USE OF VIRTUAL LEARNING ENVIRONMENT ON MALAY LANGUAGE VOCABULARY ACQUISITION AMONG PRIMARY SCHOOL REMEDIAL PUPILS

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ABSTRACT

Virtual Learning Environment has been introduced in the educational field as a tool to enhance student‟s learning and to help the students by including computers and the internet in the learning process. This study investigates the effect of Virtual Learning Environment towards the acquisition of Malay language vocabulary among remedial pupils. Three participants of Year Four went through the intervention where Frog Virtual Learning Environment was integrated into 40 lessons of Malay language vocabulary session. Their Malay language semantic skills and syntax skills were measured twice: during the baseline phase before the intervention and during maintenance phase after the intervention. Upon the intervention, the remedial class teacher was interviewed about the effects of Frog Virtual Learning Environment on primary remedial pupils. Participants‟ performance in post-test showed that Frog Virtual Learning Environment successfully enhanced Malay language vocabulary acquisition among remedial pupils. The remedial teacher also expressed her satisfaction and readiness of using Frog Virtual Environment in the remedial classroom. This study not only aims to improve Malay language vocabulary among remedial pupils, but also to suggest effective instructional approach to teachers for them to apply virtual learning environment in remedial classroom.

PENGGUNAAN PERSEKITARAN PEMBELAJARAN MAYA TERHADAP PEROLEHAN PERBENDAHARAAN KATA BAHASA MELAYU DALAM KALANGAN MURID PEMULIHAN SEKOLAH RENDAH

ABSTRAK

Persekitaran Pembelajaran Maya ataupun LEBIH dikenali sebagai *Virtual Learning Environment* (VLE) telah diperkenalkan dalam sektor pendidikan sebagai salah satu perantara moden yang membantu dalam peningkatan prestasi murid-murid dalam proses pembelajaran dengan menerapkan penggunaan komputer dan internet dalam proses pembelajaran. Kajian ini menyiasiat kesan VLE terhadap pemerolehan perbendeharaan kata Bahasa Melayu dalam kalangan murid pemulihan. Tiga orang murid Tahun Empat telah terlibat dalam intervensi yang mengintegrasikan VLE dalam sesi pembelajaran penbendaharaan kata Bahasa Melayu. Intervensi tersebut dijalankan sebanyak 40 sesi. Tahap penguasaan murid-murid dalam perbendaharaan kata Bahasa Melayu telah dinilai sebanyak dua kali, iaitu sebelum intervensi dan selepas intervensi. Selain itu, guru kelas pemulihan juga ditemu ramah selepas intervensi tentang kesan VLE terhadap murid-murid pemulihan. Prestasi murid-murid pemulihan dalam penilaian selepas interventi menunjukkan VLE berkesan untuk meningkatkan tahap penguasaan murid-murid dalam perbendaharaan kata Bahasa Melayu.. Kajian ini juga mencadangkan pedagogi yang berkesan bagi pendidik pemulihan untuk mengaplikasikan VLE dalam kelas pemulihan untuk menambahbaik proses pengajaran dan pembelajaran kelas pemulihan.

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CONTENTS

CHAPTER 1: INTRODUCTION

CHAPTER 2: LITERATURE REVIEW

CHAPTER 3: METHOOLOGY

CHAPTER 4: RESULTS

CHAPTER 5: DISCUSSION AND CONCLUSION

LIST OF TABLE

LIST OF FIGURES

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Literacy is one of the most important purposes of schooling (Moats, 2000). Literacy is the basis of learning in school education from primary school to university. With the ability to write and read, students will be able to attain higher and better education in this new era to fulfil the needs of current society. Therefore, literacy skill is inherent in the basic right to education of every pupil in the school. Pupils in school especially primary education are necessary to build up strong reading skills in order to reach the academic competencies compulsory for achievement in school and success beyond.

The report of the National Reading Panel, Teaching Children to Read, examined research in five areas of reading instruction and concluded the importance of phonemic awareness, phonics, comprehension, fluency, and vocabulary in language learning (Langenberg, 2010). According to Huang (2010), vocabulary development is a learning process by which individuals obtain words of a language. Children must recognize the meaning carried by every word In order to build their personal word bank. Besides, vocabulary knowledge is important for children who involve in second language learning. Therefore, to be a success in the learning of the second language, pupils‟ vocabulary knowledge is a fundamental and very important component in acquiring a second language despite mastering grammar structure and sentences of the second language (Rasdi, 2009). Lewis (1993) study also promotes that acquisition of vocabulary plays a central role in learning a second language.

Vocabulary instruction does not necessarily increase reading comprehension of the pupils, but limited vocabulary knowledge surely hinders reading success among the pupils (National Institute of Child Health and Human Development, 2000).

Studies have shown that vocabulary knowledge is sturdily correlated with reading comprehension. Vocabulary has long been assured as a prerequisite and strong determinant of success reading. Reading considered one of the most important skills to be learned in any language. It is used as a source of information and joy as well as a means of extending and consolidating certain language knowledge (Rashidi and Khosravi, 2010). Limited vocabularies prevent pupils from reading and comprehending texts. Pupils with limited vocabularies often read less, because they are not able to obtain any joy or accomplishment. This perpetuating cycle will affect pupils‟ learning as they continue through secondary school or even higher education. Undoubtedly vocabulary instruction considered as an important component in the education of pupils in primary school and it will affect one‟s reading and writing ability (Langenberg, 2010). The knowledge of vocabulary has a direct relation to pupils‟ reading comprehension (Biemiller, 2004). As a conclusion of all the past studies, pupils must acquire a large quantity of vocabulary in certain languages as a prerequisite to be success in reading.

According to Malaysia‟s primary school structure, it is compulsory for young citizens from seven to twelve years old to receive primary school education in Malaysia. It generally lasts for six years. Primary education in Malaysia is divided into two levels, which are: Stage One refers to Years 1, 2 and 3. Stage two refers to Year 4, 5 and 6. After six years of primary education, pupils must sit for the Primary School Achievement Test called UPSR (Ujian Pencapaian Sekolah Rendah). Based on the Malaysian Ministry of Education, the Standards-based Malay Language

Curriculum (Kurikulum Standard Sekolah Rendah) for Primary Schools is purposely designed to provide pupils with a strong foundation in the Malay language which is Malaysia National Language (Mansur and Samad, 2015).

However, the Ministry of Education stated that a significant pupil population is still ill-equipped with basic literacy skills of Malay language. Efforts have been taken continuously by the Ministry of Education to help this group of pupils who were not able to master basic literacy skills. In 2010, the Ministry of Education has introduced a program called LINUS (Literacy and Numeracy Screening) under National Key Result Area (NKRA) to identify the exceptional students and then ensure them to master literacy when they reach Year Three. According to Malaysia Educational Blueprint 2013-2025, boosting all pupils‟ proficiency in National Language (Malay language) and English has been set as the most immediate priority in primary education. After three years of schooling in primary school (Standard One to Standard Three), every child must be able to achieve 100% basic literacy in the Malay language.

In the Literacy and Numeracy Screening program (LINUS), teachers conduct screenings of Lower Primary classrooms pupils three times a year in March, June, and September to identify pupils who are not proficient in literacy and numeracy skills. There are instruments with 12 constructs that prepared by the Malaysian Examination Syndicate with two parts, written instruments, and oral tests. The screening can be conducted based on the suitability and decision made by the teacher; it can be carried out in class by the teachers at any time within the stipulated timeframe. Teachers should bear in mind that screening is not an examination and teachers are allowed to provide certain guidance to the pupils. For example,

rewording the test items and provides examples for the pupils. Pupils will be enrolled in remedial classes once they failed in the screening test. A specially designed curriculum will be carried out by the remedial teachers for the selected remedial pupils.

1.2 Rationale of the Study

Pupils who fail in the first and second construct among 12 constructs in the LINUS 2.0 Screening Test are classified as LINUS Tegar (hard-core). They are required to attend remedial classes. Nonetheless, is LINUS 2.0 program effective enough to help the pupils in remedial classroom to master reading and writing skills? What are the instructional strategies being used by teachers in remedial classes? What can teachers in ordinary primary schools do to help those pupils who struggle in the classroom?

According to Mason and Sweeny (2011), diversity of pupils not only includes different economic statuses, national and ethnic groups but pupils with different learning needs and challenges (Mason, Sweeny, 2011). Therefore, it is imperative for early identification of pupils with different learning needs, as is research-based small group instruction that supplements the whole class instruction. The goal is to ensure pupils with learning difficulties able to catch up with the learning with the typical pupils in class, which means their learning has to be going faster or undergo a special design approach. If these at-risk pupils are not being identified by teachers or parents at an early age and without specially designed instruction may result in the pupils being at risk as the years' pass. This is known as Matthew Effects (Mason, Sweeny, 2011; Stanovich, 1986). Many pupils with special needs, learning difficulties, health problems, and certain disabilities will have a direct impact on their

vocabulary development and mostly struggle in language learning. As a result, limited vocabulary knowledge and weak language proficiency often equal limited educational opportunities and limited career options in their future. Different from the traditional leaning style where teachers use chalk and talk mostly, Virtual Learning Environment (Frog VLE) allow pupils to learn and experience something by using high technology gadget. Researches show that technology can easily attract people‟s attentions which enable them to learn better. Many different types of technology can be used by teachers and pupils to enhance and support teaching and learning process (Goodyear & Retalis, 2010).

Literacy is the foundation of almost all processes of learning and is necessary for pupils to acquire languages, study literature and other subjects as well (Geske and Ozola, 2008). According to Pilkulski and Templeton (2004), vocabulary is one of the foundations of literacy. Therefore, pupils who ill-equipped with vocabulary development will face problems in their learning and become worse when they move to the upper primary and beyond. The contents of the textbook become lengthy with a complicated and higher level of vocabulary where pupils do not manage to understand the contents.

Pupils should control in constructing their own study in an active way. In the era of globalization, technology should be used by pupils in order to support and learn effectively in their own ways. However, the ways that teachers use technologies in schools should change to technology as a partner in the learning process, no longer technology as a teacher. When pupils learn by using technology, technology can always engage and support pupil‟s thinking and learning (Howland, Jonassen, Moore, Marra, 2003).

1.3 Statement of Problems

The main reason to conduct this study is to help remedial pupils in primary school who suffer in learning the Malay language as a compulsory subject in the school curriculum. Individual differences caused pupils from remedial classrooms unable to learn effectively in mainstream classrooms. Unlike typical pupils in the mainstream classroom, remedial pupils require a different kind of learning method that suits them in order to learn effectively. Frog VLE will be applied in this study to help pupils acquire more Malay language vocabulary in more interesting ways. Although few studies had been done by other researchers regarding Frog VLE, this study is the first study in Malaysia that using Frog VLE in enhancing remedial pupils‟ Malay vocabulary acquisition.

According to Malaysia Educational Blueprint 2013-2025, as the ethnic groups move through different primary schools, there are differences in outcomes by ethnicity. Based on SPM examination results, Malay students perform very strongly on Malay language proficiency in school and mostly able to achieve a minimum credit at SPM, in contrast to the performance of Chinese students and Indian students (Ministry of Education Malaysia). In 2016, 340,698 or 85.21% of the candidates qualified for the SPM certificate. In contrast, 58.42% or 510 students out of 873 students with special needs qualified for the SPM certificates. In that case, 14.79% of typical students and 41.58% of students with special needs failed to achieve SPM certificates due to either failed in Malay Language or History or failed in both subjects. This is because candidates must achieve at least E Grade (pass) in SPM for both Malay Language and History as a prerequisite for SPM certificate.

According to Malaysia Educational Blueprint, from 2013 to 2015, the Ministry of Education aims to rotate the educational system by focusing on core skills and benchmark the learning of language to the international level. The Standard Malay Language Curriculum was introduced and started at the primary standard, with intensive remedial support for pupils who are struggling in the Malay language. Ministry of Education also aims to equip parents to be skillful and able to assist their child‟s learning through a parent engagement toolkit. Offer easy access to their child‟s progress in school via Internet connection also provided for parents. Therefore, technology such as VLE is important to be implemented in schools to help students achieve better results in Malay language and other subjects using the Malay language as an intermediate language. The study of Clark (2013) shows that technology and creating a learning environment can help improve language development.

From 2016 to 2020, the Ministry of Education will revise Primary School Standard Curriculum (KSSR) and revamp national examinations and school-based assessments. The Ministry of education aimed at introducing and cultivate higher-order thinking within the pupils by increasing numbers of higher-order thinking questions in the summative tests. Besides, the government concerns pupils with special needs by increasing the investment to support the student with special needs. From 2020 to 2025, education will move towards excellence with increased operational flexibility. Every child will be encouraged to learn an additional language by 2025.

Based on the Government Transformation Programme, the Education National Key Results Area (NKRA) aims to get rid of the dropout problem caused by pupils‟ inability to deal with mainstream education in the government school.

Therefore, the Literacy and Numeracy Screening Test (LINUS) was introduced by the Ministry of Education in 2010 that aimed to ensure that Malaysian children are able to acquire basic literacy and numeracy after three years of schooling in primary education. LINUS 2.0 was then introduced in 2013 to replace the formal LINUS 1.0 after the Ministry of Education revised the practicability and outcomes of the LINUS 2.0. In the LINUS 2.0, the English language was added and few aspects had been improvised. All pupils required to sit for two screening tests a year even though the pupil passed in the first screening test. Pupils need to master 12 constructs to pass the screening test instead of 8 constructs in LINUS 1.0. The Education NKRA has set a 100% literacy and numeracy target for all Year Three pupils in Malaysia. Throughout the Literacy and Numeracy Screening Test (LINUS), teachers will be able to identify pupils who are still ill-equipped with literacy skills. However, they are not eligible for special education services due to their intelligence level are not low enough to be considered as mentally challenged. There are considering remedial pupils enrolled in the remedial classroom. This kind of children is not easy to be identified as compared to other children with special needs that have significant symptoms.

Teachers should always be aware of this group of pupils in the class. Unfortunately, these children are often overlooked at school. Teachers might label them as lazy, not paying attention in class and so on. In fact, they need different kinds of instructional strategies, extra time, and other special needs to master certain skills. Thus, it is important for educators to put more effort on them based on their special needs to ensure they are able to gain knowledge on an equal basis as other typical children. However, the concern is whether pupils from remedial classrooms are able to cope with mainstream education even though they successfully pass the

LINUS Screening Test after 3 years of schooling which had set by the Ministry of Education. VLE that provides learning materials in many forms such as text, images, animations, games, and others is needed to attract and help these children to learn better in different ways. Jingjit (2015) proved that an integrated mode of learning material is able to improve the pupil‟s vocabulary knowledge. Education Ministry decided to terminate with the Literacy and Numeracy Screening program (LINUS) starting 2019. There were no more packages or modules provide to schools. However, schools were given the authority to implement their own programs according to its own students‟ capabilities in reading, arithmetic and writing skills. Each School was given the opportunities to formulate own program according to the needs of the pupils and state Education Department and district Education office will provide support towards programmes designed by the respective school.

