anxiety Scale. The selection of the research subjects was conducted randomly chosen involving 194 participants from Chinese primary schools in Kuala Lumpur. Data analysis used a basic descriptive analysis followed by correlation analysis to determine the significance of the study. The study's findings reveal that primary school teachers in Mandarin language subjects demonstrated a high level of technology knowledge ($M=3.65$, $SD=0.55$), performance expectancy ($M=3.64$, $SD=0.61$), technological pedagogical knowledge ($M=3.78$, $SD=0.51$), and effort expectancy ($M=3.56$, $SD=0.55$) during the COVID-19 pandemic. In contrast, the study showed that teachers in Mandarin language subjects experienced low levels of pandemic anxiety ($M=1.95$, $SD=0.87$). The study concluded that effort expectancy is the most influential factor that affects the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects ($r=0.51$, $p<0.01$). The results clearly indicate a significant relationship among all the factors examined, including technology knowledge ($r=0.50$, $p<0.01$), performance expectancy ($r=0.44$, $p<0.01$), technological pedagogical knowledge ($r=0.44$, $p<0.01$), effort expectancy ($r=0.51$, $p<0.01$), and pandemic anxiety ($r=-0.24$, $p<0.01$) with the use of online learning. The implication from this study provides some helpful information that can be used to improve the quality of online learning systems for the future wave of a pandemic or similar extreme situation.



FAKTOR-FAKTOR YANG MEMPENGARUHI PENGGUNAAN PEMBELAJARAN DALAM TALIAN SEMASA PANDEMIK COVID-19 DALAM KALANGAN GURU SEKOLAH RENDAH DALAM MATA PELAJARAN BAHASA MANDARIN

ABSTRAK

Kajian ini bertujuan untuk mengenal pasti hubungan antara faktor-faktor yang mempengaruhi pembelajaran dalam talian dan penggunaan pembelajaran dalam talian semasa pandemik COVID-19 dalam kalangan guru sekolah rendah dalam mata pelajaran bahasa Mandarin. Pendekatan kuantitatif dengan soal selidik dalam talian digunakan untuk mengumpul data dalam kajian ini. Instrumen ini mengandungi 36 soalan yang diadaptasi daripada Teori Penerimaan dan Penggunaan Teknologi Bersepadu, Model Pengetahuan Teknologi, Pedagogi dan Kandungan serta Skala Kebimbangan Coronavirus. Pemilihan sampel kajian dijalankan secara rawak melibatkan 194 orang peserta dari sekolah rendah Cina di Kuala Lumpur. Analisis data menggunakan analisis deskriptif asas diikuti dengan analisis korelasi untuk menentukan kepentingan kajian. Dapatan kajian menunjukkan bahawa guru sekolah rendah dalam mata pelajaran bahasa Mandarin menunjukkan tahap yang tinggi dalam pengetahuan teknologi ($M=3.65$, $SP=0.55$), jangkaan prestasi ($M=3.64$, $SP=0.61$), pengetahuan pedagogi teknologi ($M=3.78$, $SP=0.51$), dan jangkaan usaha ($M=3.56$, $SP=0.55$) semasa pandemik COVID-19. Sebaliknya, kajian menunjukkan bahawa guru dalam mata pelajaran bahasa Mandarin mengalami tahap kebimbangan pandemik yang rendah ($M=1.95$, $SP=0.87$). Kajian itu merumuskan bahawa jangkaan usaha adalah faktor paling berpengaruh dalam penggunaan pembelajaran dalam talian semasa pandemik COVID-19 dalam kalangan guru sekolah rendah dalam mata pelajaran bahasa Mandarin ($r=0.51$, $p<0.01$). Hasilnya jelas menunjukkan hubungan yang signifikan antara semua faktor yang dikaji, termasuk pengetahuan teknologi ($r=0.50$, $p<0.01$), jangkaan prestasi ($r=0.44$, $p<0.01$), pengetahuan pedagogi teknologi ($r=0.44$, $p<0.01$), jangkaan usaha ($r=0.51$, $p<0.01$), dan kebimbangan pandemik ($r=-0.24$, $p<0.01$) dengan penggunaan pembelajaran dalam talian. Implikasi daripada kajian ini telah memberikan maklumat berguna untuk meningkatkan kualiti sistem pembelajaran dalam talian untuk gelombang pandemik masa hadapan atau situasi ekstrem yang serupa.

