

Teachers' Perceptions of E-Learning in Malaysian Secondary Schools

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ABSTRACT

Malaysian teachers are constantly challenged with many new technologies that are believed to enable them to perform their job better. In 2013, they have been given access to an online learning space known as the FROG VLE. However, initial evidence has shown poor adoption of the e-learning. As schools are becoming increasingly disconnected from society, teachers withdrawing into their old familiar landscapes of teaching and learning can no longer be accepted. Being the implementers in the classrooms, their perceptions of any innovation are important if the innovation is to be implemented. Measures to improve the present condition in order to sustain and increase e-learning uptake can only be enforced if we know the situations and conditions teachers encounter. A qualitative approach was used to identify the views and experiences of 60 secondary school teachers regarding implementation of FROG VLE in three secondary schools in Malaysia. This is to obtain a more nuanced explanation for teacher perceptions toward e-learning. Data were collected using an open-ended questionnaire. The results highlight the benefits as perceived by the teachers, the main barriers they faced and suggestions for improving implementation. Implications for teacher preparation, staff development efforts and education reform are proposed.

Keywords: *E-learning, blended learning, perceptions, secondary school education, teachers.*

INTRODUCTION

By 2019, 50 percent of all high school courses are predicted to be delivered in online format (Horn & Staker, 2011). Education will be revolutionized by making it more accessible and individualized (Christensen, Horn, & Johnson, 2011). To keep pace with the growth of e-learning education, the Malaysian government has embarked on a nationwide project to connect schools where student and teachers teach and learn in a virtual learning environment. Massive resources have been channeled into equipping over 10,000 primary and secondary government schools nationwide with 4G internet connectivity and a cloud-based virtual learning environment known as FROG VLE (Campbell, Al Harthi, & Karimi, 2015).

The FROG VLE is the government's initiative to leverage ICT usage in all its primary and secondary schools in Malaysia. The previous initiative, to increase ICT usage in schools known as the Smart Schools' project despite having consumed massive expenditure, found that 80% of the teachers used ICT less than one hour per week, and this was also mostly limited to word-processing (UNESCO, 2013). Other researchers have also argued that computer usage in schools is limited and in some cases almost non-existent (Hew & Syed Abdul Kadir, 2016). To benefit from the latest innovation introduced in schools, early intervention programs are needed to prevent similar poor results. The return on such large technology investments need to equal the money spent thus far. To ensure this, teachers' early perceptions of the FROG VLE are crucial. There is a dearth in studies on the VLE instructional effectiveness and relevancy from the K-12 teachers' perspectives (Hew & Syed Abdul Kadir, 2016). Ongoing assessment plus intervention programs need to be carried out as problems emerged can then be swiftly identified and solved. In order to facilitate an effective e-learning environment, the benefits as well as the barriers to implementation must be understood. Thus,

three research questions guided this study:

1. What are the benefits of e-learning for teaching as perceived by teachers?
2. What are the barriers of e-learning implementation as perceived by teachers?
3. What suggestions do they have to improve the e-learning teaching and learning environment in schools?

The results of this study are expected to help stakeholders to better understand issues related to teaching and learning among the teachers implementing e-learning in their classrooms. It also hopes to provide implications for designing and delivering e-learning education and professional development courses. To evaluate the true effect of technology in an educational setting, one must look beyond the teacher level. Instead we should focus on the accessibility and availability of computers and Internet connection, and the preparatory programs to initiate teachers into integrating technology into their teaching and learning processes. We also believe that the benefits are best articulated by those with first-hand experiences in using e-learning in their classrooms. Those who have not used the system are likewise in a unique position to provide insights into the barriers preventing them from utilizing the system. Suggestions to further improve the e-learning teaching and learning were also sought in order to better understand teachers' situations. The implications are far reaching in our understanding of the e-learning role in supplementing and at times complementing face-to-face teaching and learning. The present study is part of a larger study in which factors predicting teacher satisfaction with the e-learning environment were also studied.

