A STUDY ON THE TECHNOLOGY ACCEPTANCE IN USING ONLINE EDUCATION AMONG SECONDARY SCHOOL TEACHERS IN KINTA DISTRICT PERAK

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UNIVERSITI PENDIDIKAN SULTAN IDRIS

2024

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ABSTRACT

This study explores the factors influencing teachers' technology acceptance in using online education. It also measures the relationship between variables, the best predictor, and the mediating role of variables of online teaching among secondary school teachers in the Kinta district in Perak. The study employs the quantitative research approach. The survey is distributed to a group of teachers selected based on the subjects taught. The data collected was analysed using Structural Equation Modelling (SEM). This study has proven that Intention to Use (IU) is the strongest predictor for Usage Behaviour (UB). Apart from that, Attitude (ATT) seems to have an excellent influence on Perceived Ease of Use (PEOU) and Usefulness (PU). Results reveal that although many problems arise throughout the implementation period, teachers are still passionate and eventually find ways to adapt to the technology. These results are hoped to provide some insight to MOE, the District Education Office, the schools, and others interested in making education more accessible, fun, and less burdening to teachers. Findings of the study can be used as a reference for the development of a new policy such as the Digital Education Policy (DEP) in the new era of education.

KAJIAN BERKAITAN PENERIMAAN TEKNOLOGI BAGI PENGGUNAAN PENDIDIKAN DALAM TALIAN DALAM KALANGAN GURU SEKOLAH MENENGAH DI DAERAH KINTA PERAK

ABSTRAK

Kajian ini bertujuan mengkaji faktor-faktor yang mempengaruhi penerimaan teknologi guru dalam menggunakan pendidikan dalam talian. Ia juga mengukur hubungan antara pembolehubah, peramal terbaik, dan peranan pengantara pengajaran dalam talian guru sekolah menengah di daerah Kinta, Perak. Kajian ini menggunakan pendekatan penyelidikan kuantitatif. Borang soal selidik telah diedarkan kepada guru-guru yang dipilih berdasarkan mata pelajaran yang diajar. Data yang dikumpul telah dianalisis menggunakan *Structural Equation Modeling* (SEM). Kajian ini telah membuktikan bahawa *Intention to Use* (IU) adalah peramal terkuat untuk *Usage Behaviour* (UB). Selain itu, *Attitude* (ATT) mempunyai pengaruh yang besar terhadap *Perceived Ease of Use* (PEOU) dan *Perceived Usefulness* (PU). Keputusan menunjukkan bahawa walaupun banyak masalah timbul sepanjang tempoh pelaksanaan, guru masih bersemangat dan berusaha mencari jalan untuk menerima dan menggunakan teknologi. Keputusan ini diharapkan dapat memberikan sedikit panduan kepada KPM, Pejabat Pendidikan Daerah, sekolah-sekolah dan lain-lain yang berminat untuk menjadikan pendidikan lebih mudah diakses, menyeronokkan dan dapat mengurangkan bebanan guru. Dapatan kajian ini boleh dijadikan rujukan bagi pembangunan dasar baharu seperti Dasar Pendidikan Digital (DEP) dalam era baharu pendidikan.

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LIST OF ABBREVIATIONS

AR	Augmented Reality
Att	Attitude
AVE	Average Variance Extracted
DI	Differentiated Instruction
DOSM	Department of Statistics Malaysia
ESL	English as a Second Language
HTMT	Heterotrait-Monotrait Ratio of Correlations
ICT	Information Communication Technology
IPT	Institutes of Higher Learning
IU	Intention to Use
KSSM	Kurikulum Standard Sekolah Menengah
LMS	Learning Management System
MCO	Movement Control Order
MV	Motivational Support
OTL	Online Teaching and Learning
PC	Perceived Convenience
PEOU	Perceived ease of use
PLS	Partial Least Squares
PU	Perceived usefulness
SEM	Structural Equation Modelling
SPSS	Statistical Package of the Social Sciences
TALIS	Teaching and Learning International Survey

TAM	Technology Acceptance Model
TPACK	Technological Pedagogical Content Knowledge
TRA	Theory of Reasoned Action
UB	Usage Behaviour
UNESCO	Nations Educational, Scientific and Cultural Organisation
VLE	Virtual Learning Environment
VR	Virtual Reality
WHO	World Health Organisation

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter will explain the background of the study, the problem statement, the objectives, the research question, the theoretical framework, the limitations of the study, and the conclusions for this chapter.