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LIST OF ABBREVIATIONS

AI	Artificial Intelligent
BDR	<i>Belajar Dari Rumah</i>
CAS	Coronavirus Anxiety Scale
DELIMa	Digital Educational Learning Initiative Malaysia
DLT	Distance Learning Technologies
DSKP	<i>Dokumen Standard Kurikulum dan Pentaksiran</i>
EPRD	Educational Planning and Policy Research Division
IPS	Institute of Graduate Studies
ISTE	International Society for Technology in Education
JPWPKL	Federal Territory of Kuala Lumpur Education Department
MCO	Movement Control Order
MOE	Ministry of Education
PdPR	<i>Pengajaran dan Pembelajaran Di Rumah</i>
SARS	Severe Acute Respiratory Syndrome
SEM	Structural Equation Modeling
SJK(C)	Chinese Primary School
SPSS	Statistical Package for the Social Sciences
TESL	Teaching English as a Second Language
TPACK	Technological Pedagogical Content Knowledge
UTAUT	Unified Theory of Acceptance and Use of Technology
WHO	World Health Organization
WPKL	Wilayah Persekutuan Kuala Lumpur



CHAPTER 1

INTRODUCTION



COVID-19 was a newly discovered coronavirus in December 2019 in China (World Health Organization [WHO], 2020). The World Health Organization (WHO) Director-General proclaimed COVID-19 as a pandemic in March 2020, following the discovery of the deadly virus's rapid global spread. Physical distancing was implemented as a measure to avoid COVID-19 (WHO, 2020). COVID-19 forces school closures globally, which implies that schools have to pivot to an online curriculum that is a completely different online learning experience (McCarthy, 2020; Hodges et al., 2020).

Most educational systems throughout the world are unprepared for the COVID-19 catastrophe. Many countries have attempted for the first time to implement large-scale online learning. There were many challenges encountered by educators during



this period since everyone needed to shift to online learning and quickly adapt to these changes within a short period (Pell et al., 2020; Crawford et al., 2020). During the COVID-19 outbreak, there has been a significant impact on online language learning, particularly in the Mandarin language because of its logographic writing system (Zhang, 2020).

Several studies have proven that the factors affect online learning's success during the COVID-19 pandemic. According to Masmali and Alghamdi (2021) teachers think that using online learning would result in increased performance and are more inclined to continue using it. A few recent studies reported that most teachers have improved their technological knowledge in a short period regardless of their previous exposure to technology (Tamah, Triwidayati, & Utami, 2020). Some disadvantages have been related to online learning. According to Rasmitadila et al (2020) the application of instructional techniques during the COVID-19 pandemic decreased the quality of learning. Meanwhile, Wang et al (2020) stated that some studies from several nations found that the pandemic of COVID-19 has caused an upsurge in mental health issues.

1.2 Background of Study

A worldwide health threat was announced after the COVID-19 virus was identified in the city of Wuhan's seafood market in December 2019. (WHO, 2020; Huang et al., 2020). Following that, in March 2020, COVID-19 was deemed to be a pandemic by the WHO Director-General after assessing the deadly virus's rapid spread globally.

Breathing difficulty, a sore throat, a cough, a fever, nausea, vomiting, and diarrhea are among the signs of its infection. In severe circumstances, people may have acute respiratory distress syndrome, cardiac injury, respiratory failure, or even die (Baj et al., 2020). As of March 23rd, 2020, COVID-19 had killed 12,944 people and infected around 294,110 people in 187 nations (WHO, 2020). In addition, physical distancing was implemented as a measure to avoid COVID-19 (WHO, 2020). With that regard, in response to the COVID-19 outbreak on March 18, 2020, a Movement Control Order (MCO) was issued by the government of Malaysia (Azman, Nur Atika, Abd Aziz, & Azmi, 2021). The COVID-19 crisis has left most education systems across the world unprepared. Many countries have attempted for the first time to implement large-scale online learning (Pell et al., 2020).