Theoretical Framework: Technology Acceptance Model (TAM)

The TAM (refer to Figure 1) was developed by Davis, Bagozzi, and Warshaw (1989). It focuses on predicting and assessing users' initial pre acceptance of technology. This model guides the context of this study. According to this model, system use is a response explained or predicted by users' motivation which is directly influenced by a system's specific features and capabilities. It provides ways for stakeholders to identify barriers and enablers to adoption of any new technology. TAM focuses on the context of user's acceptance of technology in explaining computer usage behavior (Davis et al., 1989). The theory posits that user motivation can be explained through perceived usefulness (PU), perceived ease of use (PEOU) and attitude toward a system. According to TAM, attitude that users formed toward a system will actually determine if users will accept or reject it. As teachers in secondary schools are free to decide whether or not to use certain methods and approaches in their classrooms, their beliefs and perceptions are important in determining if ICT is to be used at all in their lessons. Teachers' attitude, in turn, will be influenced by two beliefs variables namely PU and PEOU. PEOU is also believed to have a direct impact on PU. When they consider the technology as easy, they will then perceive it to be useful too.

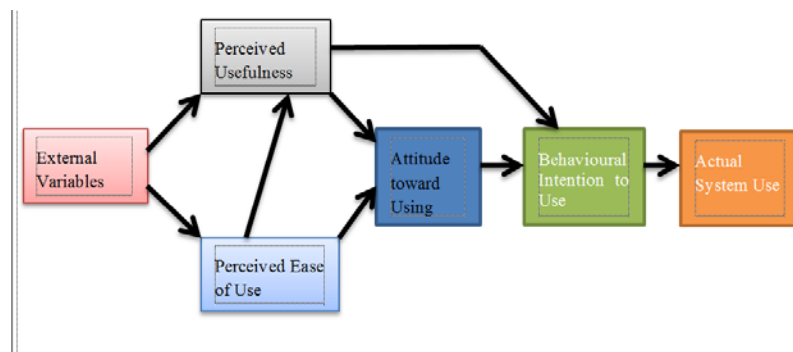


Figure 1. Modified Technology Acceptance Model (Davis, Bagozzi & Warshaw, 1989, p. 985)

System design features were predicted to directly influence perceived usefulness and perceived ease of use (Davis, 1993). These features are proposed to affect attitude toward using and actual system use via perceived usefulness and perceived ease of use (Davis, 1993). The rationale of the system is the flow of causality starts from the system design features through perceptions and attitude before reaching usage. User acceptance is the key factor in determining the achievement or failure of an information system. TAM is well-acknowledged to predict technology use through behavioral intention, attitude toward use, perceived usefulness, perceived ease of use and external variables, that the model has been cited in most of the research on user acceptance of technology (Lee, Kozar & Larsen, 2003).

Rogers (1995) mentioned that the complexity of an information system will hinder acceptance of an innovation; thus constructs such as perceived ease of use in TAM highlight the matter. TAM postulates two main variables as antecedents to individual technology acceptance; perceived usefulness (PU) and perceived ease of use (PEOU). These variables are the independent variables (IV) whereas the dependent variable in this model is system use. These two independent variables determine the attitude toward using the system. Attitude and behavioral intention to use the technology act as the mediating variables of TAM. Technology use will be high if users believe that using the system will improve their job performance and if they think the system is easy to use. A number of key variables from TAM have been considered relevant in predicting teachers' perceptions toward e-learning such as PU, PEOU and attitude. External variables in TAM have also made it possible to include many other variables deemed relevant to suit researchers' local context and settings. As such this theory provides a useful framework for analyzing the effects of external variables toward users' attitude thus behavioral intention in explaining technology acceptance and usage.

