

The Concept and Use of the Virtual Learning Environment in Teaching: A Literature Review

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Abstract

Malaysia has set the year 2020 to become a fully developed nation. One way of turning a nation into one with a developed status is to use technology, not only in agriculture, medicine and industries but also in the education field. The Malaysian Education Blueprint 2013 – 2025 has stipulated that Information and Communication Technology (ICT) should be used to enhance the quality of education in Malaysia. This strategy is found in the seventh thrust of the Malaysian Education Blueprint 2013-2025 (Use ICT for Enhancing the Quality of Education in Malaysia). The expansion of technology in the education world has experienced an evolution that has changed the traditional method of teaching to a more modern one. The traditional method that uses the chalk and talk should be forsaken by teachers in the contemporary modern setting. The Frog Virtual Learning Environment was introduced in schools in 2011 through the 1BestariNet Project. Innovation in the form of using virtual technology needs educators, especially teachers, to be more open to accepting as well as using technology in the learning and facilitating process. This paper had elaborated on literature reviews pertaining to 21st century concept and teaching that uses the Virtual Learning Environment.

Keywords: Concept Of Virtual Learning Environment, Using Frog Virtual Learning Environment, School Education, Teacher

Introduction

The Malaysian Education Blueprint 2013 – 2025 (MEB) had entered the second wave, which was from 2016 to 2020. The second wave of MEB had continued with two main elements of MEB, which was the making of a student and the quality of a teacher (Ministry of Education Malaysia, 2013). In order to holistically shape the student's 'outcome' so that the student is multi-talented and balanced in terms of intellect, spirituality, emotion and physique consistent with the National Education Philosophy is not an easy task. However, there are teachers who have the credibility to turn the dream of the Ministry of Education Malaysia (MOE) into reality. This was in line with the 2018 Malaysian Teacher's Day theme "Teachers

are the Drivers of National Transformation”. Teachers shoulder the responsibility of moulding students to become future all-round individuals in life.

The focus by the primary school education curriculum in the Primary School Integrated Curriculum that started in 1983 to 2010 had emphasised more on the three basic skills, such as reading, writing and calculating. Hence, beginning in 2011, the Primary School Standard Curriculum added one more skill, which was the additional element of reasoning. Besides the skills, MOE also hoped that the new generation of students would learn various 21st century skills required to succeed at the international level, such as skills related to thinking, communicating, dual language, leadership and effective team work. The Secondary School Standard Curriculum had tried to realise these 21st century skills beginning in 2017 for Form 1 students (Ministry of Education Malaysia, 2013).

Besides that, the contemporary working world needs potential employees who are competitive, committed, creative and technology savvy. Several studies found that Information and Communication Technology (ICT) could enhance the quality of education and relate lessons to actual situations in life (Ertmer & Ottenbreit-Leftwich, 2010; Selinger, 2001). Hence, teachers should guide students to become computer literate from primary school. In the 21st century, the significance of ICT in everyday life is undeniable, as portrayed by the phrase “a borderless world”. In line with the development of contemporary technology, the Ministry of Education Malaysia (MOE) had introduced ICT into education, which covered aspects such as infrastructure, contents and training for teachers. For example, the MOE had implemented various ICT projects by supplying computers as the main activity (Ministry of Education Malaysia, 2013).

In order to fulfil the aim of creating students who are ICT savvy, the MOE had gone into a joint venture with YTL Communications in 2011 by introducing the 1BestariNet project, which was one of the components of the MEB. This project had offered wireless broadband services with 4G technology to 10,000 schools aimed at increasing the level of education and compliment students with ICT skills. Under the 1BestariNet project, the ICT infrastructure in all schools was supplemented with integrated solutions that enabled teaching, learning and administrative management to be implemented through the internet by using the Virtual Learning Environment (VLE) application or also known as the “Frog Virtual Learning Environment” (Frog VLE). Briefly, the 1BestariNet Project as shown in Figure 1, affords rural and urban students with an opportunity to access the latest technology and quality education in line with the country’s progress.

Government Commitment Towards quality, internet enabled education	First in the world speed wireless - internet	the high 4G	Proven Virtual Environment Learning	All 10, 000 schools throughout Malaysia	Bridging the digital divide between rural and urban students	Establishing Malaysia as a model of excellence for integrated internet learning
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Figure 1: Brief Summary of the 1BestariNet Project (Bahagian Teknologi Pendidikan Kuala Lumpur, 2018).

The Virtual Learning Environment Concept

The Virtual Learning Environment (VLE) is a technology that supports learning through face-to-face and virtual meetings (Barajas & Owen, 2000). VLE is characterised by an environment based on computers, use of the internet, interaction between users, exchange of views and access to users to obtain various useful materials (Wilson, 1996). Moreover, users could be in the same room but do not experience any physical contact (Rheighold, 2004). Thus, the VLE enables collaborations as well as learning activities through games (Korićanin, Saračević, Biševac, & Kamberović, 2014). VLE is a software tool that supports the management of education and teaching by using the internet (Trafford & Shirota, 2011).

