Virtual Learning Environment (VLE) Implementation Strategy: An Analysis of Practicality for Google Classroom Implementation in Malaysian Schools

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Article Info

Abstract

The existing VLE literature has been widespread with considerable debate on the antecedent factors that influence its continuous usage. However, past researchers have not transacted this issue in much detail. What is not yet clear is neither the solution nor strategy to promote VLE sustainable usage. This indicates imbalance attention given to the problem and its treatment. Therefore, this article proposes a VLE implementation strategy as a guideline to implement Google Classroom in Malaysian schools. The implementation strategy was develop based on VLE Success Model and has been endorsed by an expert in educational policy and planning. To validate its practicality, this guideline was reviewed by 14 field experts. The descriptive (quantitative) and content (qualitative) analyses have confirmed the suitability of the VLE implementation strategy to be applied for Google Classroom. However, since it only proposed some of the most important elements to be included in the VLE strategic plan, its applicability in Malaysian schools is subject to their requirements, available resources and other unique characteristics.

Keywords: E-Learning, Google Classroom, Implementation Strategy, Virtual Learning Environment, VLE Success

Introduction

Virtual Learning Environment (VLE) is defined as a category of Information Systems (IS) that is implemented to assist teachers as well as school administrations to manage education resources, support classroom pedagogy and facilitate distance education (Al-Busaidi & Al-Shihi, 2012). Although it is sometimes being referred to Learning Management System (LMS) (Cavus, 2011), the VLE is specifically used to describe E-Learning systems that are used in education, at either school or higher education level, while LMS is more suitable for training sector (Pinner, 2011, 2014). In this sense, it is important to realize the existence of a thin line that differentiates education and training, even if they are often used interchangeably. Training is a more mechanical term that is related to skill demonstration, while education is associated with theory learning (Barnes, 2014). The example of LMS is Kallidus (https://www.kallidus.com) that is used for training new talents in an organization. On the other hand, Blackboard, Moodle, Edmodo, Frog VLE and Google Classroom are among the prominent VLE platforms that are commonly adopted in schools and higher education institutions.

The main principle of VLE is to allow its users, mainly teachers, parents and students to perform educational routines that are flexible in terms of time, space and location. This is mainly because VLE supports multi-directional or asynchronous teaching and learning activities even if teachers and students are dispersed at different locations (Cavus, 2011). Nevertheless, VLE still maintains the fundamental aspects of conventional teaching and learning such as management, assessment and communication. In the context of Malaysian education, the VLE has started to be embedded in the mainstream of school education system since 2012 (Kementerian Pendidikan Malaysia, 2015). With the aim of gathering parents, teachers and students in over 10 thousands public schools under a single virtual educational atmosphere, the implementation of VLE platform known as Frog VLE in Malaysia involves mega-investment (Kementerian Pendidikan Malaysia, 2014). In addition, it is hoped that this specific endeavor will eliminate the chasm in educational standards between city schools and their counterparts in the rural areas (Xchanging, 2014). The expected long-term result is a major rise in the standards and quality of the Malaysian education system (Campbell, Harthi, & Karimi, 2015; Kementerian Pendidikan Malaysia, 2014).

The Frog VLE is expected to be used for at least 13 years, in conjunction with Pelan Pembangunan Pendidikan Malaysia (PPPM) 2013-2025 (Cheok & Wong, 2014), and presently, the implementation has reached the end of second phase (Kementerian Pendidikan Malaysia, 2019). However, despite the ambitious vision of Ministry of Education, Malaysia (MOE) to digitalize Malaysian education, the low level of VLE usage, especially among teachers has surprisingly ended up to be an unresolved issue (Bahagian Teknologi Pendidikan, 2017; Kementerian Kewangan Malaysia, 2014). Therefore, in June 2019, MOE announced the termination of Frog VLE implementation in Malaysian schools and it will be replaced with Google Classroom (Kementerian Pendidikan Malaysia, 2019). The justification behind this is unclear, but it seems possible that the decision is taken due to a number of serious drawbacks in Frog VLE implementation, which caused resistance especially among teachers (Cheok & Wong, 2016; Norazilawati, Noraini, Nik Azmah, & Rosnidar, 2013; Thah, 2014). A recent study by Awang, Zahurin, Yaakob, et al. (2018) has demonstrated that the overall level of teacher's intention to continue using Frog VLE is moderate. Unfortunately, the study also discovered an alarming finding, which showed that the low intention users are approximately higher in number (28.9%) compared to high intention users (15.1%). This is probably due to several issues that deter them from adopting it in teaching and learning routines such as poor service and system quality (Bahagian Pendidikan Guru, 2016; Cheok & Wong, 2016), as well as heavy workload carried by the teachers (Awang, Zahurin, & Wan Rozaini, 2018; Norazilawati et al., 2013). Despite the huge investments, the VLE would be deemed as a failure if it is not fully utilized by the teachers or did