Results of upper primary pupils from the remedial classroom in midyear Malay language examination 2017 were collected. The result shows that the majority of the pupils achieved low marks in Malay language examination even though they had passed the LINUS screening before they moved to standard 4. Figure 1.1 shows the results of selected upper primary classrooms (Standard 4, Standard 5 and Standard 6) pupils in the school‟s formal examinations. Those selected pupils fulfill criteria where they all had been failing in LINUS Screening Test when they were studying in the lower primary classrooms (Standard 1, Standard 2 and Standard 3). The collected results were the mean of their Malay Essay Writing Paper and Malay Comprehension Paper. Most of them achieved less than 40 marks in each paper which consider as Grade E in Primary School Evaluation Test grading system. Thus, the result shows that although pupils in this school went through the LINUS and remedial program are still unable to cope with mainstream education and

examination. The inability to fully adapt the teaching and learning process in the mainstream classrooms caused them to achieve low grades in school examinations. Therefore, these pupils need extra attention and learning methods that suit their level of performance for the purpose of arousing their learning interesting in Malay Language and next, coping with the typical learning environment. The overview of the results of the midyear Malay language examination 2017 shows in Figure 1.1.

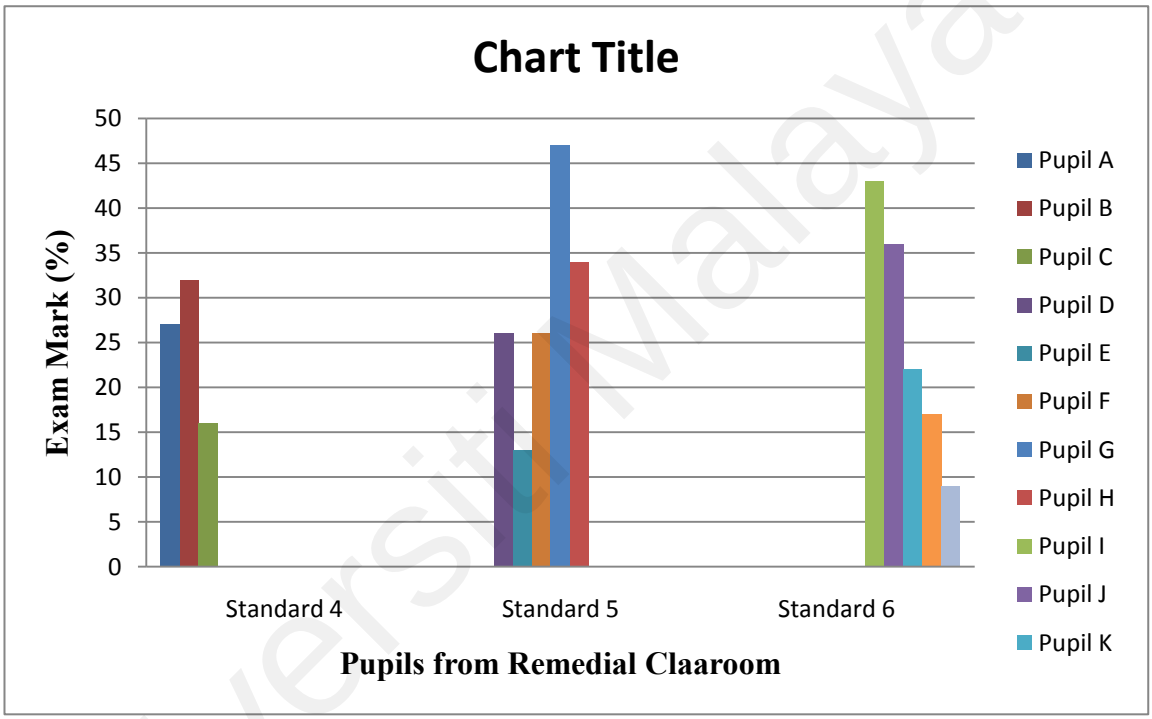

Figure 1.1 Overview of results of School A midyear Malay language examination

The chart above shows the results of upper primary pupils from the remedial classrooms in the midyear Malay language examination 2017. The data was collected from a government primary school located in Kuala Langat, Selangor. According to the data given by the remedial teacher in the school, all of the pupils were enrolled in the remedial classrooms for three years when they were studying at a lower standard due to failure in LINUS Screening Test. However, the data collected shows low achievement among the pupils in the examination although they went through three years of remedial program since standard one.

Vocabulary is the prerequisite and foundation of learning a certain language. Pupils will encounter difficulties to move further in the field of certain languages as well as in the field of education with poor vocabulary knowledge (Pikulski and Templeton, 2004). Hence, pupils who are not able to master the vocabularies that have been taught in class will definitely face problems in classroom teaching and learning activities. Moreover, it will directly affect the study of other subjects that use the language as an intermediary language. Besides, pupils without vocabulary knowledge unable to gain knowledge through reading extra reading materials, therefore they lack the ability to learn independently. VLE provides a platform with a variety of learning materials and learning methods that able to suit the difference of pupils in their learning journey.

If students are not able to identify the meaning of words in a text, their comprehension of that selection is expected to be compromised (Pikulski and Templeton, 2004). The traditional model of teaching vocabulary no longer suitable in acquiring vocabulary as it focuses too much on teachers‟ role and overlooks to pupils‟ role. Creativity and activeness of pupils in learning vocabulary always ignored by teachers that applying the traditional model of teaching. As a result, their limited vocabulary knowledge holds them back from speaking confidently and writing correctly (Lin, 2015). Pupils who are able to master vocabulary able to learn independently by reading different kinds of reading materials in order to gain more knowledge in the fields that they interested in. Besides, pupils with literacy skills are more confident in formal classroom activities if they are able to understand words and able to answer questions correctly. Frog VLE as a web-based learning system that replicates real-world learning by integrating virtual equivalents allows remedial

pupils to learn interestingly, creatively and more flexible compared with vocabulary learning in typical classrooms.

1.4 Objectives of the Study

1. To examine the effectiveness of Frog Virtual Learning Environment in improving vocabulary acquisition in Malay Language among pupils from primary remedial classroom.
2. To explore the suitability of Frog Virtual Learning Environment based activities on vocabulary acquisition for remedial pupils.
3. To explore the difficulties occurred in teaching vocabulary in Malay Language by using Frog VLE.

1.5 Research Questions

1. How effective is Frog Virtual Learning Environment in improving vocabulary development in Malay Language among pupils from primary remedial classroom?
2. How suitable are Frog Virtual Environment based activities in developing vocabulary of pupils from primary remedial classroom?
3. What are the difficulties occurred in teaching vocabulary in Malay Language by using Frog VLE?

1.6 Significant of the Study

This study provides the pupils with Frog Virtual Learning Environment based education to enhance their vocabulary acquisition. Thus, the outcomes of the current study will benefit the pupils who failed in school screening tests (LINUS) and improve pupils‟ results in school examinations. This study also benefits teachers teaching Malay language in the ordinary classrooms and the school administrators as well.

This study is important to the remedial pupils that studying in a mainstream classroom. The outcomes of the research are able to help remedial pupils to master vocabulary better. Besides, this study is important for teachers in mainstream schools. This study enables teachers to understand more about the difficulties faced by remedial pupils in an ordinary classroom. It also can be used as a reference or guide by the teachers to help remedial pupils in improving their Malay vocabulary development as well as inspiring teachers to provide appropriate stimulations to them by using Frog Virtual Learning Environment. This study is also significant for school administrators to prevent pupils to drop out of school due to pupils‟ performance. It can also be used to ensure pupils master literacy skills effectively in the lower primary classroom. Reading and writing lessons are essential and critical to pupils to succeed in academics and further (International Reading Association and the National Association for the Education of Young Children, 1998; Whitehurst and Lonigan, 1998).

Although this study will be conducted in Sekolah Jenis Kebangsaan Cina, the results of this study not just benefit pupils in Sekolah Jenis Kebangsaan Cina who suffer in learning the Malay language. The results of this study will provide a

theoretical model for other pupils studying in different streams of school (Sekolah Kebangsaan, Sekolah Jenis Kebangsaan Tamil) who suffer in languages or subjects that included in school curriculum. Frog VLE can be customized by the teacher to suit the needs of pupils. Every pupil studying in government school can get a Frog VLE account for free. Thus, this study can be a guide for pupils to utilize the Frog VLE wisely in improving their academics.

Moreover, current study can also serve as a theoretical model and reference for future studies under the same context but different subjects. Future researchers will benefit from this study as reference, and future researchers can refer the data and evidence that needed in conducting their study.

1.7 Limitation

There are a few limitations in this research. One of the noteworthy limitations is the generalizability of the research findings as the research design used is single-subject design. This research uses a small number of samples and not planned to produce results for a wide classification of students. Therefore, the research produces results that are not generalizable; it may not be able to be applied to other remedial students in other schools. However, the ideas or conclusions can always be tried out by others in their own practice, to see if this works for them.

However, this study would be much more likely to produce findings generalizable to larger sample sizes by using experimental design to make the research beneficial for more pupils enrolled in the remedial classrooms due to their performance in the Malay language. Besides, samples may experience the effects of

learning through the Frog Virtual Learning Environment after the intervention take place for a long period of time. Thus, long-term research allows the researcher to explore more on the usefulness of Frog VLE in improving vocabulary development among pupils from remedial classes.

1.8 Operational Definition

The operational definition refers to the application of operationalization used in defining terms that will apply in this study. It is a statement of this study that describes how a particular variable to be measured, or how to identify an object or condition in the study.

1.8.1 Virtual Learning Environment

A virtual learning environment is a web-based platform that can be used as part of an educational program (Simonson et al., 2015). Barajas and Owen (2000) explain Virtual learning Environment as activities driven by the learning aspect. It refers to the technology that can be used to support learning. Virtual Learning Environment (VLE) is a system that able to deliver learning materials to pupils through the web service. Many elements and tools are included in the system such as assessment, instrument, collaboration, student tracking, communication tools and so on. It is a computer-simulated environment where simulated physical presence in places in the real-world or the imagined world can be simulated (Scoda, 2014). Interactions among pupils and teachers can be occurring in a virtual learning

environment as it is designed information and social platform. A great amount of research has been done by researchers on the use of learning methods to improve pupil cognitive development. Results showed that learning tools such as learning materials in a variety of forms such as text, images, animations, games, and others are needed in order to improve pupils cognitively. Pupils‟ interest in the lesson plays an important role to develop pupils‟ cognitive as well. Therefore, the virtual learning environment (VLE) with many functions to support learning fulfils the criteria of learning methods that develop pupils‟ cognitive effectively. Virtual Learning Environment has been widely used in the education field to be a replacement for the physical environment (Shi et al, 2019). Notes, assignments, quizzes, questionnaires, learning materials can be prepared and upload in the virtual learning environment that allows pupils to review, answering quizzes, develop a project, do revision and prepare for a test. Web-based VLE enhances the privacy of the user, pupils who engage with each other via VLE can make the pupils feel less embarrassed and encourage them to share their thoughts and answering questions. VLE allows teacher s to upload learning materials, which turn allows for both the sharing of materials for learning and discussion among learners (Mogus, Djurdjevic, Suvak, 2012) and provide platforms to make online education more convenient and affordable for learners(Santana-Mancilla et al., 2019)

In this study, Virtual Learning Environment refers to The Frog Virtual Learning Environment (Frog VLE), which is a web-based learning system that replicates real-world learning by integrating virtual equivalents of conventional concepts of education. For example, teachers are able to create a lesson, make notes, assign homework, conduct tests, and show marks virtually. Pupils can submit homework given by teachers via Frog VLE and view their marks. Parents can view

information, news and important documents posted by the school. While school administrators can organize their school calendars and publish important notices via Frog VLE. Frog VLE also allows pupils and teachers to search for information and resources via internet service such as educational websites, videos, images, educational resources and add it to a self-created site. Frog VLE is user-friendly that allows pupils, teachers and parents can use the Frog VLE without technical expertise. The Frog VLE is also a gateway to a plethora of educational resources and cool apps from around the web, all accessible within a safe, filtered environment.

According to Tenopir (2008), widget defined as an interactive and particular-function application for displaying and updating information. Widgets can bring information to a web platform either on the desktop or mobile. Variants known as web widgets, with fragments of code, have become popular, for example, in delivering data to social networking sites. Brynko (2007) explains widget as a pint-sized term for a powerful tool that's now making a serious impact on consumer desktops and corporate bottom lines (Brynko, 2007). The widget also defined as mini-application that offers users easy access to content and information via the Internet. Web widgets are designed for Internet usage such as blogs, social networking profiles or personal web sites. Users can display content or services without moving to another site. (Antony, 2007)

In this study, widgets refer to the applet that contained and intended to be used within the Frog Virtual Learning Environment. Widget is an application, or a component of an interface, that enables pupils and teachers to perform certain functions in the Frog Virtual Learning Environment. In this study, the researcher will only focus on 4 widgets from a total of 30 widgets in the Frog Virtual Learning Environment.

The media widget allows users to place educational materials such as images, videos and audio files in sites. The files can be uploaded from desktop, already be on the VLE or searched for from the Frog Store. For videos the widget will play MP4, for audio it is MP3 and images should jpg, png or gif file formats.

The wall widget allows users to have discussions with other users. If users wish other users to contribute to the wall on their site, they must give other users contribute rights when they share their sites.

Notes widget is like a post-it note for users' dashboards. Users can type their reminders and notes into this widget and they will be displayed. The text can be formatted by colour, font size, and styling.

Quiz widget delivers fun and engaging quizzes to users through assignment or as interactive elements in sites. Quizzes can contain a variety of question and answer types and are created using the Quiz Builder. Once a quiz has been created it can be reused by other teachers in school. The types of questions available are:

i. **Free Format Text**: The Free Format Text question type allows users to answer question by typing their answer into a text input field.
ii. **Multiple Choices**: A Multiple Choice question allows teachers to pose a question and provide up to 5 answers, more than one answer may be correct.
iii. **True/False**: A True or False question type allows teachers to pose a question that has two possible answers.
iv. **Multiple Choice Images**: A Multiple Choice Image question allows teachers to pose a question and provide up to 5 images as answer. Only one answer can be correct.

1.8.2 Vocabulary Acquisition

Pikulski and Templeton (2004) define vocabulary as the sum of words that are used and understood by pupils. Acquisition defines as the learning or development of a skill, habit or quality. An individual‟s vocabulary knowledge means all the words he or she learns. He or she knows and understands the meaning of words, and the words can be used accurately (Alldrin, 2011). Vocabulary acquisition is a process by which people obtain words through the learning process. Infants will shift from babbling towards meaningful speech they grow up and approximately able to produce their first word around one year old. At the beginning of the word learning path, they build their vocabulary knowledge little by little and improve gradually. However, infants must find out the meanings carried by the word in order to build their own vocabulary knowledge (Langenberg, 2010).

In this study, vocabulary acquisition includes the acquisition of words by understanding its meaning (semantic) and the ability to use the vocabulary correctly to fill in the blank and to form simple phrases or sentences (syntax). Semantic refers to the meaning of words, pupils able to understand the concept words and content words in order to define the words correctly in simple ways (Kaderavek, 2011). Syntax refers to the ability of pupils to arrange the given words correctly into sentences that convey meaning and make simple sentences by using the words given. The sentences must contain at least one subject and one predicate.

1.8.3 Primary Remedial Pupils

Remedial pupils generally referred to someone who needs special attention due to lacking achievement in study especially weak in reading, writing, or mathematics concept. They usually enrolled in educational programs that provided lessons to improve their basic skills (Arendale, 2005). The remedial classroom or programs were intended to provide to the needs of children facing difficulties to keep pace with the lessons in a typical mainstream classroom. Remedial classrooms act as a safety valve and always support the learning of pupils who left behind the expected level of achievement like others. Remedial education includes certain diagnoses to identify the specific difficulties of remedial pupil followed by providing suitable remedial assessments and provide essential support to avoid reoccurring of them again in the future (Selvarajan, Vasanthagumar, 2012).