The VLE concept is more comprehensive compared to computer-aided instructions (CAI) as it contains the communication dimension as well as interaction and discussions between teachers and students or among students (Piccoli, Ahmad, & Ives, 2001). In other words, VLE is a web-based learning platform, which is a reality in the education world, that integrates the conventional education concept with the virtual method. Abdullah, Noh, Yusuff, & Mansor (2013), referred VLE as an online classroom and a social space in schools that contains a calendar, social networks, shared workspace and online assessment.

VLE also has computer software tools that compliment computerised learning facilities, such as Learning Management System (LMS), Course Management System (CMS), Learning Content Management System (LCMS), Managed Learning Environment (MLE), Learning Support System (LSS) and Learning Platforms (LP) (Shahaimi & Khalid, 2016). Some studies have given another name or concept for VLE, such as e-learning, online learning, distance learning or web-based learning (Ibrahim & Osman, 2017). Whereas, Hamzah & Yeop (2016), agreed with Shahaimi & Khalid (2016), that VLE was LMS with the additional term for VLE as e-learning, Massive Open Online Course (MOOC) or Modular Object-Oriented Dynamic Learning Environment (MOODLE). Individuals who experience virtual learning would also experience permanent changes that involve the mentality, attitude, thinking and behaviour due to receiving knowledge, supervision and access from online learning resources (Mohaidin, 2000).

Frog VLE contains a learning platform that can be accessed in school or outside a school that has internet. Files and data stored in cloud stores or are cloud-based enable the user to access the contents using various mobile devices. IDs and passwords are not only supplied free-of-charge to teachers and students but parents can also access the Frog VLE (Frog Asia, 2018). Among the special features of Frog VLE is that teachers can share information, give and evaluate student's assignments as well as make assessments and evaluate the student's performance. Students are able to complete assignments either in school or outside school hours as well as obtain the teacher's feedback about their assignments through Frog VLE. Besides that, the school administrators can manage activities by using the calendar application that is shared online by all other users in the school (Frog Asia, 2018). It is clear that Frog VLE is one of the technologies that enable teachers to manage teaching materials as well as deliver lessons by using this platform.

The VLE concept that integrates face-to-face and virtual teaching is called blended learning (Yeop, Wong, & Goh, 2016). Blended learning is a teaching practice that combines the traditional face-to-face teaching mode with the online technology mode related to teaching and learning. The aim is to maximise the understanding of a principle, theory or knowledge. Blended learning is an approach that centres on students, which means that students control their rate of learning as well as use various online technologies. Blended or mixed learning allows teachers to deliver course materials that contain audio, video,

animation and simulation. In addition, teachers get to send evaluations online supported by feedback and corrected assignments. And what is most attractive is the interaction through collaboration between teachers and students (Ibrahim & Osman, 2017).

Hence, based on the definition of VLE above, it shows that the use of Frog VLE involves the use of the internet medium. Teachers need to complete the platform that is provided with teaching materials by using the provided widgets in the Frog VLE for various uses. This means that teachers can determine the teaching delivery design through the platform that is provided. Figure 1.2 shows the widgets that exist in the Frog VLE platform. Therefore, if the teacher wishes to key-in notes, then the widget that could be used is the Notes or Media Widget. Similarly, if the teacher wishes to have a discussion, then the Forum Widget could be used. As stated earlier, the special features of the Frog VLE allows teachers, students and parents to use various mobile devices such as smartphones and tablets to access it. Students can answer questions given by teachers at their home using smartphones or the computer. Virtual discussions through the forum column allows students to exchange views. Indirectly, learning becomes more interesting due to the use of multimedia and the interaction between teachers and students or among students themselves.



Figure 1.2 : Choice of *widgets* found in a Frog Virtual Learning Environment (Frog Asia, 2018)

The Use of the Frog Virtual Learning Environment in Teaching

Studies in Malaysia on the perception of students towards Frog VLE was carried out on the subject of Biology. 316 Form 4 students from the Science stream were chosen from schools in the Padawan District in Kuching, Sarawak. There were five objectives in the study. First, the

study intended to examine Biology students' perception regarding Frog VLE. Second, to identify the motivation and interests among students. Third, to determine if there are differences in perception towards Frog VLE according to gender and location. Fourth, to determine if there is a relationship between Frog VLE and the student's motivation and interest. This survey-based study found that Frog VLE had a significant relationship with the student's motivation and interest towards Biology. However, the student's perception according to gender and location did not indicate any difference. The study found that computer competency and teacher's support were among the constructs agreed upon by many students if they wanted to be active in using Frog VLE (Guruloo, 2015).

