

# The Influence of Knowledge and Attitude Towards the Usage of VLE Frog Among Secondary School Teachers in Kulim

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**Abstract:** *This study was conducted to determine the level of teachers' knowledge, attitude and usage of VLE Frog and to determine whether or not there is a relationship and influence between knowledge and attitude towards the use of VLE Frog among secondary school teachers in Kulim. This study employs a quantitative approach using questionnaires for data collection. The questionnaires consist of four main sections to obtain respondents' background, knowledge, attitude and usage of a virtual learning environment system called VLE Frog. The number of samples involved was one-hundred teachers who were systematically randomly selected from four schools within the Kulim district. The findings showed that the level of teachers' knowledge of and attitude were high towards VLE Frog. However, the level of usage of VLE Frog was seen as moderate. This study also found that there was no significant relationship between teachers' knowledge and the use of VLE Frog but there was a significant relationship between teachers' attitude towards the use of VLE Frog. The results showed that teachers' attitude had more influence than knowledge towards the use of VLE Frog. This paper can provide useful information for the Malaysian Ministry of Education to partially monitor the level of VLE Frog usage among secondary school teachers and assist in planning to enhance the level of usage of VLE Frog among teachers in the country.*

**Keywords:** *attitude level, correlation, knowledge level, regression, teaching and learning, usage level, virtual learning environment, VLE Frog*

## I. INTRODUCTION

Current advancements in technology have long been at the forefront of revolutionizing education. Computer technology is often used in education as an effective medium for the teaching and learning process. Inline to this, the government has taken the initiative of introducing the 1BestariNet. Through this project, schools will be gradually equipped with high speed Internet access and virtual learning platforms that enable them to gain access to various applications and solutions from all parts of the world. The vision of 1BestariNet is to change the Malaysian educational platform and to narrow the digital divide between students from the urban and suburb areas by providing quality education based Internet to all Malaysian citizens.

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In order to ensure the success of 1BestariNet, the Malaysian Ministry of Education (MOE) introduced Virtual Learning Environment (VLE) Frog. As the name suggests, it is a virtual learning system that is meant to be used by the school community including students, teachers, administrators and parents. This government initiative would make Malaysia as the first country to have all schools equipped with 4G Internet access and a standardized virtual learning system throughout the country (Kementerian Pendidikan Malaysia, 2012).

The introduction of the VLE Frog system is to improve the traditional teaching and learning paradigm (Ummu&Fariza, 2014). Besides enhancing teaching and learning, the system allows collaboration and school management to be conducted within or outside of the school boundaries as long as the user is connected to the Internet. Due to the stated features, it seems that the VLE Frog can contribute a lot in achieving the objectives set by the MOE.

## II. LITERATURE REVIEW

The current technological developments have affected the teachers' instructional techniques (Uzunboylu, Bicen&Cavus, 2011). The developments have allowed the integration between the teaching and learning techniques and specialised computing technologies such as the VLE Frog system. Piccoli, Ahmad and Ives (2001) stated that the VLE Frog open environment allows users to interact with each other such as students with teachers or students with other students within the system. This kind of virtual interaction provides a more flexible and interesting learning experience among students since virtual learning is very different from the conventional way of learning (Piccoli, Ahmad & Ives, 2001). Due to the fact that many students are now familiar with computer mobile applications, teaching and learning through mere conventional means seems no longer relevant. Teachers should now try integrating the trending technologies that students are familiar with the right teaching techniques to get the best results.

Based on a study done by Nor Azlah and Fariza (2014), the highest level of the VLE Frog system usage is in May and August 2014 but in overall, the level of usage on VLE Frog from December 2013 to December 2014 is considered to be low. The highest usage of VLE Frog among teachers was recorded in August 2014.



However, the study by Nor Azlah and Fariza (2014) did not clearly state as to what had contributed to the low usage level of the VLE Frog system during that period. If the level of usage continues to remain at this rate, a full implementation of a digital based education will be difficult to achieve in the near future (Awang, Aji, & Osman, 2018).