Virtual Learning Environment in Malaysia

The Frog Virtual learning environment (VLE) is a cloud-based learning environment that emulates the traditional face-to-face teaching and learning. It not only supports e-learning activities such as presenting information, managing course materials, and running assessments but it also provides a rich media environment with numerous graphics, video, animation, sound, and hyperlinks (Berns, Gonzalez-Pardo, & Camacho, 2013). It also offers teachers a number of benefits, such as having the course management tools, group chat and discussion, assignment submission, course assessments, educational resource management and also tracking of student's participation. Besides increasing interest among the teachers and learners, it also enhances teaching effectiveness and is cost-saving. It provides support and enhances traditional ways of learning (Georgouli, Skalkidis, & Guerreiro, 2008). Various terminologies are also used to describe the LMS, for instance Course Management System (CMS), Learning Content Management System (LCMS), Computer-based Learning and Online Learning. At present there are several LMS applications in the market such as Moodle, Blackboard, Etutor, eFront among many others.

In Malaysia, recent development has seen the launch of the Malaysia Education Blueprint which is a detailed plan of action that maps out the education landscape for the period 2013-2025. Realizing the gap toward producing a more technologically literate workforce, one that is relevant to the 21st century knowledge and skills, it has identified 11 shifts needed to deliver the change in education outcomes envisioned by all Malaysians. The National Education Blueprint emphasizes effort to leverage ICT to improve the quality of learning across the country. Twenty-five initiatives have been identified under the first wave of the Malaysia Education Blueprint (2013-2015). One of them includes providing 1BestariNet and software for schools. 1BestariNet is a project led by the Ministry of Education (MOE) to provide access to a cloud-based Virtual Learning Environment (VLE) known as the FROG VLE (adopted from the United Kingdom) and high-speed connectivity by June 2014 to all the 10,000 fully-aided government schools. The FROG VLE is a web-based learning platform which provides virtual equivalents of real-world learning (Frog Asia, 2014). Here teachers can assign lessons, tests and marks while students can submit their homework, view their notes and important documents. School administrators can organize their calendars and disseminate notices via FROG VLE. This easy-to-use system allows teachers and students to search for almost anything on the Internet and build it into the site as their educational materials and resources. The FROG VLE provides a plethora of educational resources and cool apps from around the web for easy accessibility during teaching and learning sessions (Thah, 2014).

The 1BestariNet project is to replace Schoolnet which was launched in 2004. Schoolnet fell short of expectations, especially in terms of speed (only 1Mbps), capacity and lack of specifications and integration. 1BestariNet on the other hand is an ambitious technology-in-education project which will cost Malaysian taxpayers RM1.5 billion (nearly US\$500 million) and its implementation is expected to run over 13 years. 1BestariNet IDs has been made available to all students, parents and teachers in all the schools nationwide, where they now have single-sign-on access to the Frog Virtual Learning Environment (VLE), Google Apps for Education and the FrogStore. Content and educational tools are integrated from Khan Academy and Google Apps (Razak & Yusop, 2013). Through the Frog VLE, teachers are able to digitize their teaching content and explore new ways of bringing the best resources and teaching methods to be shared across the 10,000 schools. Learning anytime, anywhere is now possible with high-capacity wireless Internet access to all 10 million teachers, students and parents in Malaysia.

As the VLE becomes a more important long-term strategy for many educational institutions, a quality e-learning environment is highly required. Research on VLE to date tend to emphasize more on features, components and technical aspects of the platform rather than ways to optimize VLE use in the classroom (Sa'adon, Dahlan, & Zainal, 2013). As the one person at the forefront of online delivery is the teacher, training and support for teachers are important components of an e-learning education. This is in relation to the different roles that teachers would be playing in an e-learning environment. The transition from face-to-face to an online setting requires relevant and effectively planned professional development courses. Are teachers ready to meet the challenges of increased demand for e-learning? Although there seemed to be an increase in the use of VLEs worldwide, there is no widespread transformation in pedagogic practices (Kinchin, 2012). In their study, Motaghian, Hassanzadeh, and Moghadam (2013) found that monetary, pedagogical and technical competencies are some of the more important factors affecting the success of any e-learning initiative. Instructors' abilities, skills and commitment to teach online are critical to successful e-learning. Instructor willingness to adopt is also an important consideration. However, instructors' pedagogical conceptions and values often do not include using ICT as part of their teaching and learning process. The majority of teachers are only using VLEs as a simple repository for students to obtain materials such as PowerPoint slides and reading lists (Rienties, Giesbers, Lygo-Baker, Ma, & Rees, 2014). Continual management of the e-course also makes the instructors' work time-consuming. Teacher perception of extensive time required are the key obstacle to e-learning. More time is felt needed to plan, create and maintain a course and to motivate and spark interest among students to work online are just some of the many challenges to successful implementation. Their level of personal innovativeness also to a large extent will determine if they will take the extra steps to experiment with and implement any new innovation.