A study on Frog VLE pertaining to the subject of Commerce was carried out by (Nasir, 2015). Among the objectives of the study were to examine the student's attitude and achievement towards learning Commerce. The findings of the study on the use of Frog VLE during teaching found that the results of the pre- and post-tests by Class 4 Cekal students from a secondary school in Serdang had increased. This shows that the application of Frog VLE during teaching can enhance the student's interest and thus, enhance the performance too. The study also found that students had a positive attitude towards Commerce, a more "lively" learning atmosphere and an enhanced state of joy due to the two-way communication between teacher and student as well as student and student.

Next, the sharing of best-practices in the use of Frog VLE during teaching was carried out by several teachers in the state of Perak. For example, in the Mathematics subject pertaining to the topic of Characteristics of the Two-Dimensional Design for Year Two, in which the teachers used the platform *slide share*, *google drive* and Frog VLE. In order to use the Frog VLE application, teachers acted as facilitators. Training in the form of High Order Level Thinking Skills (HOTS) and i-Think was prepared for smarter students. As for the weaker students, they were given revision work and questions to answer without a time limit but with the supervision of their parents at home. Consequently, students were found to give a good response, draw creative building models based on the models that they had learned, students enjoyed more when using this method and the lessons became easier and more interactive (Pheng, Ying, Seng, & Seok, 2014).

A study by Ali & Ahamed (2014), of the Frog VLE and the learning of Malay Language. The study found that through the blended teaching method, the teaching and learning process became easier and more interactive. Teachers and selected Form 4 students could share materials and learning was geared more towards self-learning. The study had used the blended learning method during teaching through the Frog VLE application by not emphasising on the rules of grammar. Blended teaching had enabled students to become more active, the percentage of students answering questions on grammar as well as language skills (skills in listening, speaking, reading and writing) had also increased. This study suggested that activities in the form of competitions should be initiated through Frog VLE in order to attract the interest of students.

Another study then examined the student's achievement when teachers used Frog VLE to teach grammar. The study was carried out in a primary school in Kuala Lumpur and involved 40 students who had not achieved their Grade Point Average (GPA) target for 2015, as samples in this study. The selected students had ICT facilities at home as well as being knowledgeable, capable and skilled in using ICT. The study aimed to determine the student's achievement in grammar after the teacher used Frog VLE in the pre- and post-tests. Besides that, the second objective of the study was to determine the relationship between the increase in marks and the frequency of use. The last objective was to determine the

relationship between the increase in marks and duration of use. The school's Frog VLE database was used as one of the instruments of the study. The final data were distributed in the student's raw score sheet as the main source of reference for the analysis. The findings of the study showed that students' achievement scores increased compared to the pre-test. This indicates that students' achievement in grammar had increased due to the use of Frog VLE. Hence, this study had failed to achieve the second and third objectives, whereby there was no relationship between an increase in marks and the frequency of use or the duration of use of Frog VLE (Shafiee, 2016).

The next study was entitled "Interactive Learning of Concrete Common Nouns Using Frog VLE" by Azizi (2014). The study focused on Standard Four students. The objectives of using interactive teaching are that learning is more enjoyable, students get to revise on subject matters that they do not understand, students increase their skills in ICT, teachers use widgets found in Frog VLE and teachers increase their ICT skills by using Frog VLE. Teachers applied the deductive approach by using electronic equipment, such as computers and the internet. The widgets used were text widgets, quiz mediums, training (*assignment*), *scorm*, forum, random name and time. Consequently, teaching became more enjoyable, students faced less stress, they could carry out revisions multiple times and combine the use of multimedia, language and music to produce a more meaningful form of teaching. Besides that, the use of Frog VLE in schools had also increased. This study suggested that teachers frequently use Frog VLE during teaching by using other widgets found in Frog VLE.

Based on this review, teachers' delivery methods need to change according to technological progress. At one time, the delivery of information and writing was in printed form as in magazines, newspapers or books. Hence, in efforts to cater for the Z and Alfa generations, teachers need to increase their technological skills so that their delivery would be more effective, enjoyable and not necessarily within a classroom. An innovation needs teachers to be prepared for change.

Conclusion

The literature reviews had elaborated on the VLE concept and its use in schools. It was found that the use of Frog VLE during teaching has a positive impact on students. Hence, the available facilities should be used because teachers are models who impart knowledge and skills regarding virtual learning to students. Even though they had encountered numerous obstacles when using VLE, such as lack of skills and knowledge, but the teacher's positive attitude had enabled them to overcome these obstacles. Teacher's with a positive attitude were more prepared to use VLE compared to teachers with a negative attitude.

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