Remedial education, also defined as basic education or developmental education refers to the instruction provided to children, adolescents, and adults who lack fluency in basic skills such as mathematics, reading, and writing. Selected issues that explain the huge sum of students who drops out from schooling without well-built essential skills are often discussed. Besides, teachers need to improve and come out with more effective instruction in basic skills such as literacy and mathematic skills.

In this study, remedial pupils refer to pupils being enrolled in the extra class where instruction provided to them who lack fluency in Malay language literacy. Especially for pupils who unable to keep pace with the teaching and learning process in a mainstream classroom and also failed in the literacy screening tests but not categorized as mentally retarded.

1.9 Summary

In this chapter, issues about literacy skills and vocabulary development in primary school have been discussed. From the background of literacy showed the importance of vocabulary development to the pupils in their learning and also their lifetime. Many students dropped out of school or experience failure due to their weakness in literacy skills that cause by their illness in vocabulary development. Besides, this chapter also describes the importance and significance of the study that brings benefits to the field of study, students, and teachers as well. Thus, a literature review will be discussed in the next chapter to find out the trend of pupils from the remedial classrooms in learning, learning theories, the methods had been used to improve vocabulary development and also the effectiveness of the virtual learning environment in past studies.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter focuses on the overview of previous studies regarding the theme of this study. The review of literature includes the related theories, vocabulary development of pupils from the remedial classroom, Malay Language and virtual learning environment. Besides, the Frog Virtual Learning Environment and theoretical framework will be introduced in this chapter. The final section of the chapter presents the conceptual framework of the study.

2.2 Related Theories

Few theories related to this study have been chosen and the relation between theories and the study will be discussed. The selected theories include Jean Piaget‟s constructivist theory, Jerome Bruner‟s Discovery Theory and Noam Chomsky‟s Language Acquisition Theory.

2.2.1 Piaget's Constructivism Theory

Jean Piaget found a philosophy of learning named Constructivism on the basis that, we construct our own perceptive of the surroundings by reflecting on our existing experiences. People use rules and also mental models generated by them to make sense of their experiences gained in daily life. Therefore, learning is simply

the process of tuning our generated mental models to accommodate new experiences (Steele, 2005).

Piaget‟s constructivism provides a platform into what children are interested in, and what children able to achieve at different development stages. The theory explains how children‟s ways of thinking and doing develop eventually. When children come across with something new, they have to mediate it with their previous ideas and experience. They may change what they believe in previous or they may reject the new information they encountered as irrelevant. Whatever the case may be, children are active creators of their own knowledge.

Jean Piaget developed the Stage of Cognitive Development Theory that explains the nature and development of human intelligence from infancy all the way through adulthood (Mcleod, 2018). Basically, children create an understanding of the surrounding when they experience differences between their previous knowledge and what they discover in the environment, and then adjust their ideas consequently. The four stages of Cognitive Development Theory by Jean Piaget are sensorimotor from birth through ages of 18-24 months, preoperational as the second stage starts from toddlerhood(18-24months) to early childhood(age 7), concrete operational stage from age 7 through age 12 and lastly concrete operational from age 7 to age 12.

The concrete operational stage is the third stage in Piaget's theory of cognitive development. This period spans the time of middle childhood which is typically ages 7 to 11. According to Piaget (1954), concrete stage marks the beginning of logical and operational thought such as children able to understand rules. Thus, this stage laid a major decisive moment in the development of children. In this stage, children are freed from the pull of instant perception. This speeds up the thinking process beyond measure and gives it much greater mobility and freedom

due to the ability of children to range forward and back in space as well as time on the mental level. In this stage, children able to demonstrate the quality of reversibility and able to understand the relationships of things they encounter in actuality. However, children in this stage only apply logic to existing physical objects that they are able to see such as humans and objects (Piaget, 1951). Piaget (1953) raises that information received from others cannot understand and apply by children instantaneously. Children must construct knowledge from the information given by others on their own.

Iran-Nejad (1995) proposes that Piaget‟s theory is constructivist because it is not simply receiving or reproducing products. As opposed, it indicates the process of creating, constructing or making mental structures. Based on Piaget‟s theory, when children are going through the four different stages of development, schemas are constructed through the process of assimilation and accommodation with their existing knowledge received previously (Wadsworth, 2004).

According to Brandon & All (2010), constructivism based learning is a lively learning process in which children actively construct new knowledge or concepts based upon their current or prior knowledge. Karagiorgi & Symeou (2005) also stated that constructivism as a paradigm or worldview posits that learning is an active, constructive process whereby learners are information constructors. Based on their past knowledge, learners construct or build their own subjective representations of objective reality.

Constructivism has been discussed and being inculcated in many schools as an effective method for teaching and learning for many years. Jia (2010) declared that teaching and learning process in school should include students‟ prior knowledge and previous experience as the growth point of new knowledge, and

guiding them to construct new knowledge from the past. Lin (2015) found that teachers‟ role attached too much in the traditional model of teaching vocabulary. Thence, pupils‟ creativity and activeness are always disregarded by teachers. Pupils should have power overbuilding and constructing their own knowledge in an active way. Based on the constructivism theory, knowledge cannot be merely transferred integrally from one to another (Karagiorgi & Symeou, 2005). The process of transferring knowledge includes constructing meaning in the receiver‟s mind from what they know in the past to a new meaning. According to Almala (2006), existing beliefs, attitudes, and knowledge of pupils will influence their daily learning. The learning process in the constructivist environment is focused on allowing pupils to use knowledge in many different situations to make the learning itself as real life as possible and able to improve pupils' ability to solve problems. (Jia, 2010)

2.2.1.1 Constructivist Classroom

In the constructivist based classroom, pupils play an important role instead of teachers. Which mean the classroom is pupils centered, unlike traditional classroom that focuses mainly on teachers. A teacher is playing the role to support and encourage pupils to continuously assess to classroom activities. Pupils have the authority to explore and gain new knowledge by themselves. Pupils tend to construct more knowledge through a variety of learning methods such as group work, project-based learning, experiment and problem-solving. In a constructivist classroom, pupils are able to investigate a topic by asking the question, discuss among themselves in a group, find answers and solutions for tasks, and search for resources. However, teachers in the constructivist classroom should realize pupils‟ prior knowledge and the existing ideas gained from previous experience to guide them in

learning activities to address them then build on them. Pupils learn techniques to learn independently in a constructivist classroom. Nonetheless, a well-planned classroom and learning activities are necessary for pupils to learn independently.

Piaget believes that a constructivist classroom able to increase pupils‟ willingness to learn in an active way, always come out with new ideas, and the ability to construct their own knowledge. Advanced teaching materials such as simulation software, videodisks, virtual learning environment able to improve pupils‟ learning as well as increase their learning motivation. While telecommunication tools such as Internet connection, media social and electronic mail offer the platform for communication within the classroom, the schools, and also the community directing to the social construction of knowledge. The constructivist classroom provides an opening to the pupils to explore further ideas, concepts, cultures, and knowledge globally without limit and barrier. Pupils can work on projects that require collaboration with peers.

2.2.1.2 Assimilation

In Piaget‟s theory, assimilation refers to the process of an individual reacting to the surrounding in adaptation with the individual‟s cognitive structure. It is a kind of matching between individual‟s cognitive structures and the physical environment around us. Our mind will modify and transform the receiving information into something new so that it can be fit in with our previous knowledge (Piaget, 1972). The cognitive structure that exists at any given moment sets bounds on what can be assimilated by the individual.

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As the cognitive structure changes, it becomes feasible and allows children to assimilate different features of the surrounding environment. According to Rahmat et al. (2019), pupils go through the assimilation process by using their existing schema to deal with a new learning situation. The process of assimilation enables pupils to accept new leaning they encountered by relating the new to their old existing knowledge. During the learning process, learners may sometimes be prompted to understand a new concept. This understanding can be further fostered when the learner can relate to his or her existing schema.

2.2.1.3 Accommodation

Obviously, if assimilation were only the cognitive process, intellectual growth within the learners would be impossible since an individual would simply go on assimilating its experiences into its existing cognitive structure. Thus, accommodation as an equally important process to assimilation provides an instrument for intellectual growth. Learners‟ cognitive structure is modified in the process of accommodation. Piaget (1972) defines accommodation as a process by

which we adjust previous thought to take into account new information equilibrium between subjects.

Accommodation takes place when the existing schema does not function and needs to be changed to enable the learner to deal with new learning (Rahmat et al.,2019). To Piaget, the learning process will only occur with the reciprocal effects of assimilation and accommodation, constantly forced to attain an active and objective state (Lin, 2015).

2.2.1.4 Assimilation and Accommodation in This Study

Every experience and learning of an individual engages both the assimilation process and the accommodation process. Experiences for which the individual has corresponding schemata are readily assimilated, but experiences for which the individual has no pre-existing schemata require the accommodation process. Thus, recognition and knowing are two equally important processes involved in pupils‟ all experiences, which corresponds to the process of assimilation and accommodation, which results in the modification of the cognitive structure. The modification can be roughly associated with learning. The individual responds to the world according to his/her existing schemata which is the assimilation process, but each incoming experience the individual newly encountered contains many features nothing like what he/she had practiced in the past. These unique aspects of experience cause changes in our cognitive structures which called the accommodation process, it then provides a major vehicle for intellectual development. Assimilation and accommodation are referred to as functional invariants because they occur at all levels of intellectual development.

In this study, participants from standard 4 are at the concrete operational stage of Piaget‟s stage of development. They have the ability to understand the relationships in the environment that they see around them and they can only apply logic to physical objects such as existing objects and people. Therefore, Frog VLE incorporates audio, animation, video, and text in a multimedia computer environment that offers a rich and diverse learning environment that supports pupils on their personal vocabulary learning journey. It is a pupil‟s centered learning method and teacher playing a role as a facilitator. Assimilation happens when pupils try to connect the Malay vocabulary with their prior knowledge either they experience or their mother tongue language. Accommodation happens when pupils modify what they know to take into account new information equilibrium between the new Malay vocabulary and their experience or mother tongue language.

2.2.2 Lev Vygotsky' Social Constructivism Learning Theory

Vygotsky (1978) declares that cognitive growth occurs first on a social level, and then it can occur within the individual. Learners will be able to relate themselves to different situations if they are able to make sense of others and construct knowledge on a social level. Pupils can build and create meaning with others and also with the surrounding environment. Vygotsky‟s Social constructivism is a theory of knowledge in sociology and communication theory that study the knowledge and understandings of the surrounding that are developed cooperatively by human beings. Vygotsky believes that an individual‟s perceptive, knowledge and meaning are developed in interaction with other human beings. Social constructivism theory emphasizes that learning does not take place only within an individual nor passively developed by external forces to the individual (McMahon,

1997). In fact, learning is a social process which meaningful learning only occurs when learners are involved actively in a kind of social activities that contains collaboration and interaction with each other,

Lev Vygotsky‟s main significance to constructivism comes from his theories about language, thought, and their intercession by society. Vygotsky holds an antirealist situation and stresses that the process of knowing is influenced by other people and is intercede by culture and community. Vygotsky introduces language as the most important psychological tool as he proposes that people master their behavior through psychological tools. The existence of the Social environment and the social interaction process allows the knowledge to be co-constructed by learners. Language usually used by people as a tool to create meaning. The use of language between individuals in an environment as an inter-psychological tool is central to social constructivist thought on the learning process. Vygotsky (1978) believes that an intra-psychology tool can be formed with the successful learning of an individual. The knowledge can be stored in our memory and can be used in the future across different situations (Vygotsky, 1978).

2.2.2.1 The Zone of Proximal Development (ZPD)

Individuals should regularly be challenged with tasks beyond their present level of mastery that refer to knowledge and skills. In this way, students‟ cognitive ability can be refined (Lin, 2015). This arouses their learning motivation and builds on previous successes to enhance learner confidence in mastery of new skills and knowledge. According to Vygotsky (1978), the zone of proximal development, which can be described as the distance between the actual

developmental level of the individual as resolute by independent problem solving and the level of potential development as determined through problem-solving under guidance by experience person, or in partnership skillful peers (Vygotsky, 1980).

Vygotsky's theories also arouse interest in collaborative learning. He proposes that group members for collaborative learning should be formed by pupils with different levels of ability. Therefore, advanced pupils can help those members with a low level of ability to operate within their zone proximal development. Lev Vygotsky suggested teachers to widely use cooperative learning activities that mainly focus on the interaction among pupils that can effectively develop pupils‟ skills and approaches. Using cooperative learning activities allow less capable pupils to develop with help from more skillful peers. When pupils are in the zone of proximal development, interaction and certain necessary help that provided will assist the pupils to learn effectively and develop their skills to achieve the particular task. From Vygotsky's point of view, teachers‟ responsibility to the pupils is giving them an appropriate guide in the planned learning activities as they share understanding all the way through social interaction. Reciprocal teaching is the application of Vygotsky's social interaction theory. In reciprocal teaching, the more skillful pupils will become the teacher in a group to support and assist their less competent peers to achieve the goal of tasks. This approach has been widely used in schools to develop pupils‟ potential. There are four key skills mainly focused on collaboration learning, including questioning skills, summarizing skill, clarifying skill, and predicting skill. However, the role of the teacher in teaching and learning process should gradually reduce over time.

In this study, participants will interact with their peers by using the Wall Widget in Frog VLE. Pupils are able to discuss certain topics in the discussion wall

created by the teacher on the site. Pupils can give comments on the widget called wall that others can respond to and replies will be appearing in the notification panel. Pupils can share knowledge or learn from their peers in a social interaction anywhere and anytime. A teacher who created the discussion wall can monitor the discussion among pupils and give comments as well.

2.2.2.2 Scaffolding

The term scaffolding as an analogy in the learning context was firstly used by Wood, Bruner, and Ross (1976). The term has been used to explain the nature of tutoring in the language learning of children. Their study showed that parents who were successful tutors always focused their children‟s concentration on the assignment at hand and kept them motivated and working on the assignment. Scaffolding instruction refers to specially designed teaching pedagogy applied to support students‟ learning when they are first introduced to a new subject. Pupils need impermanent supporting structures provided by their teacher in order to construct new knowledge, a new perception, and new skills. As the pupil master these abilities, the teacher needs to stop giving support to the pupil. Further support only presented for an extended or new subject, understandings, and concepts (Burns & Silva Joyce, 2005). Lewis (2017) proposed that Scaffolding provides support and foundation to pupils from which to understand the new information that will be introduced during the coming lesson. Scaffolding not just suitable for pupils with learning difficulties or second language learners, but also should be used in the context of learning as basic to good and effective teaching and learning strategies for all students including typical pupils in school. However, the scaffolding provided in the beginning should be gradually removed in order for learning to progress within

the pupils. So that pupils will eventually be able to demonstrate understanding independently.