1.2 Research Background

In this era of globalisation, education is a crucial element for everyone. It can also be used as one of the criteria for evaluating a national civilisation. Malaysia is a country that is very competitive in developing the education sector. To meet the target amidst the increasingly competitive global environment, the Education Blueprint is established. Notably, the blueprint is a comprehensive plan for the rapid growth of the education system from 2013 until 2025 (Ministry of Education, 2013). The Malaysian

Ministry of Education (MoE) often monitors the development of the global education sector to ensure that Malaysia is not left behind in the current flow of educational development. The Education Act (1961) has strengthened the position of the education system in Malaysia. Among others, the purpose of the act is to fulfil the intellectual content of the country.

A good education will contribute to developing other sectors, such as the economy, agriculture, and even national politics. Certainly, the world will refer to schools and teachers when referring to education. Schools are essential early educational institutions for imparting knowledge. Teachers convey education in schools through teaching and learning sessions. Each session is planned according to the syllabus and the level of students. Meanwhile, the national syllabus is supervised by the relevant bodies to ensure that it is equivalent to the current level of knowledge. Notably, teachers are crucial in conveying information and ensuring students have adequate knowledge.

According to Manolev (2019) as well as Ghavifekr and Rosdy (2015), most respondents agreed that technology helps manage the classroom and allows students to be more focused and behave better. Teachers have always known education as the basic knowledge development. However, the introduction of technology in the world of education has been a great help to teachers in attracting students' attention for the entire lesson. Moreover, in line with the development of technological sophistication today, the role of teachers as the core feeder has now been expanded. Teachers can now serve as facilitators. In addition, students are provided with all the mediums that can help

them find knowledge, such as computers and the internet. Thus, technology is the best catalyst for teachers to teach students to be more independent.

Applying technology in a teaching and learning platform is one of the initiatives in the field of education. The ministry also attempted to address the learning problems for students who had to stay at home in the fight to control the vicious spread of COVID-19. Using applications such as Zoom, Skype, Google Meet, Webex, and many more indirectly allows teachers to meet with students online. Additionally, it also served as a medium and space for communication between both teachers and students.

With the current pandemic, online platforms are suddenly becoming mandatory locations to communicate with students. Traditional teacher-student interaction and learning techniques must replace new and modern teaching methods. Hence, incorporating Information, Communication, and Technology (ICT) in education helps teachers achieve the global standard by replacing the regular teaching methods with a more advanced teaching style using technology (Delcker & Ifenthaler, 2021; Ghavifekr & Rosdy, 2015; Hero, 2020). As a result, the boundaries are now being overcome. Students can now learn from a teacher sitting in another corner of the world, and there are no more issues in conveying knowledge.

Most educators approve that using technological tools can improve teaching and learning to be more enjoyable and attract students' interest. According to Manolev (2019), Chen and Tseng (2012), and Cady, Aydeniz, and Rearden (2011), e-learning can be considered as versatile in that it offers a learning environment that is convenient, accommodating, and distant. Each teacher strives to enhance their capabilities and

knowledge to diversify their learning methods, which is one of the efforts to attract students.

Hence, the most basic requirement for online learning is the teachers' acceptance of the technology. The resistance to accepting this new way of teaching using technology has been a significant issue to the educational society. Therefore, to address this particular problem, a Technology Acceptance Model (TAM) is the most suitable model to assess the teacher's acceptance of the technology. According to Davis (1989), two significant determinants were evaluated in the TAM model. The first is Perceived Ease of Use (PEOU), and the second is Perceived Usefulness (PU). In addition, technology acceptance, as written by Maslin (2007), was defined as a person's inner or emotional state regarding their voluntary or intention to apply a particular knowledge (Mulenga & Phiri, 2018).

The TAM by Davis, 1989, has widely been employed to describe how users adapt or prefer technology. This is due to the fact that TAM provides background information to get to know the teachers' perceptions of online teaching. Thus, this study has examined the gap and identified the results of the synthesis of the research study concerning the teachers' intention and acceptance of using online teaching, using the variables included and presented in the TAM model.