not produce expected benefits (Ramayah, Ahmad, & Lo, 2010). In this sense, the previous evaluation studies should provide strong evidence for MOE in deciding whether to retain or terminate the use of the platform (Hamilton & Chervany, 1981). Therefore, it is acceptable to discontinue the usage of Frog VLE to avoid a greater complexity of the problem and to decrease the loss of investment.

To conclude, it is observed that the issue of VLE low usage has been consistently debated and discussed among previous researchers (Cheok, Wong, & Ahmad Fauzi Ayub, 2017; Ibieta, Hinostroza, Labbé, & Claro, 2017; Rolando, Salvador, & Luz, 2013). Additionally, the empirical studies that investigate the contributing factors of this issue are also found in abundance (Cheok & Wong, 2016; Copriady, 2015; Kihoza, Zlotnikova, Bada, & Kalegele, 2016; Solar et al., 2013; Surif, Ibrahim, & Hassan, 2014). Nonetheless, there is a dearth of studies found on implementation strategy that is crucial to overcome the issue. This implies that the existing literature on VLE lies on insufficient research in terms of treatment, while over attentions were given to the issue and its antecedents. The aforementioned trend of research indicates an urging call for further empirical investigations. Likewise, the replacement of Frog VLE with Google Classroom means nothing if MOE did not take past mistakes as a lesson to improve VLE implementation. A few prior studies have shown that a successful implementation of any information and communication technology (ICT) initiative requires a good strategic planning (Norazilawati et al., 2013; Solar, Sabattin, & Parada, 2013). Hence, this paper aims to fill the gap by presenting a VLE implementation strategy for Malaysian schools as a guideline to implement Google Classroom at the school level.

Google Classroom

The core elements to the entire discipline of 21st-century learning are student-centered collaborative, communication, creativity, positive values and critical thinking (Kementerian Pendidikan Malaysia, 2016). Interestingly, VLE offers many advantages to support these elements over conventional classroom teaching approaches (Al-Maroof & Al-Emran, 2018). Google Classroom is a type of VLE that was initiated in 2014 as a platform for either distance, online or blended learning (Al-Maroof & Al-Emran, 2018; The University of Wales, 2015). The basis of this system is how it gives users the flexible power to teach and learn without much consideration for normal obstacles such as time, distance and location, as it allows asynchronous pedagogy where the teachers and students no longer have to be physically present at the same moment and place. In Malaysia, the Google Classroom implementation has taken place to compensate the termination of previous VLE platform, Frog VLE that has ended the contract recently (Kementerian Pendidikan Malaysia, 2019). In comparison, both platforms are functionally identical, which offer similar features such as assignment, communication, collaboration and information dissemination. Nonetheless, from the teachers perspective, unlike the licensed Frog VLE, Google Classroom is a free web service that is easier to use especially for Google applications users (Beaumont, 2018). This VLE platform is capable of creating an interactive and information-rich educational environment with the integration of other Google applications such as Google Drive, Gmail, YouTube and many more (Bondarenko, Mantulenko, & Pikilnyak, 2018). As familiar as its sounds, the Google Classroom should provide a more convenient and easy to use platform for Malaysian teachers to engage the students in creative and pleasant ways. Furthermore, it is hoped that the teachers' previous experience in dealing with Frog VLE will facilitate the acceptance of Google Classroom. However, knowing the benefits and familiarity with the technology would not guarantee its success (Cheok et al., 2017). Indeed, the most reliable success indicator for a voluntary type of IS such as Google Classroom should be its extent of usage (Awang, Zahurin, Wan Rozaini, & Ishak, 2018). Therefore, the more important thing to do is to strategize the implementation, especially at the school level, where the Google Classroom will be utilized.