2.2.3 Chomsky's Language Acquisition Theory

Language acquisition theory founded by linguist Noam Chomsky is the process by which individual acquires the ability to recognize and understand language, in addition, to communicate using the words and sentences of the language. Language acquisition is one of the human personalities (Friederici, 2011) and it distinguishes humans from animals (Nelson, 2013). According to Noam Chomsky, children are born with a natural capability to learn any existing language. They usually imitate the adults such as their parents to find out the pronunciation and meaning of the words of their mother tongue language (Carroll, 1986). Naturally, children obtain their first word from the environment that they familiar with. For example, the word "book" is meaningless to children until they are placing meaning upon the "book" after they associate the object of the book. Recognition is important for children to gradually expand the size of vocabulary and their mental acuity to use the words in daily life (Nelson, 2013).

Phonology, morphology, syntax, semantics, and vocabulary are the important components that have to be acquired by children that enable them to use a language appropriately. Individual language ability is represented in the mind. Although our language ability is limited, we are able to understand and apply in conversation with unlimited sentences. This is based on our syntactic principle called recursion. A study proved that every human being has three recursion instruments that allow sentences to go indefinitely (Lightfoot, 2010).

The routines of a language can be built by interacting with experienced users of that culture. Children can acquire language acuity and comprehension via language acquisition. This enables the children to replicate the language knowledge in conversations with others. Genishi (1988) stated that individuals learn word fast, usually hears more than 100,000 words a day, and learning around 45,000 words after he/she graduates secondary school (Radford, 2004). However, we are not limited to a finite vocabulary. Many new words and phrases are being created continuously mainly in the fields of science and technology.

2.2.3.1 Language Acquisition Device (LAD)

Chomsky (1986) believes that the child is born with the ability to learning a language. A Language Acquisition Device that naturally exists in our mind provides a set of native skills that enables the child to understand the phoneme patterns, word meanings and syntax in his/her language learning lesson. Thus, the function of LAD is assisting the child's own efforts to speak verbally. Chomsky believes that genetics plays a major role in language development (Fox, 1991).

Language Acquisition Device work as a system that encodes the major principles of a language and its grammatical structures into the children‟s brain. It provides children the capability to acquire new words and then apply the syntactic structure from the Language Acquisition Device to form phrases or sentences correctly and meaningful. Chomsky stressed imitation alone would not possibly help the children to master a language. This is due to the language spoken by others around them is highly irregular caused by ungrammatical speech or broken up speech by adults.

According to (Wen, 2013), Chomsky"s theory can be practiced in every language as long as the language contains grammatical knowledge such as nouns, verbs, proverbs, conjunction and so on. In fact, language is not easy to learn because every language is tremendously complicated. Every language is greatly complex, often with delicate dissimilarities which even overlooked by a native speaker. However, all of their intellectual ability becomes fluent in their native language within five or six years.

2.2.3.2 Semantic

Semantic refers to the range of word knowledge know by a person, understands the meaning of the word and can able to apply in sentences, oral and written. Semantic considered the important key of vocabulary expansion of a person. Pupils with normally developing language are usually build up layers of meaning for the words they obtain form conversation activities with others such as teachers, parents, family, and friends (DeKemel, 2003). Textbooks provided by the school are the resources for pupils to learn most new words. Besides, storybooks and other reading materials that available for pupils help them to gain more words. Eventually, pupils will be able to understand the links and differences between semantic concepts consist of antonyms, synonyms, categories and homonyms (Paul. 2007).

Pupils enrolled in remedial classrooms commonly have a vocabulary that is poor in comparison to their peers of the same age. They always present with poor word and lacking in understanding the meaning of the words. In addition, remedial pupils with poor vocabulary knowledge always face difficulties expressing themselves. They have a lot of trouble memorizing new words and making links to

words in their dictionary. If the pupils with language difficulty are unable to expand their understanding upon the meaning of words, then the new word is hardly ever committed to memory. Therefore, semantic is important in placing a meaning-based structure in order to improve reading comprehension besides acquiring new words. Children with learning disabilities can commit new words to their memory effectively with the skill set that created by a meaning-based structure.

2.2.3.3 Syntax

Syntax refers to the arrangement of words in a sentence to express certain meanings. The term syntax is also widely used in the study of syntactic properties of a language. It is the main element of grammatical knowledge the structure of a language where individuals able to form grammatically accurate sentences by using the words (Chomsky, 2014). This is how a pupil puts the components of a sentence together. In order for a student to comprehend academic language, they need to be able to master words that have connections to other words such as: among, between, with, and combine. This helps them understand the concepts of multiple meaning words like character, setting, plot, and table, which are often used, is classroom instruction (Hargis, 2008). Syntax usually inspects sentences that have a clear internal separation into subject and predicate. A simple sentence, compound sentence, and complex sentence are three types of subject/ predicate structured sentences.

2.3 Theoretical Framework of the Study

Piaget‟s Constructivism Theory describes the process of leaning by schemes that refer to the construction of information obtained from the environment, assimilation refers to the embedding of the latest information into schemes, and accommodation refers to adjusting existing schemes and constructing new schemes. The intention for learning is necessary for the pupils to acclimatize to their surroundings, thus to organize equilibrium between schemes and the real-life world. Constant connections among schemes, assimilation, accommodation, and equilibrium construct new understanding and concept (Olson, 2015).

Based on Vygotsky‟s social constructivism theory, interaction among each other either with their peers or teachers can effectively develop one‟s abilities and strategies. Vygotsky strongly suggests that cooperative learning activities should be applied by teachers in a classroom where skilful pupils able to help their ill-equipped peers to develop skills and knowledge within the zone of proximal development. He believed that providing support and assistance will help the pupil to achieve the task when a pupil is in the Zone of Proximal Development for a particular assignment (Vygotsky, 1978). Knowledgeable pupils can give guidance and encouragement to assist the pupil to master skills that are too difficult for a particular pupil. Many studies have been done that link social constructivist theory with the use of new media technologies in terms of pedagogical best practices. Some researchers study the relationship in the context of web-based and computer learning environments (Felix, 2005; Hung & Der Thanq, 2001; Pear & Crone-Todd, 2002; Woo & Reeves, 2007).

In this study, the teacher played the role of facilitator to scaffold participants in the intervention stage. The teacher-guided pupils and gave suggestions when pupils were learning through the Frog VLE. Five major elements of constructivist were introduced by Driscoll (2000). They are social intercession, multiple perspectives and multiple approaches of learning, independent in learning, self-awareness, and knowledge construction as well as the relevant environment. These theories are helpful for e-learning because they provide theoretical support for the activities conducted in a quality e-learning study (Almala, 2006).

Chomsky (1965) believed that children embrace the basic rules of language since they were born. With the Language Acquisition Device that holds by children, children can be said born with a natural understanding of language‟s rules. This means children just have develop the vocabulary knowledge of the language. Thus, useful learning tools or effective teaching and learning methods are needed to arouse the interest of pupils in learning Malay language

Frog VLE that widely used in current government school will be used in this study to overcome the difficulties of pupils from remedial classroom to continuously form interactions among existing schemes, assimilate the new ideas to previous experience, accommodate into new concept, and the equilibrium creating new learning on vocabularies. Frog VLE is meant to enhance vocabulary acquisition in pupils from remedial classroom through educational technology and web-based learning. The selected widgets (media widget, wall widget, quiz widget and notes widget) assist pupils to retrieve their previous knowledge to generate new information (Malay language vocabulary). The process brings to the formation of individual schemata which is important in constructing meaning of vocabularies. Furthermore, the certain structures stored in Long-term memory lead to the

identification and recognition of Malay language vocabulary. The theoretical framework of the study is illustrated in Figure 2.1

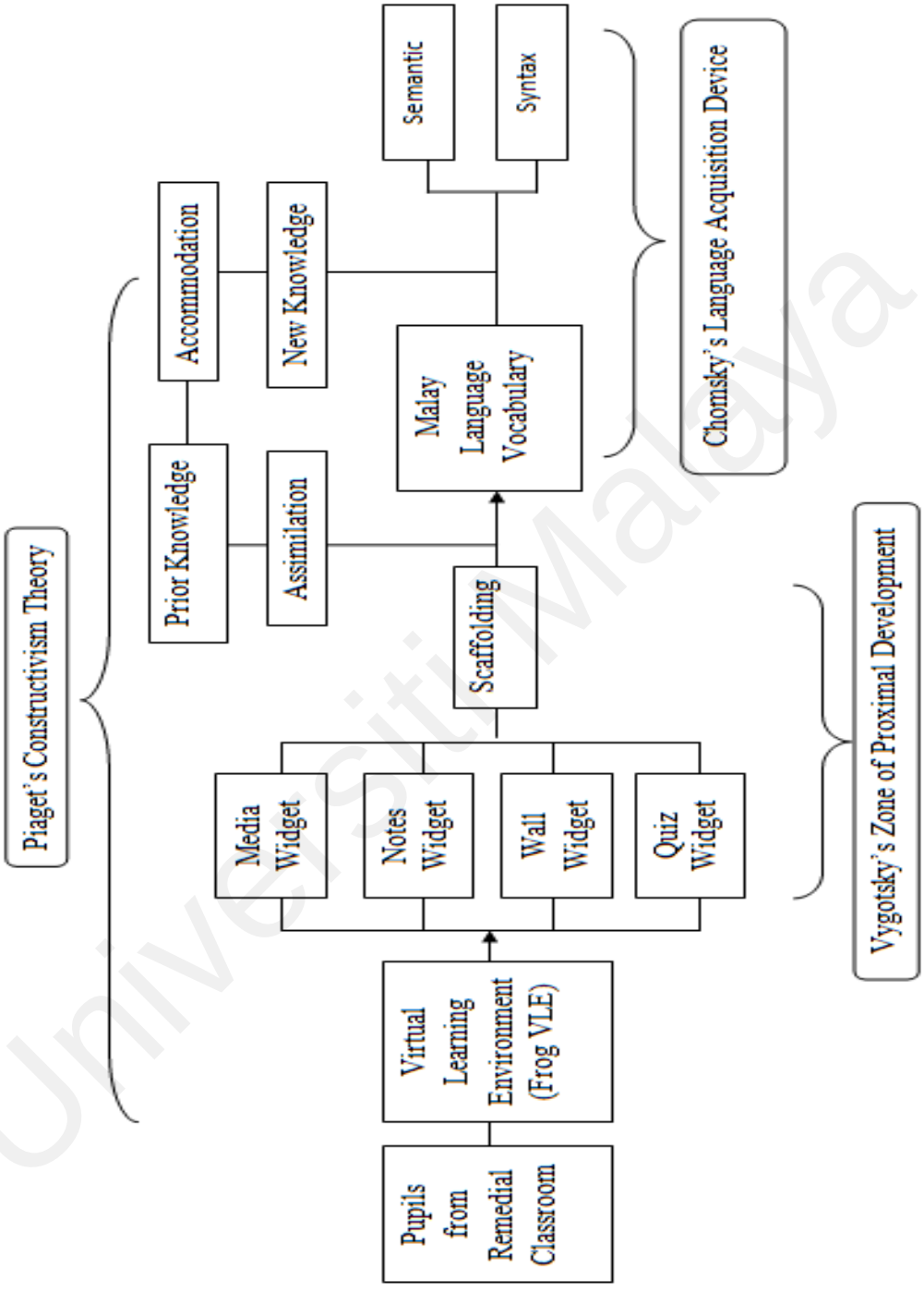


Figure 2.1 Theoretical framework of the study

2.4 Malay Language Learning

On the 31st of August 1957, the Federation of Malaya achieved its independence. The men who were responsible for drafting the Constitution of this country, and those in the Federal Council who approved it, strongly believed that the national and official language of this country should be Malay. In 10 years' time from August 1957, the National Language is supposed to perform its full-fledged role, replacing English as the Official Language of the government.

The purpose and function of a language are to establish a system of verbal and written communication between members of a community. It has also the function of recording the experience and such the original purpose of a language is to harmonize and synthesize the forms of expression of a collection of human beings living within a definite area and standing in perpetual relationship with each other.

According to the history of the Malayo-Polynesian region, which includes Malaya, Indonesia, and the Philippines, it was found that people inhabiting in Malaya had been remarkably assimilative and syncretic in their cultural life. The Hindu, Buddhist, Islamic and Western Civilizations had respectively contributed to the cultural accumulation of this region. The Malay culture as we know in the past, the Malay language is part and parcel of a long chain of historical-cultural traits pertaining to the wider basic cultural units that once characterized the Malayo-Polynesian people. Thus flexibility trait and syncretic quality are two distinctive elements in the Malay Language born out of its own history (Ali, 1959).

2.4.1 Malay Language Learning in Malaysia

According to the Malaysia Educational Blue Print (2013-2025), The Ministry of Education intends to develop pupils to be proficient in Malay language (Bahasa Malaysia). The new standard curriculum of Malay language has been implemented in a government school (Sekolah Jenis Kebangsaan) for pupils from different races whose mother tongue is not Malay language. Afterward, Literacy and Numeracy Screening Test 2.0 has been introduced by the Ministry of Education with the basis of testing and improve the teaching skills of teachers who teach Malay language subjects. The implementation of LINUS 2.0 was focus on government primary and secondary schools. In addition, specially designed remedial intervention and programs were introduced for pupils who fail to achieve the basic required skill in Malay language literacy.

The Ministry of Education has few objectives for the learning of Malay language in school. Firstly promoting a unique shared identity between Malaysians attached in the ability to be skillful in Malaysia national language so that every Malaysian able to use the Malay language in daily life. Malaysia is a unique country with a multicultural legacy. The Malay language as Malaysia national language is commonly used by all Malaysians in communication purposes either speaking or writing. Malays, Chinese, Indian, and other ethnic minorities able to speak, read and write in the Malay language. At the same time, Malaysian with different ethnic groups retains use of their mother tongue. Proficiency in the Malay language will support the foundation of Malaysia‟s national language policy and the objective will be to certify that pupils from different ethnic groups are generally able to use the Malay language effectively in daily life. The aspiration of the education system is to

create students that are at least operationally proficient in both Malay language and English.

The Ministry of Education introduced a new KSSR curriculum in 2011 to replace the previous KBSR curriculum. The new curriculum was first implemented in Year 1 and continued each year for each grade. Eventually, the full rollout of the curriculum was completed by 2016. The main goal of introducing the new curriculum was to overcome the Malay language proficiency that showed low level among the pupils whose mother tongue is not Malay language. Therefore, the new KSSR Malay language curriculum was specially designed for the pupils who do not experience the greater Malay language interest available in government school. The new KSSR curriculum demands fewer learning requirements for pupils in a lower standard of primary education and joining together for the skill acquisition standards as in National type schools by Year 6, with a proper assessment that suit the pupils. Teachers teaching Malay language subjects will be trained gradually to ensure they are understood and capable to deliver the new curriculum and teach the language effectively to pupils who show a low level of proficiency, especially pupils whose mother tongue is another language. Measurement and data of the implementation in primary school will be collected by the Ministry of Education to develop the curriculum and teaching of Remove classes (Peralihan) in secondary schools. However, National-type schools will remain the Chinese language or Tamil language as the medium of instruction for all other subjects including mathematics, science, history, morals, art and so on.