learning requires the use of mobile phones or computers to meet learners' needs and to learn at anytime and anywhere (Fu & Zhou, 2019). Online learning is classified as either synchronous or asynchronous (Amiti, 2020). In synchronous online learning, the interactions between educators and learners happen in real-time (McBrien, Cheng, & Jones, 2009; Dhawan, 2020), meanwhile, asynchronous online learning uses a learning method that is best suited for self-motivated learners where the learning process occurs in different places and times (Amiti, 2020; Rasmitadila et al., 2020). There are also other forms of online learning such as blended learning, hybrid learning, and microlearning. Throughout the COVID-19 outbreak, many teachers were forced to change their learning systems, many problems began to pile up in handling online learning and they faced a wide range of challenges (Longhurst et al., 2020; Hobbs & Hawkins, 2020). In response to a disaster or crisis, well-planned online learning

environments are significantly different from emergency online learning which is the momentary transition of the teaching delivery method using different methods following a crisis (Hodges et al., 2020). According to Adedoyin and Soykan (2020) there are two parts to crisis-response migration methods, namely External-Assisted Migration which online instruction provides space for flexibility in teaching and learning regardless of geography and time limitations whereas External-Integrated Migration is integrating platforms designed by external organizations into their online learning platforms.

Emergency online learning has become a crucial part of maintaining normal instructional order in the education sector. In China, meeting software such as Ding Ding, Fanya, and others are a few examples that are commonly used to deliver online

classroom and online teaching (Chen et al., 2020). Meanwhile, in Saudi Arabia, despite the challenges faced during online teaching, Madrasati is the platform choice used to support the teaching and learning processes (Masmali & Alghamdi, 2021), and in Indonesia, they used the Learning from Home policy, namely the *Belajar Dari Rumah* (BDR) policy as issued by the government of Indonesia (Latief, Hendrayani, & Samsuddin, 2021). Similarly, in Malaysia, home-based teaching and learning, specifically *Pengajaran dan Pembelajaran Di Rumah* (PdPR), is enforced for primary and secondary school students to adapt to the new norms that are constructed from the blueprint (2013-2025) recommended by the Ministry of Education (MOE) where every student has access to education and follows education even from home. Concerning the situation, the MOE launched the Digital Educational Learning Initiative Malaysia (DELIMA) on June 15, 2020, an upgraded digital platform for online learning (Microsoft Malaysia, 2020). The DELIMA platform offers a variety of education

applications and services, for instance, Microsoft Office 365, Apple Teacher Learning Center, and Google Classroom. According to Microsoft Malaysia (2020) the average monthly active user is 1.7M to date and the platform is used by 370,000 educators, 2.5 million students, and ten thousand schools.

Pandemics have suddenly shifted the pedagogy of teaching and learning in many institutions to using the online mode, which has created an entirely different learning experience (Adnan & Anwar, 2020). Without proper planning, many challenges are expected to occur, especially when teachers must adjust to these new methods of instruction and learning (Donitsa-Schmidt & Ramot, 2020; Dhawan, 2020). Many educational institutions were noted to be unprepared for online learning even though the International Society for Technology in Education (ISTE) had issued some

guidelines and suggestions for emergency online learning (Morgan, 2020). The implementation of this policy requires a lot of preparation from various parties (Syafri & Novrianti, 2021). Importantly, the online learning process during the pandemic has significantly impacted language acquisition, specifically in Mandarin language subjects, because the logographic writing system adds a new level of difficulty to teaching Chinese characters online for primary school students who need direct instruction (Zhang, 2020; Wang & East, 2020; Wahyuni & Bhattacharya, 2021).

According to the main objective of *Dokumen Standard Kurikulum dan Pentaksiran (DSKP) Semakan 2017* in Mandarin language SJKC, teaching Mandarin to students was to help them develop their four language skills (listening, speaking, reading, and writing) as well as their ability to communicate effectively to meet their own needs. English and Spanish use the Latin script, Urdu uses the Arabic alphabet,

and Hindi uses Devanagari, all of which are phonetic writing systems. Mandarin, on the other hand, employs logographic writing systems (Alshammari, 2020; Jin & Ataman, 2022). A logographic writing system, in which surface forms are represented as a visual organization of smaller graphemic units, and word meaning can be changed by altering the composition of these units (Lam & Kuan, 2019; Jin & Ataman, 2022). Chinese characters are used to write Mandarin, and Chinese characters are part of a logographic writing system. This system is distinct from the abjad, or consonantal alphabet. The structure of Chinese characters is three-tiered: strokes are the small units that form a radical, and one or more radicals are grouped to form a character (Zhang, 2020). Every stroke of the Chinese characters or radical part could have a unique informative meaning and a distinct writing order (Lam & Kuan, 2019; Chen et al, 2022).