New Pedagogy and Technology for E-Learning Educators

Stepping into any classroom today is almost the same as stepping into any classroom 20 years ago. Although technology is used in every aspect of our students' lives, the same does not happen in the classrooms. Instead, in schools computing is an organized event, scheduled according to the convenience of timetabling. The gap between what students can do with technology and what they are allowed to do with it in school is expanding with each passing day. Teacher Professional Development Courses, training, workshops and in-house sharing have been less than successful in helping teachers to be motivated to integrate technology for teaching and learning. School leadership is often unable to provide strong leadership and strong support due to their own lack of technological knowledge and experience. Even new teachers, whom the school communities looked up to for guidance on technology use, hardly infuse technology into their own classrooms. Current teacher preparatory programs are not effective enough in equipping these new teachers with the much needed skills and knowledge required to transform today's classrooms. Teachers are just not taught to handle effective infusion of technology in all subject areas. Lacking in widespread support and professional development, existing teachers are unable to make the necessary changes to their classroom practices. Even the enthusiastic ones with high level expertise may give up because of the barriers faced. However, the fact remains that learning to teach and learn in new ways with technology is no small task. Imagination, intellectual stamina, creativity and huge courage are needed (Jacobsen, Clifford, & Friesen, 2002).

According to Guskey (1986), many educational initiatives fail because of two factors; management fail to understand what motivates teachers to engage in professional development and the processes by which change in teachers typically occur. Training and professional development courses will only work if teachers can be shown evidence of improvement in their students' learning outcomes, even more so in our exam-oriented community. This is the prerequisite if we want to see significant changes in teacher attitudes and beliefs. Experienced teachers are seldom committed to new instructional approaches until they have seen it working in their classrooms with their students (Guskey, 2002). Training and implementation combined with improved students' learning will have more chances at incurring changes in attitudes and beliefs among teachers.

Change brings with it a certain amount of anxiety and threat. Teachers are reluctant to change because they are unsure if they can make the new practices work (Lortie, 1975). As change means risking failure, teachers do not easily alter or discard the practices they have long developed and refined (Bolster, 1983). Technology intimidates even experienced teachers, as it makes them feel stupid, inept and at the mercy of situations they do not understand and cannot control. Teachers lacking confidence in their ability to handle the technology will simply not use it. Change will not be implemented uniformly across schools as teaching and learning are influenced by a number of situational and contextual factors. Close collaboration between the system's developer, and management will help in facilitating change among the teachers. Regular feedback on what they are doing can sustain any little change they are trying to make.

Sustaining change after the implementation period must be seen as a continuous and ongoing endeavor. Considering the importance of their role, teachers' perceptions of the newly implemented FROG VLE must be considered and taken into consideration for the betterment of e-learning implementation in Malaysian schools. Though a number of studies have been carried out in other countries, effects of contextual differences should not be discounted. Development of educational ICT path for every country is unique with its own educational, social, political and cultural contexts. These will differentiate factors influencing ICT usage among teachers according to their countries of origin. So this study will be particularly useful in identifying factors affecting Malaysian teachers' use of the e-learning.

METHODOLOGY

Sample and Data Collection Procedures

Participants

Participants in this study were 60 teachers from three secondary schools from two states in Malaysia. They were randomly selected after their schools were identified as being among the top users of the FROG VLE. Some 18.33% of them mentioned no training on FROG VLE was received so far while 75% indicated that they have received training which exposed them to the VLE while 6.67% did not provide any indication. Moreover, 70% of them have less than fifteen years of teaching experience while the rest have more. As for the age of the participants, 40% are male, one did not indicate, while the other 58.33% are female. As for their age, they were mainly in the 41 to 50 years range (refer Table 1).