Kalayci and Humiston (2015) have found that students cooperate with one another in the learning process within a virtual learning environment. The study also found that virtual learning can promote sharing of knowledge and experience, critical thinking, problem solving, get valuable feedbacks from teachers and colleagues, and finally, the responsibility in completing a given task (Kalayci&Humiston, 2015). A similar study by Mogus, DjurdjevicdanSuvak (2012) looks into the effects of students' activities in a virtual learning environment on examination marks. The results of the study have shown that the more frequent a student learns through a virtual learning environment the higher the student's examination marks (Mogus, Djurdjevic&Suvak, 2012). This shows that virtual learning has the capacity to promote a better learning environment and teachers should take advantage of using this new innovative approach.

Thorsteinsson (2013) found two main issues that influenced the perception and teachers' responsibilities in using a virtual learning environment in schools. The first issue is regarding teacher's knowledge. Not many teachers are competent users with current new technologies including the virtual learning environment system. The second issue is regarding teacher's attitude, that besides heavy daily workloads, teachers would have additional responsibilities including maintaining hardware and software, preparing instructional materials and making professional decisions when using the virtual learning system. Thus, teachers need more training and time to adapt with any technology such as a virtual learning system.

Teacher's knowledge and attitude towards technology plays a significant role in their decision to use a particular technology. Based on a Technology Acceptance Model (TAM), teacher who have positive attitude towards technology will be more motivated to integrate it into their teaching (Cavas et al, 2009; Davis, 1989; Davis, Bagozzi, &Warshaw, 1989). Previous studies also found teacher's attitudes towards technology have impact on their technology integration practices (Wozney, Venkatesh, &Abrami, 2006).

However, these attitudes toward technology can vary from very positive to very negative depending on the combination of different factors that may influence these attitudes (Mumtaz, 2000). This may include teacher's knowledge and skills about the technology which is referred as "perceived ease of use" in TAM (Davis, 1989; Davis, Bagozzi, &Warshaw, 1989).

This study therefore aims to:

- (i) investigate the level of teachers' knowledge, attitude and usage of VLE Frog and
- (ii) determine if there is a relationship and influence between knowledge and attitude towards the use of VLE Frog among secondary school teachers in Kulim.

### **III. METHODOLOGY**

#### **Population and Sampling**

The population in this study was 400 secondary school teachers selected from four schools in the Kulim district from the state of Kedah. One hundred samples were chosen from the population using a systematic random sampling technique following (SulaimanMasri, 2005). This technique involves dividing the total population (400 teachers) with the total samples (100 teachers) to get the incrementing value of 4. Based on the incrementing value, every fourth person in the sampling list of 100 teachers in each of the four schools (4th, 8th, 12th ... to 100th) were chosen as a sample. As this study involved a small sample size and limited to the population in the Kulim district, the finding of this study is not aiming to generalized the findings to other districts in Kedah. Rather, this study provides an insight of the influence of knowledge and attitude towards the usage of VLE Frog in this particular district that may also be considered in designing proper VLE frog usage in other districts.

#### **Instrumentation**

The instrumentation for this study is a questionnaire that has four sections. Section A obtains respondents demographic information such as gender, race, age, frequency of using VLE Frog and subjects taught. Section B tests respondents' knowledge on the concepts, objectives and purposes of the VLE Frog implementation. Section C consists of items on teachers' attitudes towards VLE Frog while items in Section D ask teachers on their usage of the VLE Frog system during teaching and learning. Items in Section B, C and D are in the form of Likert scales. The instruments were distributed to teachers after obtaining permission by the Ministry of Education and the school's principal.

#### **Instruments' Reliability**

A pilot study was carried out on different schools which have similar backgrounds. The results showed that the instruments has high reliability value for each section (.89, .92 and .95).