Figure 1.1 shows the logographic writing system and Figure 1.2 shows the structure of Chinese characters, which includes important aspects related to the meaning of the word.

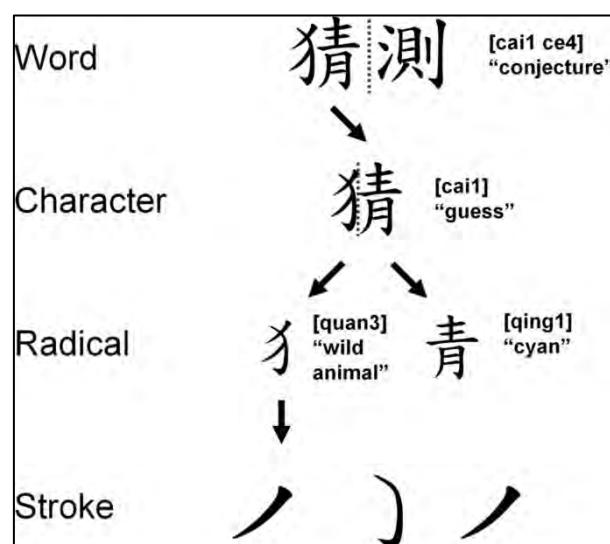


Figure 1.2. The structure of Chinese characters

Several studies have proven that many factors can influence the teachers' acceptability of online learning in addition to its successful execution during the pandemic. Some researchers utilize technology acceptance models of the Unified Theory of Acceptance and Use of Technology (UTAUT) to predict teachers' adoption and technology use and give explanations of technology adoption and utilization based on various factors (Jevsikova, Stupurienė, Stumbrienė, Juškevičienė & Dagienė, 2021). The UTAUT model includes effort expectancy, performance expectancy, facilitating conditions, behavioral intention constructs, and social influence. Recent research by Masmali and Alghamdi (2021) indicated that teachers who believe in using online learning will lead to better performance, and they are more likely to continue to use it. While Jevsikova et al. (2021) discovered that behavioral intentions are influenced by performance expectations and effort expectations on online learning platform usage, in the contemporary educational context, teachers must be knowledgeable in technological pedagogical content knowledge (TPACK). A framework called TPACK looks into connections and complexity between the three fundamental parts of knowledge, namely content, technology, and pedagogy that are needed by teachers in accommodating online learning activities (Mishra & Koehler, 2006; Fuad, Ariyani, Suyanto, & Shidiq, 2020). A few recent studies have reported that most teachers have improved their technological knowledge in a short period regardless of their previous exposure to technology (Tamah et al., 2020). According to a Malaysian study, 67% of respondents acknowledged that the early stages of the COVID-19 outbreak caused them to feel more anxious (Qiu, 2020). Similarly, a thorough investigation among teachers in China revealed an increase of 2.74 times in anxiety prevalence compared to the year 2013 (Li et al., 2020). In addition, several reports from some other countries revealed that there was a rise in mental health issues brought on by the COVID-19 pandemic

(Wang et al., 2020). However, Almaiah, Al-Khasawneh, and Althunibat (2020) suggested that factors affecting the success of online learning significantly varied from one country to another due to different contexts, cultures, and levels of readiness. For the reasons stated above, this study aims to identify the key factors that influence online learning usage during the COVID-19 pandemic among primary school teachers in Mandarin language subjects.