Consequently, a decent plan, which includes some crucial elements before, during and after the execution of the platform, should entice its continuous usage and the success in general.

VLE Success Model

According to the updated DeLone and McLean IS Success Model (D&M), the level of usage is one of the important elements in determining the success or failure of any IS implementation (DeLone & McLean, 2003). Indeed, it is considered as the most vital dimension that should be an indicator of VLE success in school education (Awang, Zahurin, Wan Rozaini, et al., 2018). However, the successful implementation of any IS is not solely determined by a single factor, but it is a concept of multi-dimensions that are inter-dependent to each other (DeLone & McLean, 2003). In the context of VLE implementation in Malaysia, Awang, Zahurin, Wan Rozaini, et al. (2018) have developed the VLE Success Model among teachers that is adapted from D&M (see Figure 1). This model has been tailored within the local education environment and has been empirically tested among primary and secondary teachers across Malaysia.
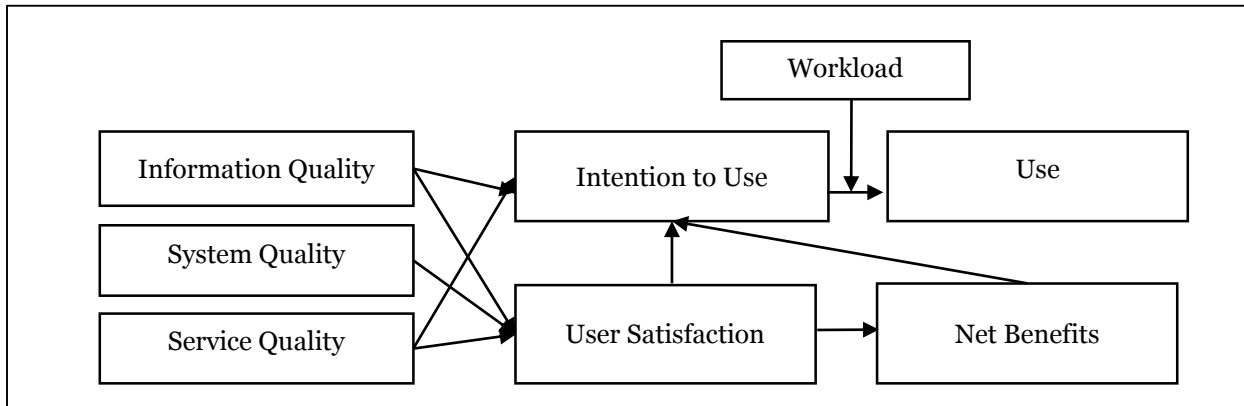

Figure 1. VLE Success Model

Generally, this model maps out the relationships between the significant factors and illustrates how the sustainable usage of VLE could be established among teachers. Furthermore, VLE Success Model elaborates the interaction between the aspects of human and technology in achieving the successful implementation of VLE in schools, which is projected in form of sustainable, continuous and voluntary usage among teachers. The factors such as information quality, system quality and service quality represent the aspect of technology, while the aspect of human is represented by the factors of intention to use, use, user satisfaction, net benefits and workload. VLE Success Model also explains that the user (teacher) satisfaction is triggered by the good quality of information, system and service provided by VLE such as Google Classroom and the service provider. This feeling of satisfaction would enhance the intention to continue using VLE and further lead to the increment of real usage. However, the strength of the relationship between attitude (intention to use) and behavior (use) is moderated by the level teacher's workload. Further analysis has shown that the higher workload would cause the relationship to be positively stronger (Awang, Zahurin, Wan Rozaini, et al., 2018). Finally, the net benefits also play a significant role in influencing the intention to continue using VLE among teachers.