#### **Data Analysis**

The data was analysed using descriptive and inferential statistic. Descriptive statistic is used to determine the level of teacher's knowledge, the level of teacher's attitudes and the level of teacher's use of VLE Frog in teaching and learning. Descriptive statistics is presented in the form of percentage and standard deviation. Inferential data is used to determine the relationship between independent and dependent variables. The analysis of correlation and regression is used to determine the relationship between the level of teacher's knowledge and attitude with the level of VLE Frog usage and to see the factors influencing or not in affecting the use of VLE Frog in teaching and learning.

**IV. RESULT**

**Respondents' Background**

As shown in Table 1 below, female respondents were the majority with 79% whereas male respondents were only 21%. Malays were the most respondents (80%) followed by Indians (10%), Chinese (8%) and other races (2%). In terms of age, the most respondents were within 31 to 40 years followed by 41 to 50 years (29%), 21 to 31 years (25%) and above 51 years (7%). Based on the frequency of using VLE Frog in a month, most respondents use the system once to twice a month (60%), followed by did not use the system (22%), 2 to 3 times (14%) and only a mere 4 per cent of respondents use the system more than five times.

**Table. 1 Respondents' background**

Item	Frequency	Percentage (%)
Gender		
Male	21	21.0
Female	79	79.0
Race		
Malay	80	80.0
Indian	10	10.0
Chinese	8	8.0
Others	2	2.0
Age		
20-30 years	25	25.0
31-40 years	39	39.0
41-50 years	29	29.0
51 years and above	7	7.0
VLE Frog Usage		
Frequency	22	22.0
0 times	60	60.0
1-2 times	14	14.0
3-4 times	4	4.0
More than 5 times		

**The level of knowledge on the application of VLE Frog**

This study found that the highest mean for assessing the level of knowledge on the application of VLE Frog is from the item "The current educational system must be strengthened in line with the developments of the information and communications technology (ICT) era" (M = 4.29, SD = .55). The lowest mean was the item "The implementation of VLE Frog can help improve one's potential" (M = 3.86, SD = .66). In answering the first research question, the study has found that in overall, the level of knowledge on the application of VLE Frog is high (M = 4.04, SD = .45).

**The level of attitude towards VLE Frog**

In answering the second research question on the level of attitude towards the use of VLE Frog among the teachers, ten items were presented in the questionnaire. The item with the highest mean was "I will use VLE Frog to promote a better learning environment" (M = 3.62, SD = .82). The items with the lowest means were "I assess the learning outcomes through VLE Frog" and "I am satisfied with the students' learning outcomes when using VLE Frog" with both items achieving M = 3.09, while their standard deviations were .96 and .88 respectively. Both items are

valued at a moderate level. From the analysis done, the study found that in overall, the level of attitude towards the use of VLE Frog is high (M = 3.45, SD = .64).

**The level of usage on VLE Frog**

Descriptive analysis was also used to answer the third research question which concerns on the level of usage on VLE Frog. The results showed that the highest mean was for the item "I give assignments that require students to use VLE Frog" (M = 2.95, SD = 1.00). The item was rated at the moderate level. The lowest mean was for the item "I am active in building a Frog Community Site" (M = 2.59, SD = 1.01). Based on the mean score, the level of usage on VLE Frog among teachers was valued as being at the moderate level (M = 2.83, SD = .85).

**Relationship between knowledge and usage on VLE Frog**

Table 2 shows the correlational test results between teachers' knowledge and teachers' usage on VLE Frog. This study found that teachers' knowledge on VLE Frog had a positive but not a significant relationship with teachers' usage on VLE Frog.

**Table. 2 Correlational results between teachers' knowledge and teachers' usage on VLE Frog**

		VLE Frog usage
Teachers' knowledge on VLE Frog	Pearson Correlation sig. (2-tailed)	0.221
	N	0.27 100

\*.p ≥ 0.05

**Relationship between attitude and usage on VLE Frog**

Based on the correlation test results in Table 3, it is shown that teachers' attitude has a positive significant relationship with teachers' usage of VLE Frog (r = .61, p < .01).