In addition to LINUS 2.0 in Years 1 to 3, the Ministry of Education had introduced optional Malay language remedial classes in Years 4 to 6. Remedial classes that purposely designed for those pupils who have not yet achieve the

required proficiency levels of literacy in school. Thus, parents of this group of pupils will strongly encourage allowing their children to attend the remedial class. The school will have the flexibility to provide remedial classes outside of school hours that offer up to five hours of remedial lessons every week for the group of pupils. The experienced Malay language teachers in schools should be arranged to teach remedial pupils. The Ministry ensures every National-type school conduct screening test and forms remedial classes to all remedial pupils who left over. The Ministry tends to test the expertise of all Malay language teachers in schools, including option and non-option teachers who teach Malay language. The result of the test will group teachers in two groups either expert or needs the training to reach expertise. If teachers were identified to be too weak to teach Malay language, the teachers will be redistributed in teaching other subjects according to their profession. However, this group of teachers who are weak in Malay Language proficiency is likely to be small. A program called Intervensi Tambah Opsyen (PITO) was introduced for the non-option teachers who categorized in an expert group or needs the training to reach the expertise group. The purpose of the program is to add on the Malay language option to the teachers and teachers who participated in the PITO program will continue to be posted to school based on the needs. National-type schools can apply for additional teachers if facing a deficiency of proficient Malay language teachers. In addition, Malay language teachers who are proficient in vernacular languages will be provided for Year 1 and Year 2 classes in National-type schools. The Ministry also remap Malay language grades in the SPM to Common English Framework of Reference for Languages (CEFR) standard in order to allow the Ministry of Education to better assess its attempts to lift up the proficiency of Malay language among the pupils. Thus, the Ministry of Education plans to redesign and realign the

Malay language curriculum and assessment based on the four components of language proficiency that emphasize by the CEFR (Malaysia Educational Blue Print, 2013-2025)

2.4.2 Develop Bahasa Malaysia into a Language of Knowledge

In line with the To Uphold Malay Language and Strengthen the English Language policy or "*Memartabatkan Bahasa Malaysia Memperkukuhkan Bahasa Inggeris*" (MBMMBI), Malay language remained as the medium of lessons in national schools (*sekolah kebangsaan*), including for the subjects such as Science, Mathematics, History, Visual Art and so on. For National-type schools (*Sekolah Jenis Kebangsaan*), the medium of instruction in most of the subjects remains the mother tongue of pupils which are Chinese language and Tamil language. Attempts to develop the Malay language as Malaysia National Language into a language of knowledge will be strengthened. This includes encouraging academics to develop new bodies of work in the Malay language, strengthening Malaysia Translation and Book Association to translate studies from all over the world into the Malay language. Dewan Bahasa dan Pustaka and local universities should provide various training courses or workshops in the context of Malay language. The Ministry of Education also aimed to send teachers overseas to train Malaysians. The Government will also send Malay language teachers overseas as trainers in the Malay language to train Malaysians overseas to further spread and reinforce the language.

2.5 Vocabulary Acquisition

Azabdaftari & Mozaheb(2012) stated that vocabulary acquisition is one of the most important aspects of learning of language. There are many factors that influence the capability to acquire the ability to incorporate the pronunciation of new words. As the first prerequisite, the individual must be able to hear what he or she is attempting to say. Another is the capability to engage in speech repetition (Masur, 1995). Children with reduced abilities to repeat on words show a slower rate of vocabulary expansion than children for whom this is easy (Gathercole, 2006).

It has been suggested that the elementary units of speech have been selected to enhance the easiness with which sound and visual input can be mapped into motor vocalization (Skoyles, 1988). Studies found a correlation between the ability of children‟s vocabulary by the age of 24 months with their future development and skills. If Children lack language richness by the age of 24, it will cause long-term effects on their child‟s cognitive development. Parents are playing an important role to engage their children in language. If children know less than fifty words by the age of 24 months they are classified as a late talker and future language development.

Clark & Ishida, 2005 propose that vocabulary learning is an essential part of learning the language. Thus, effective vocabulary teaching and learning methods in second language contexts need more research studies. Lately, vocabulary teaching attracted the interest of many practitioners of English for the second language around the world (Lee & Muncie, 2006).

Moreover, the more words a child acquires the better communication skill the child will have. There are many kinds of methods and strategies applied by the teacher in teaching and learning vocabulary. The vocabulary learning approaches are

usually used to encourage the learners and foster their ability especially those learners who learn the language as a second language or foreign language. These practices are applied to encourage the learners‟ capability to express their point of view using the second language they learn in different contexts and settings. The learners will fell disappointed in learning the second language and lose their confidence in using the language that they are not familiar with if they do not have any effective learning approaches to acquire new vocabularies (Nation, 2001). As a result, the teacher should familiarize the second language learners with effective vocabulary learning methods and strategies (Baleghizadeh & Ashoori, 2011).

2.5.1 Second Language Vocabulary

According to Chomsky‟s Language Acquisition Device, the number of languages that pupils have acquired does not relate to the problem of interference caused by linguistic transfer in second language learning. Language Acquisition Device allows individual to learn languages other than mother tongue, which is

. The ability to learn a second language depends on what Chomsky calls the language acquisition device, which is an ability or a new understanding formed by a combination of linguistic universals including phonologic, syntactic, and semantic, or the interrelations between these components. Pupils up to 12 years old are able to acquire several languages easily and quickly with this sensitivity to linguistic universals. As a contrast, adults lose this capability after they have internalized the grammar of their own language. The difficulty for an adult to learn the second language is higher than a child. In order to acquire a second or third language, an adult must become aware of linguistic universals. Therefore language learning will

become easier for adult as the adult become more conscious of linguistic universals. Linguistic sensitivity allows pupils to learn other languages more effectively (Gurevich, 1995).

The acquisition of second or foreign languages is studied mostly by applied linguists. Some experts suggest the earliest year of childhood as a critical period, pupils can learn best at that period. After that, our brain loses much of its ability for assimilating new things. Thus, children learning a second language are definitely easier than adults. However, pupils need to pass through some of the same stages such as overgeneralization, as do children learning their mother tongue language. In the learning of the second language, people rarely become as fluent in a second language as in their mother tongue.

2.6 Remedial Learning

Teachers at both the primary and secondary school always come across with pupils in their classes who fail to cope with the learning in the classrooms. This group of pupils may have difficulty with skills such as spelling, mathematics, handwriting, language usage or even non-reader. They are not only facing difficulties in classroom activities, homework or examination but also very much at the disadvantage in successfully meeting many out of school situations (Blair, 1956). There are many terms has been used by teachers related to remedial education. For pupils who are facing different kind difficulties in a typical classroom may be called as called “remedial”. “slow learner”, “the less able”, “low achievers”, or following the Warnock Report (DES,1978). Many of these terms imply a particular cause of

learning difficulties that the pupil is slow to learn or have less ability than other typical peers (Bines, 1986).

The number of pupils facing learning difficulties increases year by year and has become so great. The pupils need a special diagnosis of their difficulties to identify the factor of being slow in learning. Many teachers have felt the need for remedial programs to be set up in school as well as the screening test (LINUS). However,

There is a number of teachers think that the elementary processes should be thoroughly learned and mastered by all the pupils within 6 years in primary school before they enter secondary school. It is not easy to achieve the goal and may not be able to. There will always be individuals who fail for one reason or another to profit as they should from their initial instruction. Individual differences in learning ability preclude the possibility of all individuals achieving mastery of a set of skills at a specified time.

Remedial teaching is an essential part of all good teaching. It is an activity that should begin as early as possible in the primary school. With the basis they mastered in primary school, children should continue through the upper grades and secondary school and university. According to Dolch (1950), there will always be a few very poor readers passed on higher grade no matter how well the first-grade teacher manages. However, someone can achieve surprising results in learning and abilities with the desire to improve his or her fundamental abilities followed by a generous quantity of the right kind of practice.

Remedial teaching aims to remove the effects of poor teaching and learning approaches. Thus, it is concerned the pupils who perform badly and have formed

unsuccessful methods of handling the tools of education. A careful diagnosis is important to find out defects and causes, and its aim to enhance the weakness and eliminated bad habit of someone. Pupils are frequently found in a school that does not possess any particular defects or faults which need correction, but who urgently need assistance in developing increased competence in fundamental processes (Thorndike & Lorge, 1944).

Remedial education had to be recognized as being important as other areas of teaching and should be placed "squarely within the normal educational process" (Widlake, 1975). At a conference of National Association for Remedial Education (NARE), Gulliford(1979) proposed the notion of "remedial work across the curriculum" as a slogan for future years, in order to develop a wider conception of provision. He suggested that the subject teachers should be encouraged by taking more responsibility for pupils with learning difficulties, aided and advised by remedial teachers in partnership. In turn, remedial teachers should become more familiar with the curricular issues

2.6.1 Techniques for providing Remedial Treatment

The specially designed remedial development is to be given to pupils depend upon the results of dialogizes. Medical attention should be provided if physical factors seem to play a part in disability. If the diagnosis discloses that pupils have the low mental ability as measured by non-reading as well as reading types of intelligence tests, procedures should be followed which take this fact into account. Among other things, the teacher will have to go slowly and have to depend more than usual on concrete units of experience in developing the meaning vocabulary.

When it is found that poor home condition is contributing causes of a pupils‟ reading disability, every effort should be made to fix the situation, such as suggestions to the parents, sometimes assist in bringing about changed conditions in the home. In every remedial case, the data are gathered during the diagnosis should be evaluate and employed in the planning of the remedial program. Every pupil is unique and differs from each other.

2.6.2 Improving Vocabulary

If test results and other data point to the fact that a pupil or group of pupils possess disproportionately poor reading vocabularies, special attention might well be given to a vocabulary-building program. Such a program will generally pay big dividends so far as improvement in reading is concerned, for it is only when pupils are equipped with a sufficient stock of concepts and word meanings that the activity of reading is made possible. Before starting a pupil on any type of remedial reading program, it is important to ascertain whether or not the pupil possesses the ability to recognize a minimum number of words at sight. It is very discouraging for a pupil to have to stop and decipher every word that he or she encounters. Dolch (1945) listed 220 common words that make up more than 50% of all ordinary reading matter. The basic list is composed of prepositions, conjunctions, pronouns, adjectives, adverbs, and the most common verbs, and thus are words which the pupil eventually reads.

2.6.3 Teaching and Learning Approach for Vocabulary Acquisition in Remedial Classroom

Vocabulary has long been considered as a prerequisite and strong determinant of reading achievement. Skills of language such as listening, reading, speaking, and writing are necessary for all curriculum areas that use the language as a medium. Quantity and quality vocabulary is the key for children to achieve by children in the context of the reading area (Ediger, 1998).

The reading teacher needs to select quality objectives for pupils to achieve in the area of vocabulary acquisition. These objectives need to emphasize what is relevant and functional in vocabulary acquisition. Pupils should be able to use what has been learned in vocabulary development. Children need learning opportunities given by teachers to achieve improvement in vocabulary. These learning opportunities should do to following, involving and engaging. The teacher needs to develop pupils for learning and encourage learning motivation in achieving learning goals. In addition, they should provide for individual learning and develop students‟ purpose for learning. Eventually, students will be able to evaluate their own learning progress and become lifelong learners (Ediger, 2002).

To ensure the effectiveness of vocabulary learning, teachers must develop and emphasize maintaining pupils‟ interest in learning. Pupils should aware of purposes for learning vocabulary. Goals in vocabulary development need to emphasize the importance of meaningful learning and interacting with audiovisual materials to establish information for problem-solving. Audiovisual materials refer to videotapes, films, filmstrips, large illustrations, snapshots enlarged for class viewing with projector, Internet and worldwide web, as well as computer packages,

among others. With pupil interaction with audiovisual materials of instruction, there are many opportunities to gather information for a group project (Ediger, 1998).

To enhance vocabulary skills, students can demonstrate the meanings of new words, or play matching games on classroom bulletin boards. When working with remedial readers, teachers can take the first step by managing an interest record to remedial students in order to turn around their negative attitudes and arouse their interest and purpose towards learning of vocabulary (Klug, 1989).

2.7 Educational Technology in Vocabulary Acquisition

Technology is speedily changing with today‟s modernizations soon becoming out of date. However, teachers and pupils should be aware of technology usage in learning and keep updating with technology knowledge as technological rapidly move forwards (Nisbet &Austin, 2013). In this new era, the world is changing and children are changing every day. Therefore, learning and teaching approached must be change to match the changing of the children. Educational technology is the study of assisting learning and enhancing children's performance by applying proper technological processes and resources in the teaching and learning process. Thus, teachers must be aware of the educational technology development and equipped themselves to provide technology-supported learning approaches for pupils.

The constructivist theory believes knowledge is a constructed element as a result of the learning process. In addition, knowledge is only one of its kinds to the person who constructs is due to individual differences and personal experiences. Pupils create maps in their minds whenever they receiving new information. The information then robust into existing mental maps or understands as assimilation.

Next, the existing maps will be adjusted to accommodate the new information. Thus, children maintain a type of mental equilibrium. Seymour Papert adapted Piaget‟s perspective in the field of educational technology. He applied it to children engaged in using technology. Papert‟s application of this approach resulted in the development of a graphical programming language that complex mathematical skills transferred effectively when used by children (Lever-Duffy & McDonald, 2011).

Using technology is one an approach to motivating students that most teachers today find effective. The International Society for Technology in Education (ISTE) has produced a list of technology standards that are required for all new teachers. While technology is a powerful tool for motivating students, its influence in the classroom will be determined by teachers‟ skills and willingness to use it. Some of the ways that contemporary teachers use technology in classroom include: (1) re-teaching and reinforcing content, (2) providing enrichment experiences for gifted students, (3) individualizing assignments, (4) promoting global perspectives, (5) using web sites, and (6) desktop publishing (Henson, 2004).

In general, it is accurate to say that most of today‟s teachers have embraced the use of computers. Perhaps more than any other reason for this change is the fact that computers have become prevalent in our schools and classrooms. Today, 99% of American schools have computers. As early as 2000, 84 percent of teachers had at least one computer in their classroom (Nieto, 2000).

For the past decades, the government has invested more than RM 6 billion to develop Information and Communication Technology in school to allow the pupils to have more opportunities to learn and expose to ICT. Nonetheless, ICT usage in schools was not ideal and surprisingly below government expectations. According to data collected by the Ministry of Education, around 80% of teachers in school spend

less than one hour a week using ICT, and only a third of pupils experience teaching using ICT regularly by teachers. In fact, ICT has remarkable possible to enhance the learning of knowledge and thinking skills. However, that remarkable potential of ICT has not yet been achieved in the Malaysia educational system (Malaysia Education Blue Print, 2013-2025).

Tozcu and Coady (2004) conducted a case study that examined the effectiveness of using interactive computer-based texts as opposed to traditional materials in vocabulary acquisition. The goal of the case study was to examine the outcome of direct vocabulary instruction using the computer. Moreover, the reading rate was also analyzed due to the effect of the interactive computer-based texts on reading comprehension and word identification speed. There were 56 participants who were middle level from a variety of first language learner backgrounds studying vocabulary knowledge, reading comprehension and reading speed university academic preparation. The outcome of this study found that the treatment group did significantly better than the control group in all three analyzed components. The results conclude that pupils who use tutorial computer-assisted software perform better in the acquisition of vocabulary. Positive implications have shown in the integration of technology in the language classroom for vocabulary acquisition and reading comprehension.

Nisbet and Austin(2013) was conducted a study that focus on adult learners and mobile technology has been used as the tool to develop vocabulary, variety of applications applied in the study. The usage of mobile technology in vocabulary learning allows students to set their personal learning schedules, focus on their goals, meeting individual needs, and also practice on their own pace. This kind of learning strategy also serves as a non-threatening means of developing their technological

knowledge base in the current speedily-developing society. The study suggested teacher and students not just begin with the applications but also do further exploration into the vast, ever-evolving realm of technology resources for English For Second Language Learners teaching and learning.