1.3 Problems Statement

COVID-19 forced school closures globally, which implies that schools are forced to switch to online curricula using online applications (McCarthy, 2020). Educators have

been forced to quickly find solutions to a wide range of challenges (Longhurst et al., 2020). Educators have to adapt to these changes and switch to online learning within a short period which involves numerous trials and errors (Pell et al., 2020). They experienced a lot of challenges in this transformation of the emergency online learning process (Crawford et al., 2020). The United Nations Educational, Scientific, and Cultural Organization (UNESCO) reported a total of 1,437,412,547 students were affected worldwide and forced to change their method of instruction in light of COVID-19 (UNESCO, 2021). Before the pandemic, the MOE launched the ICT Transformation Plan 2019–2023, which was created to aid Malaysia's digital education system (Ministry of Education Malaysia [MOE], 2019). Teachers must employ ICT skills to enhance the academic achievement of students and use a digital technology-based pedagogical approach to fulfill the aims of the ICT Transformation Plan (Hamzah,

Nasir, & Wahab, 2021). This was one of the key factors that helped to immediately switch over to online learning during the pandemic onset.

Mandarin is one of the United Nation's six official languages and it is an official language of China and Singapore. Therefore, Mandarin is used as an effective communication tool, and more learners have taken steps to make this popular language a part of their studies (Odinye, 2019). According to Zhang (2020) online learning had a significant impact on language learning during the COVID-19 pandemic, particularly in Mandarin language. Among the main issues in Mandarin online learning, Mandarin is a logographic language and its non-alphabetical characters create additional difficulties in recognizing and memorizing Chinese characters (Alshammari, 2020; Jin & Ataman, 2022). English and other languages use an alphabetic writing system, which makes learning new vocabulary easier because it only has 26 letters. In contrast, Mandarin languages rely on its unique logographic writing systems, in which surface forms are represented as a visual organization of smaller graphemic units, and these units' composition has a distinct informative meaning and writing order that can change the word meaning (Chen et al, 2022; Jin & Ataman, 2022).

One of the most difficult aspects of the Chinese logographic writing system is that students must learn thousands of characters (Alshammari, 2020). As a result, learning this complex, nonlinear character configuration in Mandarin would take a substantial amount of time and effort (Alshammari, 2020; Zhang, 2020). Identically, existing findings by Alshammari (2020) reveal that 80% of participants strongly agreed that learning Mandarin was extremely difficult. On the other hand, teaching Chinese characters online adds a new level of difficulty because the logographic writing system

requires additional technology and digital tools (Wang & East, 2020). Learners were found to need more time to learn Chinese characters which can be met by technology (Rahmat, 2020). Furthermore, the global crisis has resulted in a lack of time and resources needed to create a well-paced online curriculum that allows beginner learners to acquire characters while honing their character typing skills (Zhang, 2020). Antrobus, an American psychologist, stated that the best age to learn a language is before the age of 13. The data presented above demonstrates the importance of investing enough love and responsibility in children's education and primary schools because this is the best time for children to learn (Qiu & Qiu, 2019). However, not all teachers are ready for technology-based online learning, especially for primary school students who require direct instruction (Wahyuni & Bhattacharya, 2021). In a qualitative study, Zhang (2020) discovered that it is extremely difficult to correct any

stroke order errors in real-time when teaching and learning Chinese characters online during a pandemic. Similarly, Ivana (2021) did a study in Indonesia and found that Mandarin language educators who are over 40 years old in the city of Medan do not know how to use technology, making online learning more challenging.

Despite the guidelines provided by ISTE for emergency online learning, many educational institutions are still deemed not prepared to implement online learning (Morgan, 2020). Putting this policy into practice requires a lot of preparation from various parties, especially in the preparation of message structure and material developed through online learning (Tandonfril & Novrianti, 2021). Although factors influencing the use of online learning became a popular research topic during the COVID-19 pandemic, they remained an unexplored topic in the context of primary school teachers in Malaysia, particularly in Mandarin language subjects. Based on the

current issue, there is a limited number of studies that provide useful guidelines for the effective implementation of online learning for Mandarin language subjects during a pandemic. The research gap that I would like to address in this study is to identify the relationship between factors influencing online learning and the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects. The identification of key factors influencing the use of online learning can provide valuable information in developing and providing better services for an effective online learning system in Mandarin language subjects for the future wave of a pandemic or similar extreme situations such as SARS, MERS-CoV, Ebola, and many more outbreaks that have been hitting the world for decades. This research not only addresses current issues in online education but also establishes a strong foundation for the future development of education.

1.4 Research Objectives

This study's objective is to identify the relationship between factors influencing online learning and the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects. In achieving this key objective, specific objectives will be developed as follows:

1. to determine the level of the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects.