1.3 Problem Statement

Previous studies (Gabriel et al., 2021; Prasasti, 2021; Tawafak et al., 2021) have thoroughly described problems related to the effectiveness of online communication.

Communication has become increasingly challenging in line with the COVID-19 pandemic problems threatening the present world. Notably, educational institutions are one of the sectors severely affected by the present situation.

The development of information technology is perceived to be beneficial and positively impact the education sector. Online learning has now been more and more accepted as one of the methods of conducting long-distance education (Adedoyin & Soykan, 2020; Ali, 2020) in both secondary education and K-12 environments (Aberšek & Aberšek, 2011; Ahmed, 2010; An et al., 2021; Arnesen et al., 2019; Bahhouth, Bahhouth & Maysami, 2011). This is due to the vast development of the internet and the advancement in ICT.

The 21st century demanded various challenges of educational and training needs in schools, Higher Education Institutions (IPT), industries, and the trade sector (Caena & Redecker, 2019; Rios et al., 2020; Wrahatnolo & Munoto, 2018). Some challenges include the poor quality of graduates entering the teaching colony, the teaching pedagogy that has not been updated, the lack of teaching resources, and the lack of professional development support (Malik, 2018). Therefore, the existence of this technology is perceived to benefit teachers, especially in terms of delivering educational content. Thus, applying technology in the classroom should be prioritised to produce effective lessons (Falloon, 2020).

Even though studies have proven the advantages of an online learning environment, many teachers still have a negative perception and reaction in accepting and using it in their teaching (Panigrahi et al., 2018; Rasheed et al., 2020). The

complexity of using an online learning platform can indeed be a big issue for veteran teachers. Those were the turning points in whether the technology could be perceived as convenient. According to Nilam et al. (2020) and Volery and Lord (2000), a virtual classroom commences with the help of ICT based on the traditional classroom.

Teachers with years of experience teaching conventional students might feel reluctant to use technology. They have been accustomed to having face-to-face teaching sessions and being completely present during lessons. At the same time, the lack of computer proficiency may result in a reluctance to accept and use technology in their teaching. According to Swaramarinda (2018) and Hu, Chau, Clark, and Ma (2003), educators with more than 20 to 30 years of teaching and a conservative style may be hesitant to accept technology as their full authority in the old teaching style. This is possibly attributed to the fear of technological complexity.

Online learning can be perceived as a new teaching approach in Malaysia. It is often used as a facilitating tool or to find supporting material for conventional learning. Most teachers utilise it to upload materials or notes to the website, make announcements, or read and answer emails. All these are relatively convenient for younger teachers. With the rapidly growing development and use of technology, teachers are forced to prepare for the implementation of e-learning. This includes online video conferencing, discussion sessions via chat room, and face-to-face telephone conversations online. Consequently, the much older teachers might feel reluctant as they need ample time to prepare.

Dealing with new technology, one's attitude is the main factor in facilitating learning and understanding. However, one's attitude against the new technology would be crucial in ensuring all the information and lessons taught are understandable (Andreeva et al., 2020; Lawton & Gerschner, 1982). Other than that, the demographics and experience of the teachers also contributed to their attitude toward handling technology. Male and female teachers have different approaches when communicating in a conventional learning environment like online. In addition, their experience in teaching will also reflect in the use of technology in an online learning environment.

With the current pandemic cases that are still increasing, all learning sessions are strictly conducted at home. Convenience regarding time, place, and execution will play a vital role. It is a significant factor in making it easy to use the platform. This will affect whether teachers continue using it to communicate or as a tool for sharing assignments with students. However, staying at home is challenging, especially for moms (teachers) where time is always crucial. Therefore, a user-friendly atmosphere would be the top priority in an e-learning environment (Chang, Cheung & Lai, 2000; Radović et al., 2019).

The easier it is to operate the technology, the happier the user wants to be engaged. Hence, to accommodate with the teacher's ease of use, they wants an effortless system that could cater to their daily time management and workload issues. However, developing and implementing a new skill that is unaccepted and not adequately used by target users wastes resources, time, and money (Cowen, 2009; Kapp & Defelice, 2019). Hence, technology should always aim to lift some weight off the teacher's shoulders, even without boundaries.