Clark (2013) conducted a study on the use of technology to support vocabulary development. Small group samples consist of five pupils were selected in this study to focus on vocabulary development. Three pupils work on teacher-made spreadsheets and two students work on iPad activities. The result showed explicit instruction compared to the iPad, the use of visual and audio elements to enhance vocabulary knowledge, and differences engagement and behavior among the pupils. The findings suggest teachers to slot in a technological instrument and create a learning environment in developing vocabulary knowledge. From the action research, the researcher found that the technological tool alone did not support vocabulary development, preferably the combination of technological tool and explicit teaching raise pupils‟ learning ability and retention in the context of vocabulary development. It is important for teachers to identify those pupils who are second language learners who are attempting to acquire an unfamiliar language with a lack in basic oral language skills. Constant vocabulary instructions were needed by pupils as this becomes the foundation for vocabulary knowledge. Creating a learning environment focus on vocabulary and make use of technology can help pupils to improve in the context of vocabulary development.

A study of Jingjit (2015) was aimed to obtain more insight regarding the effect of multimedia learning on third-grade primary pupils‟ achievement in Size and Depth Vocabulary of English. The researcher applied quasi-experiment by using pre-test and post-test design combine with time-series design and data triangulation. The

findings of this study suggest that multimedia is effective to enhance pupils‟ development in vocabulary learning. However, Text, picture, and sound of multimedia successfully expand the size of vocabulary knowledge but have no effect on the depth of vocabulary knowledge.

Alfadil (2017) explored the influence of the virtual reality game (VRG) House of Languages on the English as a second language learning vocabulary acquisition of secondary school students and found how Virtual Reality technology aids in improving the English as a Second Language vocabulary skill. This study includes 32 students enrolled in the experimental group and another 32 students enrolled in the control group. In spite of the fact that the participants of this study were secondary school students, the Virtual Reality technology made it relevant to primary school pupils. The findings from this study showed greater achievement among the experimental participants in this study in learning vocabulary compared with the control group using the traditional learning approaches. So, it would be necessary to introduce virtual reality technology to teachers as an effective vocabulary acquisition approach. Teachers should be aware of the new technology not only in language learning but other areas in learning to improve the quantity and quality of achievement in education.

2.7.1 Web-Based Learning in Vocabulary Acquisition

Web-based tools offer a platform to contextualize the learning experience as a window into cultural practices of the target language country and as a means to engage learners (Collado, 2017). Dalton and Grisham (2011) suggested 10 eVoc strategies that aim to bring engaged vocabulary learning to students‟ minds by using

free digital tools and Internet resources. It can support the teaching and learning of words and students‟ word learning approaches by encouraging students' strategic use of free web-based vocabulary tools in the purpose to increase students' reading quantity and accompanying word recognition. The strategies focus on building interest in words as they engage with word meanings in digital and multimedia contexts. They are able to read, view, interact, and create words inside the virtual environment. Teachers are advised to get used to digital with word learning‟ and with a combination of technology in improving pupils' vocabulary development and reading comprehension.

A study by Liu, Lan, and Ho (2014) make use of a web-based tool to find out the effects of web-based partnership on vocabulary improvements among learners of English as a foreign language. The study identified the factors that influence self-regulated vocabulary strategy use and perceptions of Web-based collaboration. There were 210 participants from the university involved in the study. They went through the designed tasks, such as vocabulary pre-test and post-tests, a self-report questionnaire survey of self-regulated vocabulary strategy use and perceptions of Web-based collaboration. The results proved that collaboration using Web-based tools significantly influence knowledge development and provide a reference for the integrated spectrum of self-regulation, and Web-based technology that will be useful for pedagogy.

2.8 Virtual Learning Environment and Vocabulary Acquisition

Guo et al. (2019) found that teachers and students believe that interaction in the virtual learning environment can improve students' academic performance. Virtual

reality technology offers opportunities for enhancing traditional classroom lessons by providing an interactive and immersive experience. It can also be utilized in creating innovative online learning in education curriculum and training (Huang et al., 2019). VLE able to provide many realistic and useful challenges that limit broad and reasonable access to field learning (Mead et al., 2019) and also encourage the learner‟s motivation and learning experience to achieve an overall enhancement in learning (Huang et al., 2019).

Hsiao, Lan, and Kao (2017) conducted a study on visualization analytic for the second language in the virtual world. The results indicated different learning strategies have been used by high-achieving and low-achieving pupils in the acquisition of new vocabulary. The Visualization analytics thus effectively displays the learning strategies of vocabulary acquisition and provides insight into the construction of future worlds for learning the second language. The result shows the Virtual Learning Environment provides a web-based platform for teachers to share learning materials and ideas followed by VLE being used by pupils to obtain learning materials and VLE being utilized by teachers to search for teaching and learning materials.

Thah (2014) conducted a survey study on leveraging virtual learning environment to scale up quality teaching and learning in Malaysia after Frog VLE was introducing and implemented in all government schools. The survey research was carried out using a sample including 426 teachers and 223 students from primary and secondary schools selected in the country. Three critical success factors in the use of Frog VLE were cited by the teachers, including the functionality of VLE as a pedagogical tool, user-friendliness of the VLE and VLE as a tool for collaboration.

Soon conclude that Frog VLE is expected to result in an elementary change in the condition of a technologically-endowed and innovative way of delivering instruction.

Chai (2016) study students' views on music teaching and learning through online music games integration in VLE Frog by using Joytunes. The study was conducted in a primary school located in Selangor. Purposive sampling method was applied by the researcher in the study, a total of 50 pupils have participated in this study. Joy tunes are one of the online music games. This application software allows pupils to play the music game while getting connected to their teachers using Frog VLE. Two sets of questionnaires were given to participants to collect quantitative data. Both sets of questionnaires were different and not similar with each other. The results of this study show that Joytunes shows a significant effect on pupils‟ learning. This is proved where the overall mean for the three sections, which is respondents' motivation, is 3.64, a positive impact is 3.36 and independent learning is 3.59.

Lin and Lan (2015) conducted a study on trends in language learning using a virtual reality environment by conducting a content analysis of findings published in the literature from 2004 to 2013 in four top-ranked computer-assisted language learning journals. There was total of 29 articles were cross-analyzed in term of research topics, technologies used, language learning settings, sample groups, and methodological approaches. From the study, they found learners were mostly interested in three topics: behaviors, affections, and beliefs; and task-based instruction.

However, the analysis results highlight the need for the inclusion of the impact of teachers. The data also revealed that more studies are utilizing the triangulation of measurement processes to enable in-depth analysis. A trend of

gathering data through informal learning procedures was also observed. This article concludes by highlighting particular fields related to VR in which further research is urgently needed.

An intervention has been developed by Vasquez (2015) in applying a virtual environment to teach and improve social skills among pupils with autism spectrum disorder (ASD) that show differ levels of impairment in social skills situations. The article presents a systematic literature review of peer-reviewed journal articles focusing on social interventions in the Virtual Environment. Students with Autism Spectrum Disorder were involved in the study. This in-depth investigation across four major online databases was guided by operational terms related to intervention type and students with Autism Spectrum Disorder. The experimental search generated a very narrow body of literature on the use of Virtual Environment as social skill interventions for students with ASD. Two case study examples of experiments exploring the use of Virtual Environment and students with ASD are presented to illustrate possible applications of this technology.

2.8.1 Frog Virtual Learning Environment

Rashid (2014) study on the viewpoint of the Virtual Learning Environment introduced as an educational system. He found that some of the VLE features can be beneficial to e-assessment. Data were collected through interviews and logging of teachers‟ self-reported teaching practices and then analyzed to show evidence of new and changing assessment practices. Qualitative methods were selected to examine the role of Virtual Learning Environment in e-assessment practices. A search is presented with a fait accompli that serves their instant or envisioned interests. All

the participants more or less support the new educational policies that are focused on measurement and documentation, which may easily be implemented into a summative assessment.

Goldberg and Mckhann (2000) studied the effectiveness of delivering the core curriculum by using a virtual learning environment that takes advantage of audio, video, animation and text in a multimedia computer environment. The results indicate that raw average scores on examination were 14 percentages higher compared with students in a lecture hall setting. Based on these past studies, it can be seen that educational Technology and web-based learning have been widely using in acquisition of language. In addition, past studies proved that many students benefited from the implementation of the virtual learning environment in learning activities and implementation of Frog VLE in Malaysia education. However, there are limited studies relating to pupils from remedial classrooms in vocabulary acquisition by using Frog VLE. For this reason, this study intends to fill the gap in the literature by using Frog VLE in primary remedial classroom setting in order to enhance pupil‟s Malay language acquisition.

Virtual Learning Environment is an innovative educational approach for delivering learning materials to learners via the Internet and it has been widely using for years. However, Frog VLE was only introduced and applied in Malaysia's government school since 2011. Functions of Frog VLE include assessment, student tracking, collaboration tools, and communication tools and so on. It is a platform for all learners accessing information online (Evan & Sutherland, 2003). A Virtual Learning Environment turning virtual spaces into places that enable educational interaction actively occurs in the environment. Frog VLE is designed information and social space that is explicitly represented the representation of this information

and social space can differ from 3D immersive worlds. Pupils are not only active in space but also playing the important role to construct their personal space. Virtual learning environments are not limited to long-distance education that usually applies to higher education. Virtual Learning Environment also enriches learning activities in the classroom, it able to integrate various technologies and multiple pedagogical approaches (Dillenbourg, Schneider & Synteta, 2002).

Virtual Learning Environment (VLE) allows pupils to explore the world virtually without direct contact. Without the constraint of time and place, pupils are able to access a variety of learning tools and materials including program information, lesson content, teacher‟s note, discussion wall, document sharing systems, and learning resources (Van Raaiji and Schepers, 2008). In this research, the term Frog VLE is used for the Frog Virtual Learning Environment. Frog VLE is a web-based learning system that imitates real-world learning by integrating virtual equivalents of conventional concepts of education. Pupils can use Frog VLE to submit assignments and then view their marks via the Frog VLE. Meanwhile, a teacher can use Frog VLE to assign lessons, by using Frog VLE, teachers can assign lessons, assessments, examination paper, and Frog VLE can mark virtually and generate the marks for each task, while parents can view information shared by the school such as latest news or important announcement. While school administrators can organize their school calendars and publish school notices via the Internet. Nonetheless, important documents shared by the school can be downloaded by parents. It can be regarded as a social network for schools (Rashid, 2014).

The Ministry of Education provided Internet access for the use of Frog virtual learning environments in school via 1BestariNet for all 10,000 schools by 2013. In the very near future, every pupil in government school will have access to a 4G

network at their school through 1BestariNet. The provided network allows the basis for the creation of a virtual learning platform for school use. Members of the school including administrators, teachers, pupils, and parents are given personal accounts to achieve and share learning resources, apply interactive lessons, and interact virtually without limitation of space and time. To maximize the impact from investment, the Ministry plans to invest in ICT-proficiency training to equip all teachers with ICT knowledge, and gradually improve the device-to-student ratio from approximately 1:30 in 2011 to 1:10 by 2020. However, the Ministry will invest basic computers or low-cost laptops to remain cost-efficient. It will also experiment with utilizing new, less resource-intensive alternatives for ICT facilities compared to current computer labs, such as a lending library for notebooks and computers-on-wheels (Malaysia Education Blue Print, 2013-2025).

2.9 Conceptual Framework

This single-subject study intends to develop Malay vocabulary development among pupils from the remedial classrooms through the Frog Virtual Learning Environment. More specifically, four widgets among the widgets are selected to develop pupils‟ vocabulary development. The selected widgets are a Text Widget, Media Widget, Quiz Widget, and Wall Widget.

Figure 2.2 illustrates the conceptual framework of this single-subject study. The variables of the study are illustrated in the diagram. In the illustration, the two variables are Frog Virtual Learning Environment and Vocabulary Development among pupils from the remedial classrooms. The former is the independent variable while the latter is the dependent variable. The independent variables of the study

which is Frog Virtual Learning Environment together with the domains (Text Widget, Media Widget, Quiz Widget and Wall Widget) are placed at the left-hand side of the diagram. Meanwhile, the dependent variable which is vocabulary development together with the semantic and pragmatic of vocabulary is placed at the right-hand side. The diagram shows the flow of the study, where Frog Virtual Learning Environment influences the vocabulary.

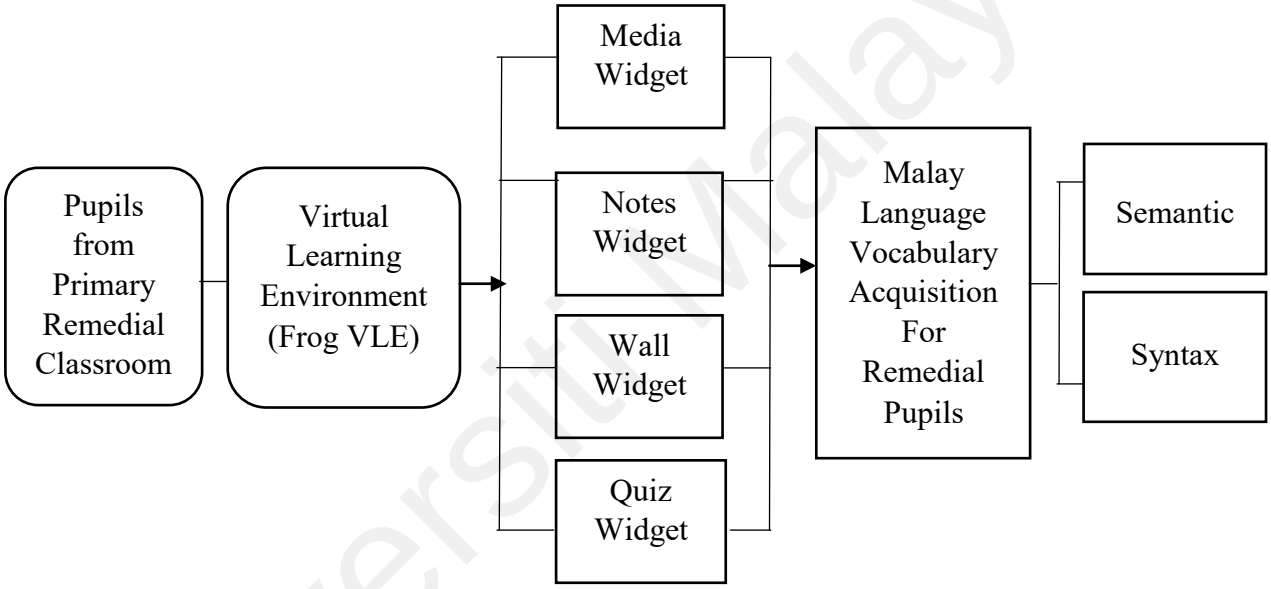


Figure 2.2 Conceptual framework of the study

2.10 Summary

The review from previous finding indicates that importance of vocabulary for learners and the effectiveness of virtual learning environment in helping learners to learn. Although the researches mentioned above shows the use of virtual learning environment in developing vocabulary, most of the researches were likely focus on undergraduate students and adults. To date, there is lack of significant study on using Frog Virtual Learning Environment in developing the vocabulary development among pupils from remedial classroom. In fact, there are many issues remaining that need to be researched. Thus, a single subject study will be conducted in this study to investigate the effects of Virtual Learning Environment in developing vocabulary development among pupils from remedial classroom. Further details delineate the discussion of method for this study is considerate in Chapter Three.