2. to determine the level of technology knowledge, performance expectancy, technological pedagogical knowledge, effort expectancy, and pandemic anxiety during the COVID-19 pandemic among primary school teachers in Mandarin language subjects.

3. to identify the relationship between factors influencing online learning in technology knowledge, performance expectancy, technological pedagogical knowledge, effort expectancy, and pandemic anxiety and the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects.

In this study, the following questions will be discussed:

1. What is the level of the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects?

2. What is the level of technology knowledge, performance expectancy, technological pedagogical knowledge, effort expectancy, and pandemic anxiety during the COVID-19 pandemic among primary school teachers in Mandarin language subjects?

- a. What is the level of technology knowledge during the COVID-19 pandemic among primary school teachers in Mandarin language subjects?
- b. What is the level of performance expectancy during the COVID-19 pandemic among primary school teachers in Mandarin language subjects?
- c. What is the level of technological pedagogical knowledge during the COVID-19 pandemic among primary school teachers in Mandarin language subjects?

among primary school teachers in Mandarin language subjects?

- e. What is the level of pandemic anxiety during the COVID-19 pandemic among primary school teachers in Mandarin language subjects?
3. Is there a relationship between factors influencing online learning in technology knowledge, performance expectancy, technological pedagogical knowledge, effort expectancy, and pandemic anxiety and the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects?

- a) Is there a relationship between technology knowledge and the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects?
- b) Is there a relationship between performance expectancy and the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects?
- c) Is there a relationship between technological pedagogical knowledge and the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects?

- e) Is there a relationship between pandemic anxiety and the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects?

1.6 Research Hypothesis

Numerous research hypotheses have been proposed by the researcher in this study. The researcher has proposed five alternative hypotheses based on the objectives and research questions of the study:

Ha₁: There is a statistically significant relationship between technology knowledge and the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects.

Ha₂: There is a statistically significant relationship between performance expectancy and the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects.

Ha₃: There is a statistically significant relationship between technological pedagogical knowledge and the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects.

Ha₄: There is a statistically significant relationship between effort expectancy and the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects.

Ha5: There is a statistically significant relationship between pandemic anxiety and the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects.

1.7 Conceptual Framework

The conceptual framework can be illustrated in Figure 1.1. The figure shows the relationship between factors influencing online learning which can be explained by five aspects of independent variables namely (1) technology knowledge, (2) performance expectancy, (3) technological pedagogical knowledge, (4) effort expectancy, and (5) pandemic anxiety. The dependent variable is the use of online learning during the

COVID-19 pandemic among primary school teachers in Mandarin language subjects.

The conceptual framework demonstrates the existence of a relationship between the variables studied which include technology knowledge, performance expectancy, technological pedagogical knowledge, effort expectancy, pandemic anxiety, and the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects. Figure 1.3 shows the conceptual framework of this study.