Moreover, if the teacher considers that online learning benefits its teaching, it will encourage them to be more open in accepting the technology. An online platform is indeed perceived as useful when the tools or applications help teachers conduct classes similar to those conducted in a traditional environment. In other words, there is a two-way interaction.

In a study conducted by Panigrahi et al. (2018), Betts and Heaston (2014), Bacoe et al. (2012), and McQuiggan (2012), the teachers indeed felt reluctant to use the various types of online learning techniques. The main reason might be due to the scepticism in a different genre, the concerns on the reliability of it, and the fear of the student's performance, workload, and many others. This indicates that the surrounding attitude will eventually affect the teacher's Intention to Use (IU) technology. Put differently, a new technology user needs to be among other technology users to motivate each other and be guided along the way.

However, according to Hawkins et al. (2012), most teachers demonstrated an undesirable attitude toward conveying lessons through the e-learning environment (Rasheed et al., 2020). This may be due to the lack of knowledge of online pedagogy since an ignorant person will feel reluctant to embrace it. Therefore, unless they are exposed to the skills in using technology, their Usage Behaviour (UB) will remain unchanged (Halili & Sulaiman, 2019; Safi et al., 2018).

The internet UB of a person can also help gain enough information to strengthen one's skills in conducting classes online. The more engaged a person is in using the internet, the more knowledge they gain. In spite of everything, a habit of surfing the

internet can help in times of need. Online communication tools are now at the top of the list. Unquestionably, there is no suitable way to bridge knowledge during this pandemic. Notably, various factors will influence the teacher's acceptance and adoption of the technology. Those factors would be the variables to emphasise in this study. It is an attempt to extend the TAM by Davis (1989), highlighting the factors that affect the teacher's intention towards using technology.

Based on the problems above, the study of the TAM, a study on the teacher's acceptance of using online teaching is very much required.

1.4 Research Objectives

RO1: To measure the level of Perceived Convenience (PC), Attitude (ATT), PU, PEOU, IU, and UB of online teaching among secondary school teachers.

RO2: To measure the relationship between PC, ATT, PU, PEOU, IU, and UB of online teaching among secondary school teachers.

RO3: To measure the best predictor for IU in the technology among secondary school teachers.

RO4: To investigate the mediating role of PU in the relationship between PC and Att to IU and UB in online teaching among secondary school teachers.

RO5: To determine the mediating role of PEOU in the relationship between PC and Att to IU and UB in online teaching among secondary school teachers.

RO6: To investigate the mediating role of IU in the relationship between PC, PEOU, PU, and Att to UB in online teaching among secondary school teachers.

RO7: To determine the mediating role of Att in the relationship between PEOU, PC, and PU to IU and UB in online teaching among secondary school teachers.

1.5 Research Questions

RQ1: What is the level of PC, ATT, PU, PEOU, IU, and UB of online teaching among secondary school teachers?

RQ2: What is the relationship between PC, Att, PU, PEOU, IU, and UB of online teaching among secondary school teachers?

RQ3: What is the best predictor for IU in the technology among secondary school teachers?

RQ4: What is the mediating role of PU in the relationship between PC and Att to IU and UB in online teaching among secondary school teachers?

RQ5: What is the mediating role of PEOU in the relationship between PC and Att to IU and UB in online teaching among secondary school teachers?

RQ6: What is the mediating role of intention in the relationship between PC, PEOU, PU, and Att to UB in online teaching among secondary school teachers?

RQ7: What is the mediating role of Att in the relationship between PEOU, PC, and PU to IU and UB in online teaching among secondary school teachers?

1.6 Framework of the Study

This study presents a model of technology acceptance by the users. This model is the first modified version based on Davis's TAM in 1986 (Lai, 2017). It guides any review

of the literature research that explored factors influencing the teachers' perceptions of online teaching. This model is selected since it includes the factors of users' technical experiences and their perception of how using the technology will affect their role as educators.

The TAM was later developed when researchers were required to understand the PEOU and PU elements more deeply. In this writing, researchers attempt to investigate the teachers' demographic, experience, and technological complexity and observe whether it affects the PU, PEOU, or both. In addition, researchers will gather more information on the effect of technological complexity on the Att and intentions of the teachers that would lead to PU and PEOU.

Figure 1 illustrates the TAM and other contributing factors assessed in this research. These factors include the demographic and experience variables. Other than that, ATT and intention are also crucial. Each of these factors is further discussed in this writing.