Based on this model, it can be concluded that VLE, including Google Classroom, could be a good medium to deal with the ever-increasing workload carries by teachers. However, the positive outcome still depends on the quality of VLE, especially in terms of information, system and service. For instance, if Google Classroom provides the desired quality, features and characteristics while at the same time beneficial to be used for teaching and learning, then there

is a high probability for the implementation to be successful. Thus, the effectiveness of Google Classroom as a medium for combating excessive teachers' workload could only be proved when all the preceding criteria are met. Otherwise, there is a chance that the platform could turn out to be another workload for teachers, especially when they are forced to use it (to achieve the certain target of usage) (Zawiyah & Mariah, 2008). For a deeper comprehension of this model, the entire related constructs have been operationalized, as shown in Table 1.

Table 1
Operational Definition of VLE Success Constructs

Construct	Operational Definition	Desired Criteria
Information Quality	The extent of output quality produced by VLE.	Accurate, Relevant, Sufficient, Easy to understand, Current, Timely and Reliable.
System Quality	The extent of VLE technical performance.	Always available, Usable, User-Friendly, Attractive, Accessible and Reliable.
Service Quality	The extent of services, supports and encouraging environments provided by VLE and service provider.	Responsive, Assurance, Empathy and Tangible.
Intention To Use	The extent of intention for future use.	High intention.
Use	The utilization of VLE.	Frequent and Regular.
User Satisfaction	The feeling of pleasure or displeasure toward the VLE.	High satisfaction.
Net Benefits	The impacts or benefits of using VLE.	Saves time, improves productivity and improves personal value.
Workload	The amount of works and the phase of job requirements in teachers' career.	VLE eases the teachers in dealing with the workload.

Regarding the prior discussion on VLE Success Model, one question that might be asked, however, is whether this model is applicable for Google Classroom implementation in Malaysian schools? The answer is; this evaluation model should be a useful guideline for all VLE stakeholders, including MOE and school authorities to establish a specific Google Classroom implementation strategy, especially at the school level where the platform will be used. Therefore, an extensive consideration should be given to the entire dimensions in this model. The implementation of any IS involves a continuous process and should not end after the delivery of the system (Marchewka, 2015). The delivery of the VLE, such as Google Classroom to the end-users (teachers) does not mean that the system has reached the point of success (Norshita, Halimah, & Tengku Mohammad, 2010). In fact, the VLE success should be decided by the level of acceptance among teachers as they have the greatest authority to determine the success and failure of its implementation (McLeod & MacDonell, 2011). On the logical sense, teachers are the most important group of users that could also influence the usage pattern of other users such as students and parents. This is mainly because teachers are role models and change agents for students. Consequently, if teachers

resist the VLE, then most probably the students and the parents would be less interested to adopt it as well.

In parallel to the rapid advancement of ICT in all sectors including education, ICT plan has been recognized as a requirement in schools nowadays (Solar et al., 2013). ICT plan usually consists of a series of actions and strategies in implementing ICT for teaching and learning or education management. Regrettably, the evaluation aspect has been identified as the weakest part in the schools' ICT plan (Solar et al., 2013). The quality of ICT plan plays an important role in determining the successful implementation of any ICT initiative (Bhatti & Adnan, 2010; Lee & Ryu, 2013). Notwithstanding, the literature since the past decade has demonstrated that the aspect of evaluation is the most uncertain part of ICT plan that is always taken for granted by stakeholders, including developers and service providers which in turn could lead the whole implementation into a failure (Hamilton & Chervany, 1981; Liang & Wang, 2009; Solar et al., 2013). To overcome this, Liang and Wang (2009) concluded that the periodical evaluation mechanism is required. During the past phase (Frog VLE), MOE has made a huge investment in VLE. Consequently, without a proper success evaluation, it would be difficult for MOE to justify their investment (Alhendawi & Baharudin, 2014) and to look for the past weaknesses that will be useful for future improvement (Centers for Disease Control and Prevention, 2014; Thah, 2014). In light of this, Ramayah et al. (2010) stressed that despite the grand-scale implementation of VLE (nationwide), and it involves huge investment, it is still considered as a failure when it is not being sustainably utilized by teachers. Therefore, by learning from the past mistakes, the importance of a proper implementation strategy and evaluation procedure in implementing Google Classroom has been justified.