CHAPTER 3

METHOOLOGY

3.1 Introduction

This chapter attempts to discuss the research methodology of this study. The research design, description of setting and sample selection, descriptions of materials and instruments, procedure of study and data collection technique will be explained in this chapter. Lastly, data analysis and ethical consideration will be discussed in this chapter as well.

3.2 Research Design: Single Subject Design (Multiple Baseline)

To appropriately address the research questions, single subject design had been used in this study, with a three steps sequential phase consisting baseline, intervention and maintenance. Single subject study was widely used in the field of special education. The design of study allows researchers to study the changes of behaviours of only one subject at a time, after an intervention or treatment. Single-subject research design had been use in current study to answer research questions regarding the Malay language vocabulary of pupils in remedial classroom before and after Frog VLE applied on them.

There are several types of single subject design such as AB, ABA, ABAB, multiple baseline and so on. In this study, as three subjects were involved, multiple baseline was more suitable among the designs and was applied to obtain data in three phases of single subject study. Intervention was applied separately to the subjects based on their learning conditions and progresses until all of them went through the

intervention. In baseline phase, the data of subjects‟ vocabulary knowledge (dependent variable) was collected without intervention by using pre-test instrument. When intervention phase took place, Frog VLE (independent variable) was introduced to subjects. The data on subjects‟ vocabulary knowledge was collected. Lastly, vocabulary knowledge of subjects was collected again without intervention.

Multiple baseline design is a single subject design that collects multiple sets of data in a study. Multiple baseline design is particularly well-matched to research related to literacy Neuman and McCormik (1995). There are three types of multiple baseline designs including multiple baseline across behaviours, multiple baseline across participants and also multiple baseline across settings. In current study, multiple baseline across participants was selected. In literacy research, nearly all the question that involving dependent variable and independent variable can be asked provided the answer can be obtained by a few participants. For the purposes of illustrating a technical application, the multiple baseline across participants design had been use as example.

The multiple baseline across participants is a research design that focus on the impact of the treatment of the independent variable on the dependent variable, which mean the same behaviour for few different participants. Intervention as the independent variable will be applied to one of the participants after a baseline established. However, the other participants will still continue with the baseline phase until the first participant shows significant improvement in the intervention phase. At that time, the second participant will move from baseline to intervention phase and this procedure will apply on the third participant and so on. The setting of multiple baseline across participants was that if a participant show improvement when go through the intervention was possible that changes of the participant due to

the intervention. If improvement was showed by other participants that still in the baseline phase, we cannot make a conclusion that the variable is effective for the participants to improve.

In all the three phases, data of dependent variables were collected. The baseline phase represented the phase without any intervention in place. Intervention phase was one in which the researcher introduced an independent variable to the subject and then collected data on the dependent variable. The maintenance phase represented the phase where independent variable was removed and then the researcher collected data on the dependent variable. Generally, the single-subject design was used to evaluate the effect of various interventions. The single-subject design was preferred because it was highly flexible and highlights individual differences in response to intervention effects. This design has been shown to reduce interpretation bias for the counsellor when doing therapy (Moran & Tai, 2001).

3.3 Participants of the Study

In the selection of participants in this study, the researcher had chosen a purposive selecting method based on the criteria of a single-subject study design. Therefore, the researcher purposely selected participants based on the following criteria: (a) enrolment of pupils in the remedial classroom, and (b) consent to participation.

In this study, three pupils from the remedial classrooms were involved as participants and the teacher of the remedial classroom was involved as an observer. Informed consent had been obtained from the parents and school management prior to the beginning of the study (refer to Consent Forms in Appendix A and Letter of Conducting Research in Appendix B). Verbal consent was obtained from the teacher

who participated in this study. Codes were used to refer to all participants for privacy purposes.

With the agreement of parents and headmistress, background data of the pupils were collected from the school achievement report including their Linus screening test results, school summative assessment results, and school formative results (Penilaian Berasaskan Sekolah). Besides, the information was given by their class teachers based on their observation and prior knowledge about the participants including pupils‟ learning attitude, strengths, and weaknesses. Hereafter, the three pupils were referred to as Pupil A, Pupils B, and Pupil C.

In the school achievement record, pupils‟ achievement in school formal examination were recorded, and also comments given by class teacher based on of pupils‟ learning attitude, strengths and weaknesses. School Malay language examination was prepared by pupils‟ language teacher based on the content in textbook, grammatical skills, and vocabulary that learned by pupils in the semester. Table 3.1 shows the overview of pupils‟ background information and vocabulary knowledge (Linus).

Table 3.1

Overview of Pupils' Background Information and Vocabulary Knowledge (Linus)

	Gender	Age	Vocabulary screening test result	Construct That failed	Vocabulary Knowledge	Interest in ICT	Ability in using ICT
A	Male	10	Failed	8/12	Weak	High	Good
B	Female	10	Failed	10/12	Weak	Moderate	Moderate
C	Male	10	Failed	11/12	Weak	High	weak

Teacher as non-participant observer in this study was required to meet the following criteria: (a) minimum 5 years teaching experience with pupils in the remedial classroom, (b) teaching standard one through to standard three pupils in the remedial classroom, and (c) minimum 5 years teaching experience in the Malay Language. A teacher from the present school was selected in this study. She was recruited through verbal consent and discussion based on the study. Prior to the study, the researcher met the teacher to do a further explanation of the aims and procedures of this study. The teacher was very experienced in the field of remedial education and also in charge of the LINUS Screening Test since 2010. Every single pupil from standard 1 to standard 3 that failed in LINUS Screening Test was assigned to her for the remedial program.

Madam Cha was selected to participate in this study as she fulfilled every single criterion listed above. Madam Cha graduated from Teacher Training College in 1992 and graduated from Sultan Idris Education University for her bachelor's degree. She was a qualified remedial teacher since she finished her remedial course in 1998. She has been teaching for 27 years and started to hold the post as a remedial teacher in the school since 2007. She is very experienced in this field and currently in charge of every pupil that enrolled in a remedial classroom in the school.

3.4 Sampling Method

This study was employed purposive sampling for the purpose of selecting settings and participant selection. With purposive sampling, the researcher intentionally selected a sample of study based on previous knowledge, the specific purpose of the study, and individual judgment. The researcher has selected the setting and

participants in accordance with the set of criteria stated in the following subsections. The criteria for selecting the participants in this study were (a) failed in Linus screening test, (b) enrolled in the remedial classroom, (c) failed in school formal Malay language examination and (d) presence of prerequisite skills of phonemic awareness in reading. All the participants in the study have been attending the same school for more than a year.

3.5 Location of the Study

In the selection of the location in this study, the researcher had chosen the purposive selecting method. A government primary school agreed to participate in the study as the principal is very supportive in research that may help pupils in the remedial classrooms to improve their achievement. The school is located in Sungai Buaya, Selangor. It is considered as a B Grade rural school with a total of 263 pupils. It has a total of 9 classes: kindergarten, standard 1, standard 2, standard 4 and standard 6 with 1 class for each, whereby standard 3 and standard 5 with 2 classes for each. Moreover, pupils from standard 1 to standard 3 who failed in Linus screening test will be enrolled in remedial classrooms. A set of curriculum specially designed for them was used in a remedial classroom with the purpose of improving their literacy and numeracy skills. Pupils who enrolled in the remedial classrooms are required to attend the remedial lesson at remedial classroom 4 periods a week with a total of 2 hours of remedial sessions with the remedial teacher. For another 4 periods of Malay Language, they will stay in an ordinary classroom to study together with their peers.

Remedial classrooms are formed in school to close the gap between pupils with high and low achievement in the classroom. Pupils will enroll in the remedial

classrooms with 5 hours per week for literacy and 3.5 hours per week for numeracy remedial once they failed in the Literacy and Numeracy Screening Test (Linus). The remedial program designed specifically to improve literacy and numeracy skills among pupils being enrolled in remedial classrooms. The instruments are prepared by the Malaysian Examination Syndicate and passed on to the district education offices to be distributed to the school. There are two parts to the screening (1) written and (2) oral with 12 constructs for each. Pupils who do not pass the construct 1 and 2 are classified as LINUS Tegar (hardcore).

The pupils enrolled in remedial classroom are mostly like other typical pupils. They attended the school five days a week from 7.15am to 1.05pm and attended school tuition class 4 days a week from 1.30pm to 3.45pm. The different is pupils from remedial classroom will be recruited in remedial classroom rather than ordinary classroom at certain periods according to the arrangement of school. Remedial pupils will learn based on the remedial program and remedial curriculum.

3.6 Frog Virtual Learning Environment

Material that used throughout the intervention phase was a web-based virtual learning environment. In this study, the Frog Virtual Learning Environment was implemented during the intervention phase on selected vocabularies from standard three Malay Language textbook chapter 1 to chapter 15. Meanwhile, in the maintenance phase, selected vocabularies from standard three Malay Language textbook chapter 16 to chapter 30 will be used.

Frog VLE was developed by Frog Education and the company has been doing this for 17 years and was later introduced and applied in Malaysia since 2011.

After 1 Bestarinet project launched by the Ministry, there are total 10,000 schools in Malaysia were given the opportunity to use Frog VLE for free. The web-based virtual learning environment has been introduced by the Ministry and designed by Frog Education with the purpose to simplify teaching and enhance learning, improve communication and administration between pupils and teachers, schools and parents. Malaysia was not the first country applying Frog VLE in the educational system. The Frog Company has nearly 15 years in the market and field of education. Therefore, it also is being used worldwide in 23 countries, in over 12,000 schools, and more than 20 million users within a community of teachers and learners. Figure 3.1 shows an overview of the web-based Frog Virtual Learning Environment.

Figure 3.1 Screen shot of web-based Frog Virtual Learning Environment

Frog VLE is a platform for pupils to learn in a new way that fits the technology era nowadays. Frog VLE gives the opportunity to pupils to learn independently by their way, teachers act as facilitators to assist pupils. By using tools in Frog VLE, pupils able to create pages in the dashboard of any topic that they

interested in or assign by teachers, pupils organize the information gathered using technology and the Internet in their dashboard that only can view by themselves. Besides, teachers can assign created sites to pupils as homework.

"My Dashboard" is the home page users are accessible after logging in Frog VLE with personal identification and password. My dashboard is available to every Frog VLE user including teachers, students, and frog admin. It can be personalized and customized according to individual needs or interests. Basically school calendar, a notification can be found on "My Dashboard". Content such as photographs, music, video, or favorite website links can be added. Users have the authority to set how these contents are displayed on the home page. Users are allowed to set the Widgets to change the appearance and content of their Dashboard at any time and anyhow as they like. They can arouse the pupil"s creativity and nurture their interest in information and technology learning strategy. Figure 3.2 shows samples of pupils" dashboards.

Figure 3.2 Screen shot of dashboard created by pupil

"My Dashboard" can be edited by clicking the "Edit" button located on the upper left of the page. By clicking the button, users can perceive "Content Page" which contains three options tabs including "Page", "Widgets" and "Settings". "Page" allows users to change the numbers of boxes between 1 to 7 boxes and the arrangement of the boxes that show on the user"s page can be customized. After clicking the "Page" tab, choose how many layout boxes that user needs on a page to display contents. Now choose the position of the boxes to be displayed. "Setting" allows the user to choose the theme of the dashboard as well as the name of the dashboard based on the individual"s need and interest. The setting is user-friendly as users can enter the name in the "Name of Site" box to edit a new name of the page. The theme of the dashboard can be changed by selecting a new theme that can be found from the menu. Frog VLE will automatically update the changes that have been made by the users. Figure 3.3 shows the functions to edit "My Dashboard"

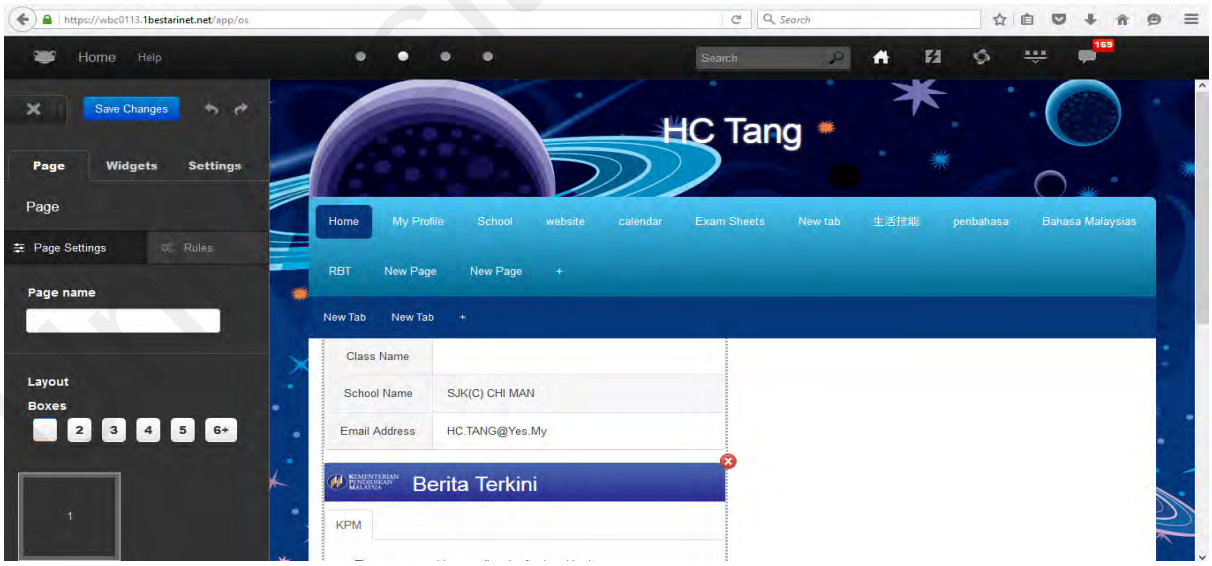


Figure 3.3 Screen shot of functions to edit "My Dashboard"

"Widgets" allows user to drag selected widgets from the menu direct into the container boxes. Contents that can be added are text, videos, images, quizzes,

chatting room and so on. In order to add or edit widgets, click on the "Widgets" tab to view all the available widgets. The widgets can be acknowledged by their sole name and unique icon. The available widgets refer to a specially designed application that allocates contents to be displayed on the dashboard for the use of the users. Just a simple dragging from the menu into the container box on the page and arranging its position and do the setting. A page in Frog VLE can fit multiple widgets and the widgets only display contents set by the users. Thus, users have to input the information into the widgets to display before it will show any content. Figure 3.4 shows widgets that available for the user.

Figure 3.4 Screen shot of widgets that available for user

In this study, Frog VLE was chosen specifically aim to teach Malay Language vocabularies. Typically, Frog VLE used as a platform for pupils to learn independently and personally in order to improve their vocabulary development. The researcher selects Malay Language vocabularies that appeared in Standard one textbook that pupils still unable to master to serve as materials to implement Frog VLE. The process of using Frog VLE incorporates the integration of four selected widgets including "Wall Widget", "Media Widget", "Quiz Widget" and "Notes Widget". Table 3.2 shows the selected widgets in Frog VLE and their functions.