**Table. 3 Correlational results between teachers' attitude and teachers' usage on VLE Frog**

		VLE Frog usage
Teachers' attitude on VLE Frog	Pearson Correlation sig. (2-tailed)	0.609
	N	0.00 100

\*.p ≥ 0.01

**Influence from knowledge and attitude towards the use of VLE Frog**

Table 4 showed multiple linear regression using the enter method to test the contribution of teachers' knowledge and attitude on the usage of VLE Frog among teachers. The results of the analysis showed that the overall regression model met the model fit (F [2, 97] = 31.337, p < .001). Based on the value of the coefficient (R2 = .393), the two independent variables explained 39.3% variance in the usage of VLE Frog.

The relationship between the two factors and the



usage of VLE Frog among teachers was considered high ( $R = .627$ ). A detailed examination of the individual factors revealed that the knowledge factor did not contribute significantly towards the usage of VLE Frog ( $t = -1.875, p = .64$ ), while the attitude factor contributed significantly ( $Beta = .710, t = 7.408, p < .001$ ), towards explaining the dependent variable.

**Table. 4 Regression results for teachers’ knowledge and teachers’ attitude towards the use of VLE Frog**

Variables	b	SE	Beta	t	p
Constant	.972	0.608			
Teacher knowledge	-0.339	0.181	-0.180	-1.875	0.64
Teacher attitude	0.935	0.126	0.710	7.408	0.00
F=31.377		R=0.627			
Sig-F=0.000		R <sup>2</sup> =0.393			

## V. DISCUSSIONS

In this section, this study attempts to answer the research questions based on the results of the statistics.

### Research question 1: What is the level of knowledge on the application of VLE Frog among secondary school teachers in Kulim?

The level of teachers’ knowledge on VLE Frog was found to be at a high level with a mean value of 4.04. This result is also supported by HairuddinHarun et al. (2016) where the study found that the level of knowledge by teachers in Muar on VLE Frog was high. However, Ummu Salma and Fariza Khalid (2014) have found the level of knowledge on the virtual learning environment by teachers in primary schools was low even though the facilities were rather similar to those in Kulim and Muar.

One possible factor for the low level of knowledge is that the teachers did not have the self-initiative to learn more about the system.

### Research question 2: What is the level of attitude towards VLE Frog among secondary school teachers in Kulim?

The level of teachers’ attitude towards the use of VLE Frog was found to be high. The high mean score ( $M = 3.45$ ) may have been caused by the teachers’ motivation and readiness to fully use VLE Frog during lessons if the facilities and infrastructure are adequate. This study also found that most of the teachers would be ready to use and promote VLE Frog to colleagues in the near future. A similar result was shown by Norzilawati et al. (2013) based on response by several Science teachers from Kuala Lumpur and Perak. The study reported that the teachers had a highly positive attitude towards the use of VLE Frog in teaching and learning (Norzilawati et al., 2013). Cheok, Wong, Ayub, & Mahmud (2017), explained that most teachers in their study agreed that the use of VLE Frog can ease their work especially on the teaching and learning aspect. However, this positive response is only limited to the condition that there is adequate facilities and support in using the technology otherwise, teachers will no longer be interested in the tech-

nology and will focus their attention and energy to other workloads deemed important.

### Research question 3: What is the level of usage on VLE Frog by secondary school teachers in Kulim?

Based on the mean ( $M = 2.83$ ), the usage of VLE Frog among teachers is determined to be at the moderate level. This study found that even though most teachers were interested in using VLE Frog, they were more concerned with finishing the syllabus thus opting to their familiarized ways of conducting their lessons. Similar studies have shown different results. Nor Azlah and Fariza (2014) have shown that the level of VLE Frog usage is low in a one year period. The study reported the usage levels were only high in March and August. Nor Azlah and Fariza (2014) did not clearly mention as to why the scores were high during those two months. The study by Nor Azlah and Fariza (2014) is also supported by the study by Nor Zaira, Zolkefli and MohdKasri (2016) which also found that the usage of VLE Frog was low ( $M = 2.26$ ). Several studies had offered other explanations to the unsatisfactory level of usage. Nor Zaira, Zolkefli and MohdKasri (2016) found that lack of technology skills and teachers focusing more on completing the syllabus were the main cause for the low usage. HaslizaHashim et al. (2016) added that inadequate infrastructure, time available, amount of training, attitude and efficacy of the teachers were the main problems. Other factors include teachers had difficulties in gaining control of classrooms and were not clear of the advantages of using such systems (MengShen, MegatMohd. Zainuddin, Maarop, Yaacob, Ab. Rahim, & Wan Hassan, 2017).