VLE Implementation Strategy for Malaysian Schools

In spite of essential roles of ICT plan as discussed in the previous section, it is also noteworthy to consider that a huge-scale implementation of VLE means that the evaluation process will involve an equally huge cost. As a result, it is less practical to conduct the evaluation on a regular basis. The past studies have demonstrated that the evaluation is always taken for granted, especially in schools (Liang & Wang, 2009; Solar et al., 2013). Thus, one of the solutions to secure Google Classroom implementation is by establishing an implementation strategy at the school level. This implementation strategy should include an evaluation in certain core aspects, especially in terms of information, system and service quality as well as teachers' perceptions. More importantly, the collective evidence from schools' level evaluation could become a significant input for MOE in justifying their investment, while at the same time reducing cost on conducting an evaluation at the nationwide scale.

Since the Google Classroom platform is still in the pre-adoption stage (Kementerian Pendidikan Malaysia, 2019), it is considered as the best time to produce a specific guideline for its implementation. In this sense, the most appropriate place to start is at the school level. A case study conducted in a high school in Glasgow, United Kingdom, found that any attempt to bring changes in the education system, including to digitalize it would face a great possibility of failure, indicating a need for a considered strategy to be put in place (Maclean, 2012). This also justifies the need of Malaysian schools to have a specific implementation strategy as part of the ICT plan, which would maximize the benefits offered by Google Classroom. By referring to the VLE Success Model by Awang, Zahurin, Wan Rozaini, et al. (2018), this article proposes some of the most vital criteria to be included into Google Classroom implementation strategy, as shown by Table 2. Some of the considered aspects are such as school management - vision, roles and responsibilities, as well as teachers' training. However, the aspect of evaluation should remain to be the core in this implementation strategy, congruent to the suggestions by Norazilawati et al. (2013). It is also

important to note that Table 2 only proposes some of the important components in developing the implementation strategy for Google Classroom. Therefore, these elements could be modified or extended based on the school's unique environment.

Table 2
Components of Google Classroom Implementation Strategy for Schools

No.	Component	Features	Rationale
1.	Introduction	Introduction to VLE and Google Classroom (history, benefits, challenges and others).	To persuade, provide background knowledge, instill confidence and build teachers' interest in using Google Classroom platform.
2.	Strategic Planning	(i) School background - Past, Present, Vision, Mission & Core Value. (ii) Diagnosis of the goal - Obstacles, Long-Term Goal, Short-Term Goal & Success Measurement. (iii) Strategy - Resource and Financial Assessment, Implementation, Dissemination & Progress Assessment Plan. (iv) Situational analysis - SWOT analysis.	To provide inputs for strategic thinking, which guides the formation of actual strategy.
3.	Implementation	(i) School management. (ii) VLE facilities. (iii) Training and support. (iv) School's VLE policy. (v) Teachers' Voice - Comments, Feedbacks & Suggestions.	To provide a guideline and manual of work on successful change management, as well as identifying possible strategies to deal with resistance to change.
4.	Decision Makers: Roles and Responsibilities	(i) Overview of VLE group structure. (ii) Detailed responsibility of individuals.	To establish the necessary decision-making bodies that will help deliver the VLE implementation.
5.	Monitoring and Evaluation	(i) Information quality. (ii) System quality. (iii) Service quality. (iv) Google Classroom success among teachers. (v) Reports and documentation.	To monitor and evaluate the delivery of effective teaching and learning through the Google Classroom. This component is also important in identifying technical problems, teachers' perceptions as well as planning necessary follow-up actions in order to avoid teachers' resistance.