Table 1: Distribution of Participants' Age in the Survey

Age Range	Percentage (%)
24-30	20
31-40	23.34
41-50	45
51-60	11.66

Procedures

Participants responded to an open-ended questionnaire administered to them in schools. Open-ended survey forms with three questions that inquired about teachers' perceptions of the benefits, barriers and suggestion for improving FROG VLE were distributed. Data were collected about six months after the FROG VLE was implemented across the nation.

Measures

Open-ended survey form was employed as the data collection method. Three questions posed were meant to provide a window on what was working or not working and what needed further refinement in the recent implementation of e-learning. The data collected were then analyzed for key themes or patterns in teachers' perceptions of the e-learning in schools. Burnard's (1991) framework (refer Table 1) was adapted in order to produce a detailed and systematic record of the themes and issues identified from teachers' opinions. The data were analyzed and results of the analyses were reviewed to verify accuracy and enhance reliability. In our analysis process, we are aware of Van Maanen's statement (2011), whereby, there can never be "immaculate perception", and no text or research may be closed to further interpretations (Van Maanen, 2011). The study would provide different interpretations had it involved different researchers and participants and was carried out in another place or at a different time. With this realization, we have approached this research with the belief that there will not be any single one truth; instead there will be many, with multiple realities and multiple interpretations of the same events (Cohen, Manion, & Morrison, 2000).

Table 2. Data Analysis Strategy

Stage	Description
1	Read all survey entries
2	Re-read the data and make notes throughout the reading, generate general themes. Immerse in the data.
3	Re-read the data and identify specific headings and categories. Open-coding. Generate categories.
4	Sort out the categories into precise groups. Collapse some of the similar categories into broad categories.
5	Re-sort categories; similar headings are grouped to form a final list and remove extraneous categories.
6	A colleague was invited to blindly validate the first findings. Categories were discussed and adjusted as necessary.
7	Journals and categories were examined identifying the data relating to each category.
8	Data linked to category headings. Numbers are used to distinguish between findings in the survey forms and categories.

Adapted From Burnard (1991)

FINDINGS AND DISCUSSION

Results

Several themes emerged from our analyses of the open-ended questionnaire. The findings were summarized and organized by the aforementioned three research questions.

Benefits of Teaching Online

For the students

Most teachers recognized that the FROG VLE has created great interest among the students. Besides interest, easy access to a wealth of materials and resources were some of the main benefits identified. These teaching and learning resources can help to improve learning outcome and increase self-directed learning among the students. Flexibility in learning regardless of place and time increases student motivation and in the process it also increases their ICT usage and awareness of ICT's potential as an alternative way of learning. This 'updated' approach of learning, in the long run provides greater opportunities when these students enter the job market. Respondents felt students will be more equipped with the much needed 21st century work skills. FROG VLE is more student-centered with its reduced need for teacher talk. However, despite the reduced teacher talk, surprisingly a few teachers felt that their interaction with students can be increased through e-learning. Another important finding was when a number of teachers claimed that the system provides "hands-on" information for the students. With technology, students can view, listen, reflect and just do about anything in order to comprehend any new items that they wished to learn.

For the teachers

Many of the teachers appreciated FROG VLE in helping them make their teaching job easier than the traditional approach. Besides being easy to use, the system also helped them to organize their teaching and learning materials. This saves their time when updating or locating specific materials. They are also pleased that, with the system, they need not print or distribute handouts and this reduces cost substantially.

Barriers to Teaching Online

Within the School

Some teachers viewed lack of time as the key concern in e-learning implementation. They claimed the workload in school prevented them from exploring and mastering the system further. As such, many expressed the critical need for more training and exposure to the system. Despite having been trained, ICT skills remained an issue with the teachers. Not having technical support was also stressed as a main challenge in utilizing the system, and teachers felt management should be working on this aspect to ease the innovation's adoption process. Besides having limited ICT skills, low English proficiency is also a barrier in understanding the FROG VLE. Some felt the language used was difficult for them and their students to understand. The inability to understand the language used by the system even caused confusion as claimed by some teachers. Validity of information over the Internet was also questioned.