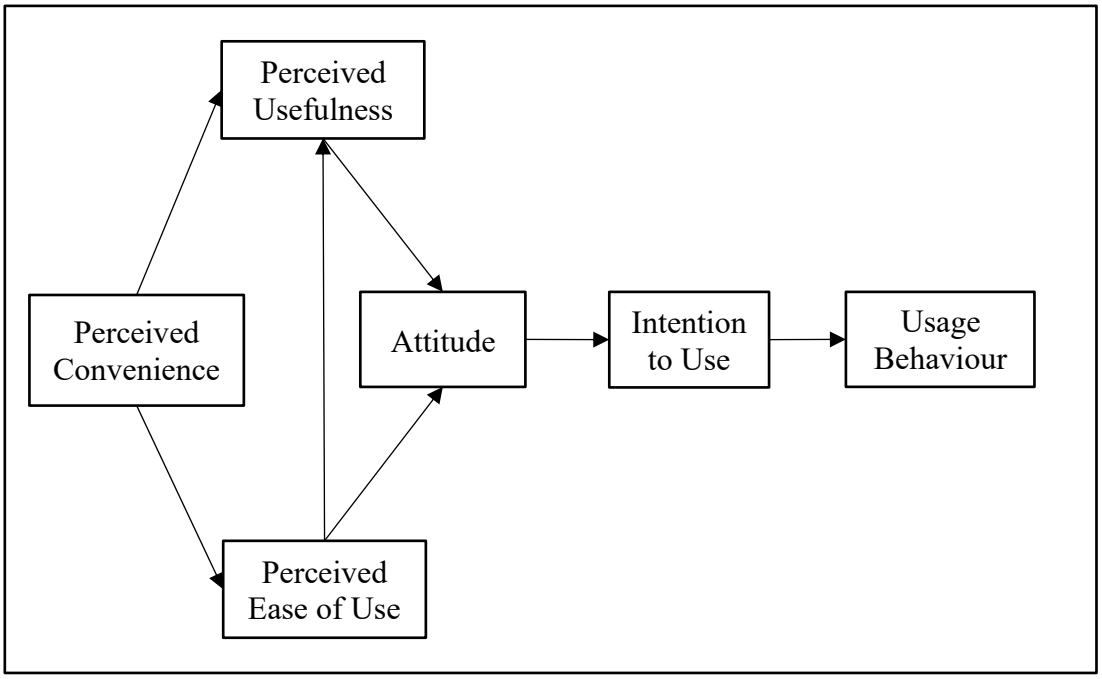

Figure 1.1. Theoretical Framework

1.7 Significance of the Study

The study's findings will impact both theoretical and pedagogical aspects of how teachers communicate using technology. Increasing teachers' knowledge about technology acceptance in Malaysia is significant. ICT and education have now collided in almost all educational institutions. However, there is no guarantee that they will be entirely accepted in the community (Chen, 2011). Therefore, the success of an existing Online Teaching and Learning (OTL) system could serve as a model apart from contributing more research references to the body of knowledge.

Other than that, this new knowledge would also benefit the teachers, schools, and even MOE in improving the quality of teaching and learning. According to Falloon (2020) and Hong et al. (2001), by learning the teachers' intentions and Att toward

technology, higher education management will better understand how to help develop a better and acceptable online learning programme for existing and future educators. Accordingly, this study aims to provide the education system, or at least the school, with the information necessary to help teachers be more progressive in adapting to technology in the long run.

Moreover, this study can further enhance the development of TAM in the context of a niche group of educators in the Kinta Utara, Perak district. The model has widely been employed to interpret the factors influencing users' behaviour in using technology in various areas of knowledge. Here, we focus on the teachers' perception of technology.

1.8 Definitions of Key Terms

1.8.1 Perceived Usefulness (PU)

PU is the degree to which the prospective user feels the behaviour will benefit their work performance (Davis et al., 1989). For example, suppose a teacher believes that online classes benefit him/her, in other words, elevating students' achievement and engagement and allowing efficient instructions that improve the students' attention. In that case, they will be more likely to accept the idea of online learning. To sum it up, PU is the feeling the teacher holds toward the benefit of the online learning class.