Research Methodology

To examine the applicability of the above guideline, this study has developed a specific draft of Google Classroom implementation strategy for Malaysian schools. To ensure its validity and accuracy, an expert in education planning and strategy has reviewed and endorsed the draft. Later, this draft was presented to 14 field experts (practitioners), which were chosen based on their vast experience in dealing with the previous version of VLE (Frog VLE). These experts consist of VLE administrators, coaches, school leaders and in-charge officers from *Pejabat Pelajaran Daerah* (PPD) Cameron Highlands, Pahang, as shown in Table 3. Furthermore, they were asked to answer four questions based on their reviews on the drafted implementation strategy. In gathering and analyzing the field experts' responses, the mixed methods approach based on the convergent design was applied in this study. This design allows researchers to gather quantitative and qualitative data at the same time and equal priority are given to both types of data (Creswell, 2014). In the context of this study, the quantitative data were collected using three dichotomous questions. Question 1 was purposely designed to gather information regarding the trend of ICT plan adoption in schools while Question 2 and 3 aimed to measure the experts' consensus on the applicability of the drafted implementation strategy in implementing Google Classroom. On the other hand, the qualitative data were collected using an open-ended question to explore the experts' opinions on this implementation strategy.

Table 3
Field Experts' Background

Department	Practitioners' Post	Total
PPD Cameron Highlands (PPDCH)	Frog Coach for Champion Schools ICT Coordinator Frog Coach (1BestraiNet)	3
SMK Sultan Ahmad Shah	Principal VLE Administrator	2
SK Telanok	Administrative Assistant Principal Headmaster VLE Administrator	3
SK Lemoi	Headmaster Administrative Assistant Principal VLE Administrator	3
SK Menson	VLE Administrator Headmaster	2
SK Brinchang	VLE Administrator	1
TOTAL		**14**

Data Analysis and Results

From the quantitative descriptive analysis, it is revealed that only two out of five schools (40%) have a specific VLE strategic planning document. One of the schools is found to adapt the strategic planning related document from external sources by modifying it to suit the school's environment, while the other school adopted the document without further amendment. In addition, the entire field experts (n=14, 100%), believed that this draft of implementation strategy is practical for Google Classroom implementation in Malaysian schools. Similarly, all of them

(n=14, 100%) agreed that the VLE Success Model could be a good reference for the development of Google Classroom implementation strategy, as shown by Table 4.

Table 4
Analysis of Field Experts' Responses

Expert	Department	Position	Question 2	Question 3
#1	PPDCH	Frog Coach for Champion Schools	Yes	Yes
#2	PPDCH	ICT Coordinator	Yes	Yes
#3	PPDCH	Frog Coach (1BestraiNet)	Yes	Yes
#4	SK Brinchang	VLE Administrator	Yes	Yes
#5	SK Menson	VLE Administrator	Yes	Yes
#6	SK Menson	Headmaster	Yes	Yes
#7	SK Lemoi	Headmaster	Yes	Yes
#8	SK Lemoi	Administrative Assistant Principal	Yes	Yes
#9	SK Lemoi	VLE Administrator	Yes	Yes
#10	SMK Sultan Ahmad Shah	Principal	Yes	Yes
#11	SMK Sultan Ahmad Shah	VLE Administrator	Yes	Yes
#12	SK Telanok	Administrative Assistant Principal	Yes	Yes
#13	SK Telanok	Headmaster	Yes	Yes
#14	SK Telanok	VLE Administrator	Yes	Yes
TOTAL			YES=14, NO=0	YES=14, NO=0

Next, an open-ended question concerning the comments and suggestions related to the implementation strategy was analyzed using qualitative content analysis. The result indicates that the representatives of the schools and PPD officers gave positive feedbacks of this VLE (Google Classroom) implementation strategy. Based on the given answers, 19 responses were recorded from 14 practitioners, which were further coded into three themes (Table 5). In general, the practitioners agreed that this document is applicable and could be used as a guideline for VLE implementation.