Another identified barrier was large class size (30-40 in a class). This made it difficult for teachers to implement e-learning in the classroom. It is a challenge to let students take more responsibility for their own learning as they were not always on task. Whatever the technology being used, teachers with strong classroom management skills and ability to create a positive classroom culture are needed. Students tend to get distracted and visit other than the suggested websites; thus this lack of control was considered a struggle in running e-learning in the classrooms. One teacher also mentioned that she felt students were lazier when using e-learning. Some felt teachers' initial guidance is heavily needed by the students because students lacked in skills and exposure in using the system. Nearly all teachers complained of poor Internet connection

and facilities as the greatest barrier in implementing e-learning. Slow internet connection and that only certain areas in the school have access to the Internet made it difficult for the teachers. They also claimed that they do not have enough working computers to make e-learning possible during their lessons. As such, due to the constraints expressed, plus high maintenance incurred by e-learning, some teachers insist on their preference for the traditional face-to-face approach.

Beyond the School

Teachers in their comments made it clear that not all students have Internet access and computers at home. These are the basic necessities that they felt the Malaysian government needs to look into before exercising e-learning in our education system. The harsh reality of the matter is that rural areas in Malaysia will need more time to make e-learning a reality. Students' involvement beyond the classroom walls can only be turned into reality when these barriers are removed.

Suggestions for Improvement

Training

Suggestions provided by most of the teachers reflected the urgent need for more training and assistance in delivering e-learning. Technical support is necessary though only five of the teachers mentioned this. This may be because most of them are used to relying on themselves in getting things done in schools. They instead highlighted their lack of skills and confidence in utilizing the FROG VLE. They believed that with more skills and knowledge of FROG VLE, they would be able to increase their usage. Some of them also advised student teachers to be taught to integrate the VLE during their training at the Teacher Training Institute.

Facilities

A vast majority of teachers in the survey provided suggestions related to providing and upgrading the school facilities. Most teachers are crying out for better access to the Internet, and ICT devices such as laptops, both at school and at home. Teachers felt that Internet access and computers for students at home will facilitate e-learning.

Awareness

Awareness programs must be carried out to inform students, teachers and parents regarding the e-learning initiatives. More enthusiastic involvement from students and soft pressure from the parents will hopefully create more urgency and motivate the teachers in sustaining e-learning. Some respondents even suggested having a monthly e-learning program, to make it more of a whole school initiative instead of individual teacher's effort in the confines of his or her classroom.

FROG VLE's Relevance

Subject such as Mathematics were seen as incompatible with the online system used. Innovative practices must be linked to school curriculum for sustainability. Teachers mentioned that they were unable to use certain symbols necessary in their teaching. A few teachers commented on the webpage design and content. The internet access to the e-learning is also restricting teachers' usage or visits to certain websites, YouTube for example. There were mixed opinions regarding this restriction as some agree to this while others felt this restriction was unnecessary.

Discussion and Implications

The aforesaid research described sought to investigate e-learning use in the classrooms, as perceived by teachers, its benefits and barriers. They were also asked to provide some suggestions on how e-learning implementation can be sustained and improved. An open-ended survey was created which included three questions pertaining to the focus of this study. These findings are significant as they come directly from those who have the greatest power to impact on the success of the e-learning initiative. Findings suggest that e-

learning has created much interest among students and could improve student learning outcomes as was also found in a number of previous studies (Callopy & Arnold, 2009; Vaughan, 2010). Teachers also found e-learning helpful for managing their materials and resources. They also acknowledged that e-learning provides opportunities for students beyond what they can offer in their traditional classrooms.