1.8.2 Intention to Use (IU)

An intention is an action or something a person wants to do at a certain stage that is not attributed to a person's mental state (Russell, 2018). IU demonstrates a person's desire to apply something in the future. In this study, IU would best describe how a person reflects on the use of technology in their life (Teo & Zhou, 2014). According to Ajzen (1991) and Turner et al. (2010), IU is sometimes used as a variable since it has been proven reliable in the actual usage of technology among users. For this case, IU should refer to the readiness and preparation of the respondents in continuing online teaching.

1.8.3 Perceived Ease of Use (PEOU)

According to Davis et al. (1989), PEOU is the extent to which the potential user feels the effort they invested into the system will be minimal. Therefore, they may be reluctant if more effort is required to conduct the online lesson. Furthermore, PEOU will refer to the level of difficulties the respondent faces when conducting an online class.

1.8.4 Usage Behaviour (UB)

UB refers to a continuous commitment to the product. As a matter of fact, it can be considered as the initial adoption of it (K. Park, 1998). Fishbein and Ajzen, 1975, in Theory of Reasoned Action (TRA), described usage as easily being influenced by individual differences via the effect of subjective norms. Subjective norms, on the other

hand, refer to the person's belief that he or she should perform the behaviour since they are influenced by the person who matters to them.

1.8.5 Perceived Convenience (PC)

PC is the convenience level of time, place, and execution (Candemir, 2018). This study refers to what the respondent perceives or favours when using an online learning lesson. Convenience in time is the freedom to conduct lessons at any time of the day. Apart from that, the convenience of place is the ability to conduct lessons anywhere possible. Lastly, execution is the convenience of respondents conducting a lesson by themselves.

1.8.6 Attitude (Att)

Att towards use can be an individual's feeling of performing a specific target behaviour. The TAM involves ATTs that predict intentions and assume a rationale that is a deliberate or planned process (Edison & Geissler, 2003). Additionally, ATT can be defined as a positive or negative or even a mixed emotion of something or someone expressed through emotion or action. It is a fundamental factor determining our perceptions and behaviour towards all aspects (iEduNote, 2021).

1.9 Operationalisation of Variables

As portrayed in the conceptual framework above, this study involved variables listed below. Correspondingly, details on the variable are also included.

1.9.1 Perceived Usefulness (PU)

PU is the teacher's feelings toward the benefit of the online learning class to the students and their work performance. This variable will be using the questionnaire from the original study of TAM by Davis (1985). Ten items were adapted to suit the needs of the study.

1.9.2 Intention to Use (IU)

IU will measure the willingness of the teacher to continue using online teaching. This variable also had ten items. Almost half of the item is adapted from Chao (2019) and Teo et al. (2011). Note that the researcher and supervisor developed the remaining items.

1.9.3 Perceived Ease of Use (PEOU)

PEOU will refer to the level of difficulties that the respondent faced when conducting an online class. Some of the items from the original TAM by Davis were also adapted,

and the researcher and the supervisor developed some. In total, there were ten items altogether.

1.9.4 Usage Behaviour (UB)

This research will use UB to measure the strength of teacher intention to perform online teaching. In other words, it refers to the continuous commitment of the teacher in adopting online teaching. The researcher and supervisor developed all of the items in this section.

1.9.5 Perceived Convenience (PC)

PC will measure the convenience level of time, place, and execution. Convenience in time is the freedom to conduct lessons at any time of the day. Apart from that, the convenience of place is the ability to conduct lessons anywhere possible. Lastly, execution is the convenience of respondents conducting a lesson by themselves. PC contains items adapted from the study of Srivastava et al. (2020). The researcher and supervisor developed the remaining items. In total, there are ten items presented for this variable.

1.9.6 Attitude (ATT)

For this research, in particular, we are examining the ATT of the teachers toward using technology to conduct online teaching. In this variable, five items were adapted from George's (2004) study. The researcher and the supervisor developed five items to ensure they cater to the listed hypotheses. Accordingly, there are ten items for this variable. All variables will be measured using the 5-point Likert scale, with one being strongly disagreed and five being strongly agreed.

1.10 Summary

In conclusion, the problems teachers face regarding using technology in conducting lessons using the TAM are discussed in this chapter. The research will further develop and substantiate the assertions in chapter two. It will not only illustrate the problems faced by the teachers but also the specific predictors that were selected to prove the hypotheses.