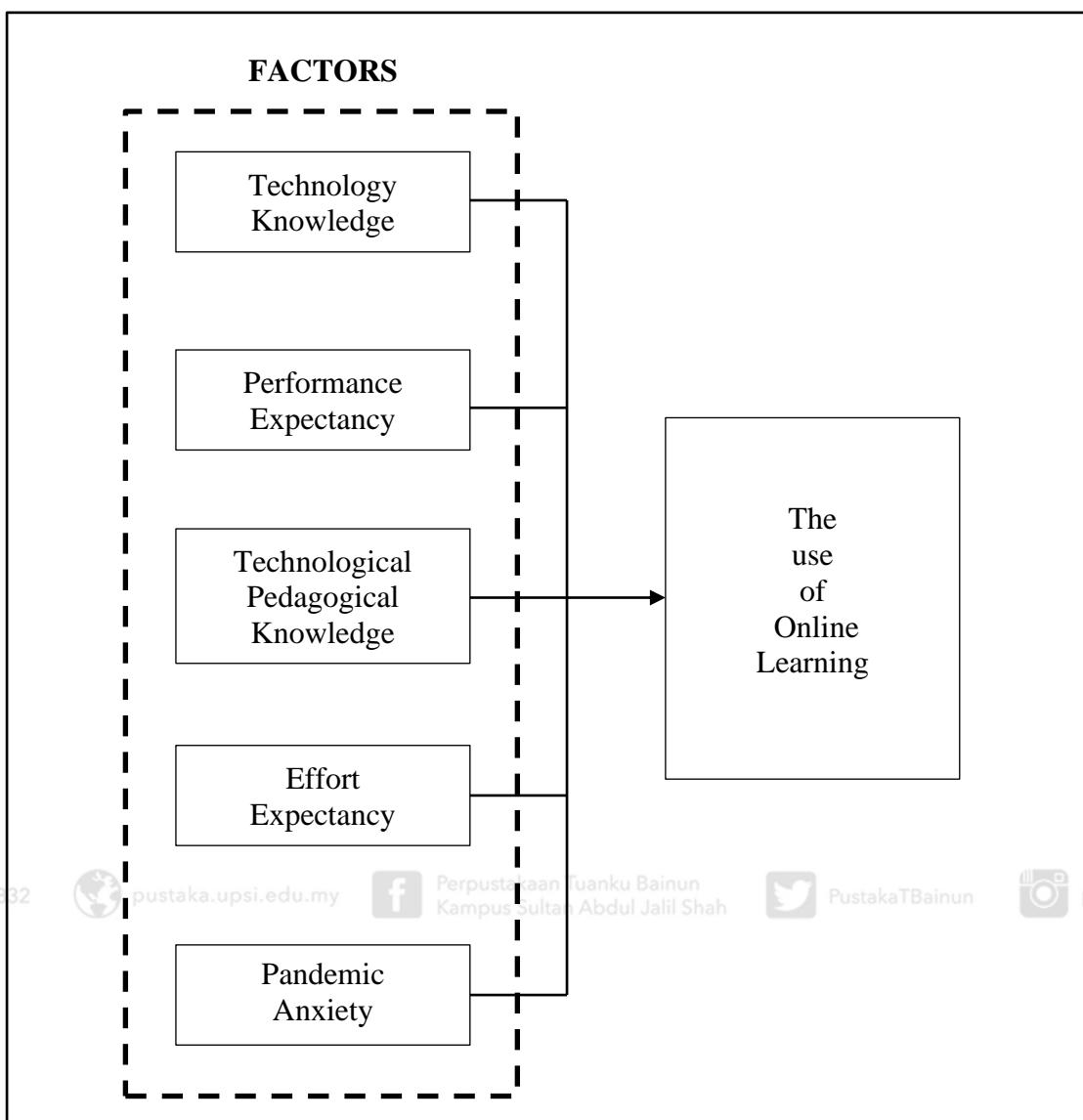


Figure 1.3. Conceptual framework

1.8 Significance of the Study

Many researchers and educators have discovered that online learning during the COVID-19 pandemic has a significant impact on language learning, especially in Mandarin language subjects because the logographic writing system adds a new level

of difficulty in teaching Chinese characters online, particularly for primary school students who require direct instruction (Zhang, 2020; Wahyuni & Bhattacharya, 2021).

Furthermore, many educational institutions are not prepared to implement emergency online learning, including Mandarin language subjects (Morgan, 2020; Rahmat, 2020). The execution of this policy necessitates a great deal of planning on the part of many parties, particularly in terms of design and content based on online learning (Syafril & Novrianti, 2021). The findings of this study can find out the factors influencing the use of online learning as well as the experience gained during the pandemic time are crucial and will be more valuable to utilize in developing and providing better services for an effective online learning system in Mandarin language subjects.

This study's findings can be used to develop an effective online learning system for Mandarin language subjects and provide better services for the future wave of a pandemic or similar extreme situations. Feedback on the findings of this study is expected to provide useful information to the Ministry of Education, education technology companies, instructional designers schools, and teachers on the development of an effective online learning system for Mandarin language subjects in primary schools.

1.9 Definition of Terms

This section discusses the definitions for the variables found in this study. Conceptual definition refers to the definition using the abstract concept. An operational definition is how we decide to measure the variables in a study by connecting empirical operations to data indicators.

1.9.1 Technology Knowledge

Technology knowledge refers to teachers' understanding of conventional and new technologies that can be incorporated into the curriculum (Mishra, 2019). Technology

knowledge is described as the ability to use technology, including the ability to operate computer systems and hardware, in addition to the knowledge of software tools like spreadsheets, Internet browsers, and email (Fuad et al., 2020). Technology knowledge is defined as knowledge of technology, along with the capacity to use and learn new ones (Lavidas et al., 2021).