This study also provides important information on the barriers in using e-learning. If e-learning is to succeed, teachers must have the appropriate technology, training and time to spend on the system. As their basic knowledge of ICT has a significant correlation with training (Kaur & Hussein, 2015), training must not cease after the implementation; instead it should continue throughout the initial implementation when struggles are likely to be at their greatest. Moderate skill level and comfort in using the technology is a necessity. This is because their personal comfort and confidence will to a large extent decide how teachers approach technology use and plan their lessons.

Administrative support is also important especially by looking into critically needed facilities, such as a reliable and fast Internet connection and providing enough computers for all students. Administrators need to play a more active role in creating conditions fostering innovation. They must be the ones to identify with the innovation and persuade or cajole others into adopting it. Their importance has many times been confirmed in many past empirical studies (Lafford, 2009; Young, 2008). Having Internet access at home is still not possible for many students. Parental involvement was repeatedly stressed in order to overcome barriers. By educating parents on the importance of e-learning, and if finance is not an issue, we would be able to see more students' houses equipped with computers and Internet access.

By understanding the barriers teachers are facing, MOE and school management can decide how these barriers can be tackled. Teachers must be convinced of the importance of using technology in the classroom. At the same time, they should be provided with access to resources and be trained to use these resources effectively. Getting access to the Internet and computers, and knowing how to use them require time, training and technical support.

Analysis of findings on suggestions showed heavy focus on the need for training and facilities for better uptake of e-learning. Teachers realized the need for them to learn many new skills and unlearn instructional pedagogical practices that have long dominated their professional lives. To do this, teachers must be given ample time and support to master the FROG VLE. Learning to teach an online course requires time; preparing for online teaching involves considerable time, effort and workload. Kaleta, Skibba, and Joosten (2007) in their study even proposed that teachers were to be given the necessary training at least six months before implementation. Lack of competence has been known to be one of the most serious obstacles preventing teachers' use of technology in education (Bingimlas, 2009). Creating a community of practice among the teachers may be a good idea because teachers will not feel alone in their struggle; they will then have each other to bounce off ideas and make planning and preparation easier.

Carrying out this study has shown us a number of pertinent aspects about e-learning implementation in Malaysian schools nationwide. The first most obvious was that most schools are not well-equipped. Poor Internet connection made it quite challenging for teachers to carry out online learning. Our second finding points to the critical lack of training and support for teachers. There was a unanimous plea to provide teachers with the necessary ICT qualifications to enable them to effectively engage students in using ICT to enhance their learning. Technological infrastructure and technical training are important aspects of successful e-learning. In addition, without sufficient technical support and assistance in the school, teachers cannot be expected to overcome the struggles preventing them from fully utilizing the system (Lewis, 2003).

Finally, we also realized the lackadaisical attitude among the teachers, administrators and the relevant government agencies in trying to make this innovation a success. An example was given by Arokiasamy, Abdullah, and Ismail (2014) where they found although Computer Studies has been introduced in secondary schools, teacher training has yet to introduce it as a teaching subject. However, all is not lost as we also found some schools which were not involved in this study, but who are doing extremely well in their e-learning initiatives. Though their numbers are small, future researchers need to study these schools in order to understand how barriers were removed in their contexts. Hopefully, they can act as catalysts of change for

other schools to follow suit.

In discussing perceptions toward e-learning, it is worthwhile to consider the learning curve in Figure 2 for new technology as proposed by Glass (1999).

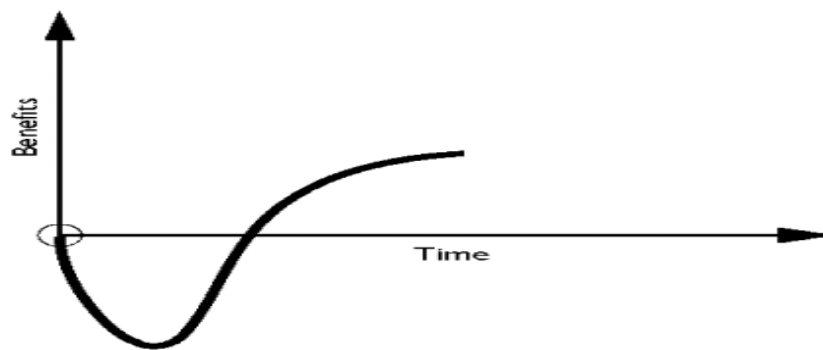


Figure 2. Learning Curve for New Technology Software (Glass, p. 78, 1999)