Table 5
Content Analysis of the Responses

Theme	Code	f	%
Suitable to be implemented.	1	7	37
Suitable to be implemented if the school has a proper Internet connection.	2	3	16
Positive impacts on implementation by providing a guideline to teachers.	3	9	47
TOTAL		19	100

Seven practitioners (37%) stated that the implementation strategy that was developed based on the VLE Success Model is suitable to be implemented as derived from the following comments:

#12: *"Sesuai dijadikan sebagai panduan di sekolah."*
(Suitable to be used as a guideline in school)

#2: *"Suitable for school management in VLE implementation in classroom."*

However, three practitioners (16%) believed that this document is only suitable to be implemented for schools that have an Internet connection. This notion is agreeable as all of them served in rural schools, where the deficiencies in terms of facilities and supports are common challenges in adopting any ICT initiatives. These are their remarks:

#5: *"Sesuai dijalankan di sekolah yang mempunyai kemudahan Internet."*
(Suitable to be implemented in schools with Internet facilities)

#6: *"Aktiviti seumpama ini amat sesuai dilaksanakan di sekolah yang mempunyai kemudahan Internet."*
(This kind of activity is very suitable to be implemented in schools with Internet facilities)

#7: *"School cannot use the VLE all the time because of the limited access in the rural area."*

Finally, majority of the interviewed practitioners (n=9, 47%) mentioned that the implementation strategy will produce positive impacts on VLE implementation by providing a guideline to teachers, as understood from these comments:

#9: *"The implementation strategy can help a teacher in teaching [using] VLE. It is good and suitable to use in school. "*

#10: *"[In the past] Frog VLE has been successfully conducted in many schools in Malaysia. Further research and enhanced VLE models can bring significant impact to the implementation of VLE [Google Classroom] in Malaysian schools."*

Another two practitioners, who are the VLE coaches, support the use of this document to improve the VLE implementation in schools. One of them (#1) compliments the development of implementation strategy based on the empirical study, which represents the real scenario of VLE implementation in Malaysia. These are their comments:

#3: *"Disokong. Sesuai dijadikan panduan di sekolah."*
(Supported. Suitable to be used as a guideline in schools)

#1: *"Disokong. Amat sesuai dipraktikkan di sekolah kerana dibina berdasarkan kajian empirikal."*
(Supported. It is very practical in schools because it is developed based on empirical study)

Discussion and Conclusion

The recent transition from Frog VLE to Google Classroom has caused uncertainties among teachers. It may be that this phenomenon is attributed to their past experience and challenges in dealing with Frog VLE. The Google Classroom is comparatively better than Frog VLE in certain aspects, for instances, lighter load and simple interface. Moreover, majority of digital age citizens, including youngsters in schools are familiar with Google applications, thus eliminating the effect of technology phobia while at the same time reducing reliance on training, and speed up the adoption maturity (Izenstark & Leahy, 2015). Still, it is undeniable that any innovation or transformation usually resulted in uncertainties, risks and resistance, especially during the initial or transition phase (Hanna, 2013). In light of this, DeLone and McLean (2003) have previously argued that the experience of initial usage was an important indicator in predicting whether users would be inclined to continue using the system. An enjoyable first use of VLE will subsequently encourage the teachers to utilize it frequently. It is therefore likely that the strength of such connection between satisfaction of first encounter and continuous usage is stimulated by the quality of implementation.

Furthermore, there is a consensus among local IS and education researchers on the poor quality of the system (availability, usability, accessibility and reliability) as well as services (support and tangibility) as the most apparent flaws in the past Frog VLE implementation (Bahagian Pendidikan Guru, 2016; Cheok & Wong, 2016). Indeed, the system and service quality are closely related to the aspect of facilities. Therefore, to avoid repeating the similar mistakes and to increase

the chances of successful Google Classroom implementation, a proper planning is necessary, particularly in terms of systematic strategies, executions, maintenance, monitoring and evaluations. A proper planning and implementation would lessen challenges, thereby alleviating users (teachers) resistance toward Google Classroom.