Technology knowledge discussed in the study refers to the understanding among teachers of both established and emerging technology that can be included in the curriculum among primary school teachers in Mandarin language subjects (Mishra & Koehler, 2006).

1.9.2 Performance Expectancy

Performance expectancy refers to effectiveness, especially regarding consistency of use and daily routines (Masmali & Alghamdi, 2021). Performance expectancy means the learners firmly believe that online learning will improve their education (Md Yunus, Ang, & Hashim, 2021). Performance expectancy is described as expectations regarding performance and the belief that utilizing the system may help them perform better (Jevsikova et al., 2021).

Performance expectancy discussed in the study refers to a person's level of optimism that employing the system will enable them to improve their performance at work (Venkatesh, Morris, Davis & Davis, 2003).

1.9.3 Technological Pedagogical Knowledge

Technological pedagogical knowledge is instructors' technology expertise, basic pedagogical practices, how pedagogical activities can be combined with technology, and how technology can transform how teachers teach (Cox & Graham, 2009; Schmid et al, 2009). Technological pedagogical knowledge refers to how ICT integration knowledge improves instructional approaches (Zhang, Yao, Sun, & Tay, 2019). Technological pedagogical knowledge is the idea that using a particular technology in particular ways might change how teaching is done and how knowledge of ICT integration enhances instructors' educational practices (Lavidas et al., 2021).

Technological pedagogical knowledge discussed in the study refers to the ability to employ a variety of technologies in teaching and the awareness that doing so may transform how teachers educate (Mishra & Koehler, 2006).

1.9.4 Effort Expectancy

Effort expectancy is characterized as how far a person's use of technology equipment is influenced by convenience (Omar, Ismail, & Kasim, 2019). Effort expectancy is considered the growth and development of students, educators, society, and psychosocial conditions to fulfill educational service (Amelia & Retnowardhani, 2021).

Effort expectancy means teachers' online learning skills are critical to ensuring that the

Effort expectancy discussed in the study refers to how simple the system is to use among primary school teachers in teaching logographic Mandarin language subjects (Venkatesh et al., 2003).

1.9.5 Pandemic Anxiety

Pandemic anxiety refers to anxiety symptoms associated with a pandemic in which people may require mental health care (Bernardo et al., 2020). Pandemic anxiety is described as a psychological effect and current state of mental health response to a pandemic (Wang et al., 2020). Pandemic anxiety is defined as a shift in a person's

anxiety level as well as a negative emotional response during the pandemic (Jevsikova et al., 2021).

Pandemic anxiety discussed in the study refers to the COVID-19 pandemic's mental health reaction among primary school teachers in Mandarin language subjects (Lee, 2020).

1.9.6 The Use of Online Learning

The use of online learning means the application of digital tools to the teaching and learning process (Mishra & Koehler, 2006). The use of online learning refers to teachers

who adapted to the use of technology and a variety of learning media platforms were concerned with the deployment of online learning (Fuad et al., 2020). The use of online learning is described as using online learning resources to organize, schedule, carry out, and monitor the teaching and learning process (Almaiah et al., 2020).

The use of online learning discussed in the study refers to the actual usage of the DELIMa online learning system for teaching purposes during the COVID-19 pandemic (Venkatesh et al., 2003).

1.10 Conclusion

Chapter 1 has discussed the matters related to the background of the COVID-19 pandemic, online learning during a pandemic, problem statement, research objectives, research questions, research hypothesis, conceptual framework, the significance of the study, limitation of the study, and operational definitions. Research problems can explain the purpose of research related to factors influencing online learning and the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects as well as prove the existence of problems based on previous references. The purpose and questions of the study are related to factors in technology knowledge, performance expectancy, technological pedagogical knowledge, effort expectancy, and pandemic anxiety that influence the use of online learning during the COVID-19 pandemic among primary school teachers in Mandarin language subjects. The study was limited to primary school teachers in Mandarin language subjects. Researchers used the sample and population from Wilayah Persekutuan Kuala Lumpur (WPKL) and involved 194 respondents who were selected at simple random and used survey methods to collect information.