### Research question 4: Is there a relationship between knowledge and usage on VLE Frog among secondary school teachers in Kulim?

The correlation results showed that teachers’ knowledge has a positive relationship with the level of usage of VLE Frog. However, the relationship is weak and not significant ( $r = .221, p > .05$ ). This shows that even if the teachers’ were very knowledgeable about VLE Frog, it would not ensure that the level of usage of the system will be high. Interestingly, Kaur and Hussein (2015) found that the level of knowledge does have a significant relationship with teachers’ commitment in implementing changes done in schools.

### Research question 5: Is there a relationship between attitude and usage on VLE Frog among secondary school teachers in Kulim?

The correlation results also showed that teachers’ attitude towards VLE Frog has a positive relationship with the level of usage of VLE Frog. The relationship is moderate but significant ( $r = 0.609, p < 0.01$ ). This suggests that the more positive the attitude of a teacher towards VLE Frog, the higher the chances of the teacher would use the system.

This result is in line with Hiong and Umbit (2015) which also studied on the relationship between attitude and the usage of VLE Frog.



Such condition is possible when the teachers are willingly open to accept innovations in teaching and learning (Nor Zaira et al, 2016). RaaijdanSchepers (2008) further explained that the positive relationship between attitude and a system such as VLE Frog can be established when teachers realised that the system has many advantages and easy to use.

#### Research question 6: Are there any influence from knowledge and attitude towards the use of VLE Frog among secondary school teachers in Kulim?

The regression results have shown that the relationship between teachers' knowledge and attitude and the usage of VLE Frog among teachers was considered high ( $R = .627$ ). It was revealed that the teachers' knowledge did not contribute significantly towards the usage of VLE Frog ( $t = -1.875$ ,  $p = .64$ ), while the teachers' attitude contributed significantly ( $Beta = .710$ ,  $t = 7.408$ ,  $p < .001$ ).

Based on this result, teachers' attitude has more influence than teachers' knowledge towards the use of VLE Frog. These teachers have shown great interest in using VLE Frog in the teaching and learning process. However, such attitude will not promote the level of usage of the technology as shown by Hiong and Umbit (2015) in Sarawak. Hiong and Umbit (2015) explained that adequate infrastructure and teachers' efficacy plays a more important role than just a positive attitude.

## VI. CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the study, it is concluded that the answers for the research questions are as follows: (1) The level of knowledge on the application of VLE Frog among secondary school teachers in Kulim is high, (2) The level of attitude towards VLE Frog among secondary school teachers in Kulim is high, (3) The level of usage on VLE Frog by secondary school teachers in Kulim is moderate, (4) There is no significant relationship between knowledge and usage on VLE Frog among secondary school teachers in Kulim, (5) There is a positive and significant relationship between attitude and usage on VLE Frog among secondary school teachers in Kulim and (6) There is a significant influence from attitude towards the use of VLE Frog among secondary school teachers in Kulim. These findings suggest that in order to increase the usage of VLE Frog among teachers, steps should be taken in promoting a more positive attitude towards the use of the system. Such steps include conduct training, provide adequate facilities to implement the technology and get teachers' feedbacks.

In terms for future research, this study provides several recommendations. Firstly, the research approach for this study was mainly quantitative. Data obtained were only from the teachers' perspective using the survey method. This means that it is possible that the response given were influenced by the respondents' environment, emotion and other unknown factors in that particular point in time. Thus, the findings could be greatly enhanced if qualitative methods are also used in data collection such as interviews and observation. Secondly, samples for this study were randomly selected. Data from focused groups such as by age, subject taught and workload can provide better insights.

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