User resistance and non-use of IS have long been recognized as factors for failed projects, including in the education sector (Laumer & Eckhardt, 2010). Besides the deficiencies in system and service quality, the excessive workload is among other hindrances that could negatively influence intention-to-use and contribute to teachers' resistance toward VLE (Norazilawati et al., 2013; Vinluan, 2011). Nonetheless, this effect could be changed into the opposite direction (positive) with the proper planning and strategy. Recently, this stance has been empirical proved by a study that was conducted to measure the moderating role of workload in determining the intention to continue using VLE among Malaysian teachers (Awang, Zahurin, & Wan Rozaini, 2018). The finding of this study implies that as workload increases, the tendency of teachers to continue using the VLE is also increases. More importantly, this indicates that if the desired characteristics of information, system and service quality (as suggested by VLE Success Model) are fulfilled, the teachers will probably be motivated to use the system. In general, therefore, it seems that VLE could be a great medium to ease the ever-increasing workload in teachers' career, which calls for the adequate attention from MOE in producing a proper strategic planning document before Google Classroom can really be implemented.

In accordance with the notion, previous studies have demonstrated that a failure to systematically plan, implement, as well as to manage risks and challenges would expose VLE to teachers' resistance. Moreover, instead of being a mean for easing teachers' workload, that failure could also turn a VLE into another workload (Zawiyah & Mariah, 2008), especially when the teachers are compelled to use it up to a certain extent, just to hit specific usage target (Cheok & Wong, 2016). By all means, this kind of practice is ethically wrong and should be avoided. This is mainly because by forcing teachers to use VLE, ones have changed the nature of VLE, from voluntary to mandatory kind of system. Besides, the regularity of use brings no meaning and inappropriate to be a success indicator for a mandatory type of IS (DeLone & McLean, 2003). For this reason, the rightful solution in combating teachers' resistance and promoting sustainable usage of Google Classroom lies on a legitimate implementation strategy, as discussed in the previous section.

What has been known about VLE is largely based upon empirical studies that investigate the significant factors that influence its usage (Cheok & Wong, 2016; Copriady, 2015; Kihoza et al., 2016; Solar et al., 2013; Surif et al., 2014). Along with this growth of interest in VLE studies among IS and education researchers, however, until recently, there has been no credible evidence regarding the remedy of this problem. Therefore, this paper seeks to fill the gap by proposing the VLE implementation strategy for Malaysian schools, which prioritize the systematic plan to promote Google Classroom sustainable usage among teachers. The teachers are chosen in this study because they are the most influential group of users that have the autonomy to determine the success or failure of VLE platform (McLeod & MacDonell, 2011). Furthermore, it is unarguable that ICT strategic planning at the national level is important. However, the usability of that might not be fully transferable to the school level. A probable explanation is that each school has some unique characteristic, for instances, in terms of facilities, the number of teachers and demographics of students. Thus, it seems crucial for every school to have a specific VLE implementation strategy, which fits their requirements and available resources.

The preceding discussion has highlighted the vital roles of ICT plan in schools nowadays. Unfortunately, through this study, it is discovered that majority of schools did not have a specific implementation strategy to be referred to. This finding should be a red alert call for MOE to

improve the past flaws of Frog VLE and provide a systematic guideline for the implementation of Google Classroom. Meanwhile, teachers consistently experience increasing amounts of innovation and transformation in schools. Hence, regular monitoring and evaluation of their attitudes toward change can make all the difference between success and failure (Armenakis & Bedeian, 1999). With regards, the prior studies have stressed that the aspect of evaluation has become the most uncertain part of schools' ICT plan (Hamilton & Chervany, 1981; Liang & Wang, 2009; Solar et al., 2013). To overcome this, the specific strategic document for Google Classroom implementation in Malaysian schools has been put forward by embedding the evaluation aspects from VLE Success Model (Awang, Zahurin, Wan Rozaini, et al., 2018). The result of this investigation has obviously shown the field experts' consensus on the validity and practicality of this document. Nevertheless, since it only proposed some of the most important elements to be included in the VLE strategic plan, its applicability in schools should consider their unique characteristics. Finally, more research needs to be undertaken to establish this. Further research should, therefore, concentrate on the quantitative investigation of the effectiveness of this implementation strategy among school management and policymakers. Furthermore, it would also be appealing if future research could experimentally examine the pre and post impacts of the execution of this Google Classroom implementation strategy in teachers' teaching and learning practices.

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