As can be seen, there is an initial loss of productivity, followed by a slow improvement. The scale of time and improvement will differ for each teacher and the type of technology used. This curve may explain the slow uptake that the Malaysian teachers are currently experiencing. Recent report by the Auditor-General (National Audit Department, 2013) revealed that although RM663 million was spent on the 1BestariNet project, it is suffering from lack of usage. The report also revealed that FROG VLE usage by teachers, students and parents was between 0.01 percent and 4.69 percent. Daily utilization of the VLE by teachers was found to be between 0.01 percent and 0.03 percent. The aforementioned report suggests that the VLE is underused or unused by most of the teachers. We must accept this initial learning phase where no immediate or obvious benefits are seen. In fact, this is the period where most support and scaffolding are needed by the teachers as early adopters. More teachers will embrace technology integration in the classroom over time, as the infrastructure matures and their beliefs evolve. On the other hand, policy makers need to do away with beliefs that just by providing high access to e-learning would lead to major changes in classroom teaching and learning. The most pertinent aspect is to change how schools are organized, how time is allocated, and the way teachers are being trained. Interactivity of cloud-based learning designs would benefit from a greater focus in teacher education programs (Campbell, Harthi, & Karimi, 2015). Systems developers and telecommunication companies should also improve their product reliability by making them more user-friendly and useful, increase technical support to teachers, and not forgetting to increase Internet connection at marginal cost to schools. If these cannot be done, then only peripheral modifications will occur in schools. Contextual factors will influence the technology adoption rate or if there is to be no adoption at all. If at all technology is being used, it will be used to sustain old practices.

CONCLUSION

TAM as the guiding framework used in this study has been useful in explaining the usage behavior of the FROG VLE. TAM asserts that external variables, PEOU, PU, attitude toward use, and behavioral intention to use, represent beliefs which will finally lead to actual use. In this study, more than half of the teachers do not find the FROG VLE easy to use while 11 teachers found it not useful in their subjects taught. This shows that the potential of FROG VLE potential has not been sufficiently made known to the teachers and there was no follow-up to the one day exposure training. The more tech-savvy teachers might be able to make sense of the VLE on their own but the majority of them will have problems. Pedagogical technological knowledge needs to be modelled and taught before teachers can be expected to use the VLE effectively. Poor attitude was the general consensus felt due to the many external barriers; facilities, management support, and so forth. This in turn reflects the poor usage results as stated in the Malaysian Auditor General (2013) report.

According to Einstein, "The only source of knowledge is experience." Hence it is crucial for teachers to start experimenting and experiencing e-learning or the Malaysian education system will be left far behind. This modest study was an attempt to provide insights into Malaysian teachers' perceptions of the newly implemented online learning across the schools in Malaysia, in order to accelerate e-learning usage across schools nationwide. Lack of facilities and training were found to be the most common barrier among educators. As such, technology innovations in schools must be accompanied with reliable and effective on-going support by providing what teachers need. Knowing the benefits of e-learning alone will not help accelerate the adoption process if teachers lack sufficient pedagogical and technological knowledge and skills. Room to experiment, to make mistakes, to try again and finally learn must be made part of the school culture if change is expected.

At the heart of the e-learning is still for education to take place. Technology is only a tool to facilitate the processes involved. Teachers and students are still the ones who have to make teaching and learning happen. Students need to want to construct knowledge on their own instead of merely receiving and memorizing what is taught. On the other hand, teachers must have in-depth knowledge of their content and pedagogical matters. The more teachers know how their students learn, the more they will be able to employ a variety of teaching strategies including a wide-range of technology-based tools in matching their students' needs with the content to be taught. Technology-enhanced learning environments need to be designed by considering pedagogy and content matters for higher ecological validity and thus for systems be useful in practice.

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