Table 3.2

The Selected Widgets in Frog VLE and Their Functions

 **Media**	**Available to:** Frog Admin, Teachers, Students **Use with:** Dashboards, Sites **Function:** Insertion of images, videos and audio files in your site. The files can be uploaded to the VLE or linked from Discover and the FrogStore. Maximum file size for upload is 100MB. **Accepted file types:** x-m4v, mpeg, mpeg3, jpeg, x-flv, png, ogg, flv, quicktime, mpg, mov, x-msvideo, x-shockwave-flash, m4v, mp4, x-mp3, mp3, ogg, swf, gif, jpg, webm, avi
 **Wall**	**Available to:** Frog Admin, Teachers, Students **Use with:** Sites **Function:** Creates a discussion wall within personal site. Users can start with a topic on the wall and others can leave comments on the wall. Allow discussion and respond among the users. Only one topic can be used per Wall. The comments by other users will appear in Notification panel. **Tip:** Site must be shared with „Can contribute" permissions
 **Quiz**	**Available to:** Frog Admin, Teachers, Students **Use with:** Assignments, Sites **Function:** Used to display quizzes within a site or as part of an assignment. Quizzes cannot be created inside a site. Users have to create quizzes in the Quizzes section in Frog VLE and then add to the Quiz Widget to be displayed. **Tip:** Quiz options become available once a quiz is imported. These are available in the settings panel. Site must be set to be shared with „Can contribute" permissions.
 **Notes**	**Available to:** Frog Admin, Teachers, Students **Use with:** My Dashboard **Function:** Shows reminders that set by users, to do lists and website links on your Dashboard. Used to add text to your site. It can be typed directly or just copied and pasted from other sources. The colour, font size and styling can be edited. Images can be inserted and text hyperlinked. **Tip:** Links to commonly used Google Docs can be pasted in the Notes Widget to allow faster access.

3.6.1 Learning Materials

The learning materials for this study were selected according to the two following considerations. Firstly, the analysis of the Malay subject and its objectives were received from Malaysia basic Curriculum for the Malay Language, and secondly, the analysis of the existing problems encountered by pupils enrolled in the remedial classroom with consideration to their vocabulary knowledge. In the end, total of 32-word items was selected to be delivered during the experimental periods. The items of vocabulary learning were derived from Year 1 Malay Text Book published by Dewan Bahasa dan Pustaka under Ministry of Education in 2010 and widely use in National Type Chinese Schools (*Sekolah Jenis Kebangsaan Cina*). The 48-word items were selected by using a pre-test assessment to identify words that supposed to be mastered by pupils by the end of standard three. Table 3.3 shows the selected vocabularies.

Table 3.3

Selected Vocabularies from Standard Three Malay Language Textbook

Nouns			Verbs		Adjectives		
Nouns of things:	Nouns of persons:	Nouns of places:	Verbs with *imbuhan men,mem:*	Verbs with *Imbuhan beR-:*	Adjectives to describe things:	Adjectives to describe persons:	Adjectives to describe feelings:
pakaian	*pejalan*	*halaman*	*mencabut*	*berkebun*	*nipis*	*ceria*	*bimbang*
gerai	*jiran*	*Stor*	*menjahit*	*berbuah*	*tebal*	*cergas*	*seronok*
kaunter	*kumpul-an*	*perpusta kaan*	*menjerit*	*bertanya*	*cetek*	*obesiti*	*sedih*
troli	*penung-gang*	*taman*	*membelai*	*bercakap*	*berat*	*kurus*	*takut*
rak	*pekebun*	*rumah*	*membuang*	*berjoging*	*rendah*	*cerdas*	*marah*

3.7 Instruments

Several instruments had been developed by the researcher to serve as mediums to collect quantitative data of the study. Three assessment instruments that applied in this study were vocabulary screening tests, time-series vocabulary test, and post-test. In addition, few supplementary qualitative measurements were applied to provide more reliable results of the study. The measurements were nonparticipant observation, semi-structured interviews, video recording, and subjects‟ work documentation. Nonparticipant observation had been used during intervention phase to collect data regarding subjects‟ response of using Frog VLE and their performance in studying vocabulary by using Frog VLE and semi-structured interview had been carried out at the end of the intervention, to explore the remedial class teacher‟s perception and opinion of the use of Frog VLE in improving pupils‟ vocabulary development.

On the other hand, video recording had been carried out during the intervention phase as a rich source of information, especially in research with children (Garcez, Duarte & Eisenberg, 2006). Video recording allows the researcher to study the details of the teaching and learning process. In this case, the use of video recording allowed the researcher to study how the subject learns instead of how much the subject learns. Non-participants observation protocol, field note protocol, and interview protocol had been used to collect qualitative data of this study. Research instruments were further explained in the following subsections. These qualitative data were important to provide an in-depth explanation and supports for the qualitative method used in this study. Besides, these data were taken as elements of triangulation and validation of data in the study.

3.7.1 Vocabulary Screening Test

The Vocabulary Screening Test (refer Appendix C), consisting of 54 items in 12 constructs, was intended to measure pupils‟ vocabulary knowledge prior to the experiment. All pupils that met the criteria of selecting participants in this study took Vocabulary Screening Test carried out in 6 days for 10 minutes each session to assess pupils‟ vocabulary knowledge prior to the experimental periods. Each session a day, pupils were required to carry out only 2 constructs consisting of 6 to 10 items. Pupils had several short work periods rather than one long period to carry out the screening test. However, they were given more to answer the item whenever they not able to finish on time

The Vocabulary Screening Test was designed by the researcher. The format of the test was based on the Linus Screening test prepared by the Ministry of Education and applied in school. However, the content of the Vocabulary Screening Test that applied in this study was different from the formal Linus Screening Test to suit the aims of this study. There were a total of 54 items of vocabulary were selected from the standard three textbooks. The items selected were consisting mainly of basic sentence parts: nouns, verbs, and adjectives.

3.7.2 Vocabulary Test

With regard to the vocabulary test (refer to Appendix D), two types of researcher-designed instruments were applied. (1) Picture vocabulary test, (2) Fill in the blanks and (3) Arrangement of words to form sentences. The first test was intended to measure pupils‟ achievement in defining the vocabulary (Semantic), the second, aimed to measure pupils‟ ability to use the vocabulary to fill in the blanks

(Semantic), and the third test, aimed to measure pupils‟ achievement in forming phrases or simple sentences (syntax). The intervention was carried out in 8 weeks, wherein there were 5 daily learning periods a week during weekdays. Every week, 3 vocabulary tests were carried out. Test 1 was conducted to assess pupils‟ ability to define vocabulary in the third daily learning period of a week. Tests 2 and 3 were undertaken to assess pupils‟ vocabulary knowledge in the fifth daily period of a week. As such, totally there were 24 vocabulary tests during the intervention periods. Vocabulary test was a web-based test designed using the "Quiz Widget" in Frog VLE. The widget allowed teachers to create or use pre-built quizzes. This tool enabled the teacher to create quizzes using 9 different types of quizzes and widely used question types such as "Multiple Choice", "Fill in the Blanks", "Mix and Match" and "Categorizing", giving them different ways to test student comprehension. Each time series test (Frog VLE Quiz Widget) was built based on the different vocabularies that selected for each session. The tests aimed to assess the domains of the study which were semantic and syntax. Semantic referred to the ability of participants to define the vocabularies. Meanwhile, Syntax referred to the ability of pupils to arrange words and phrases to create well-formed sentences in a language.

3.7.3 Post-test

Finally, the post-test, comprising a total of 40 items that participant has gone through in the baseline sessions. It was aiming at measuring pupils‟ vocabulary knowledge following the experiment. The post-test was assigned via Quiz Widget in Frog VLE where pupils answered by using a computer and then resend to the researcher. The post-test has no time limit, whereby participants were allowed to answer the post-test as long as they need. Besides, the post-test can break into few

parts to be answered at different times or days based on the convenience of participants. Lastly, the post-test will be marked automatically by Frog VLE according to the answers set by the researcher. The researcher can collect the result from the reporting tool in Frog VLE that allows the teacher to monitor a variety of data such as student performance over time.

3.7.4 Observation Protocol

A non-participant observation protocol (refer to Appendix E) was designed by the researcher to record the implementation of the intervention. The non-participant observation protocol included descriptive and extensive data such as the description of the implementation of activities, pupils‟ responses, experiences, and performance on the use of Frog VLE. Moreover, the observer‟s personal opinions, feelings, and suggestions toward the intervention were also recorded in the protocol. In addition, observation towards the room setting and environment setting also included ensuring the condition of the room is suitable to carry out the intervention and related activities. Teacher‟ and pupils‟ experience with the use of Frog VLE was the most important part of the observation to prove the effectiveness of the Frog VLE in teaching vocabulary knowledge by listing the strengths and weaknesses of the activities.

3.7.5 Field Notes

A field note protocol (refer Appendix F) was designed by the researcher to record feelings, experiences, feedback, self-reflection, problems that occur while conducting the study. Field notes were taken by the researcher on and off based on

the aspects listed in the protocol. Field note was very important to be used aligned with non-participant observation protocol, to provide perspectives of the use of Frog VLE to develop pupils‟ Malay language vocabulary from a different angle. Field notes in this study were generally consisting of two parts, (1) descriptive information and (2) reflective information. In descriptive information part, researcher attempt to accurately document factual data such as date and time of intervention sessions, the settings, actions, behaviours, and conversations that observed by the researcher. On the other hand, the researcher recorded thoughts, ideas, questions, and concerns while conducting the intervention as reflective information. Field notes enabled the researcher to foster self-reflection in the study and preliminary analysis reveals emergent themes for more developed investigation and study.

3.7.6 Interview Protocol

An interview protocol (refer to Appendix G) was designed to conduct a semi-structured interview with the remedial class teacher after the intervention phase. The aim of the interview protocol was to collect the opinions, feedback, and suggestions of the experienced remedial teacher on the use of Frog VLE. The interview was focus on her thought after she observed the intervention session and the performance of participants in the class after the intervention. The use of Frog VLE for pupils from the remedial classrooms and the suitability of Frog VLE in teaching vocabulary was discussed it further. Problems that occurred, solutions to the problems, weaknesses, and strengths of the study were also included in the interview.

3.8 Validity and Reliability of the Instruments

To appropriately assess the validity and reliability of the instruments appropriately, three qualified panels with a remedial education background who involved in LINUS Program were invited to evaluate the instruments. For the validation of the instruments, operational definition of variables, description of the study, softcopy or hardcopy of the instruments were provided to the panels. Besides, the researcher had explained the aims of the study to the panels face to face and answered inquiries by panels regarding the study. In that case, panels can fully understand the objectives of the present study. It was important to seek for panels" advice and help in validating the instruments to ensure that the instruments used were suitable for pupils from the remedial classroom and to ensure that the contents of the instruments can effectively measure the semantic and pragmatic of vocabulary. Panels had examined, judged and provided guidance on the items and formats of the instrument by cross-checking. Their background information is shown in Table 3.4 below.

Table 3.4

Overview of Background Information of Panel Members

Panel Member	Job Position	Level of Education	Experience
A	Head of Malay Language Panel in Primary School	Degree in Malay Language Education	20 years" experience in Malay language and 8 years in remedial education
B	Malay Language Teacher in primary school	Master in Malay Language Education	10 years" experience in Malay language and 5 years in remedial education
C	Lecturer in Teacher Training College	Master in Malay Language Education	17 years" experience in Malay language

The panel members were professional and experienced experts in Malay language education. Since the present study was focus on remedial pupils, their experience in remedial education was also taken into account. Panel Member A and Panel Member B have involved directly in the school remedial program as well as the Literacy and Numeracy Screening test (LINUS) in school, which indicated that they knew the purposes and process of LINUS as well as the remedial program. On the other hand, Panel Member C was an expert in Malay language education as she trained teachers for many years. Although she has no experience in remedial education, but she read articles about the LINUS screening test and also knew about the remedial class school for pupils weak in Malay language. Panel Member C was mainly on checking the Malay vocabulary and grammatical functions in the instruments to avoid any grammatical errors.

3.9 Data Collection Method

In this study, three methods were involved in data collection to gather both quantitative and qualitative data. Firstly, the nonparticipant observation was employed in collecting quantitative data on children's vocabulary development during baseline, intervention, and maintenance phase, in a classroom setting. Secondly, participant observation using field notes had been used to gather qualitative data during the implementation of Frog VLE in the intervention phase. Lastly, the assessment worksheet was conducted during the intervention and maintenance phase as a source of quantitative data on vocabularies mastered by participants. An overview of data collection methods is shown in Table 3.5.

Table 3.5

Overview of Data Collection Methods

Data Collection Methods		
Baseline Phase	Intervention Phase	Maintenance Phase
Field Notes	Field Notes	Field Notes
Pre-test result	Non-participant Observation	Semi Structured Interview
	Time series Assessment result	Post-test Result

3.9.1 Test Administration

One of the data collection methods in this study was direct evidence of participant learning outcomes in the form of pupils' performance that can be evaluated quantitatively. In the beginning, pupils from the remedial classroom underwent a screening test designed by the researcher for the selection of participants who met the criteria of this study. Pupils who failed in the test will be enrolled in this study. In the intervention stage, participants underwent time-series test to assess a pupil‟s achievement continuously. Times series tests designed by using Quiz Widget in Frog VLE had been assigned to pupils from time to time according to participants‟ progress in the study. Time series test provided "value-added" or growth information to a researcher in order to identify the performance of participants continuously either increase or decrease in the assessment. Results of the time series test were generated automatically by the Frog VLE system and the results were sent to the teacher‟s Frog VLE‟s account. A total of 16 time-series tests for 8 themes (2 tests for each theme) of vocabulary knowledge were seated by participants. Once participants finished with the intervention session, they were seated for a post-test that consisted of vocabularies selected in baseline phase. The results of the time series test and post-test were used to answer research question 1.

3.9.2 Nonparticipant Observation

The non-participant observation was conducted in this study in tangent with other qualitative and quantitative data collection such as field notes and assessment results. In order to provide a neutral and unbiased view of the study, non-participant observation observed the intervention without participating in this study.

In this study, the remedial class teacher was selected as the observer to conduct the observation. The remedial class teacher was the best candidate among the teachers at the selected school due to her experience in this field. Besides, she knew the participants better as she had been teaching them in the remedial classrooms for 3 years since standard 1 until the present. Before the observation, the researcher had explained the purposes and aims of the study to ensure the observer realized the importance of carrying the study. After that, the researcher had introduced the procedures of this single-subject study including the baseline phase, intervention phase, and maintenance phase so that she understood the core focus of the study and also the procedures of the study. In addition, a short discussion and briefing were held before observation with the observer regarding the aspects to be observed that listed in the non-participant observation protocol.

Regarding observation protocol designed (refer Appendix E), descriptive and extensive data such as descriptive of physical surroundings, implementation of activities, child"s experience and responses using Frog VLE and their performance in learning Malay language vocabulary. During the intervention phase, the observer had observed the whole progress without participating or interrupting from a distance. Her presence will be informed to the participants.

3.9.3 Semi-structured Interview

The interview was a qualitative method to collect data in this study. It involved the process of asking questions and getting answers or responses from the participants in a study. There are three types of interviews that commonly used in a research study: structured interview, semi-structured interview and unstructured interview. In this study, a semi-structured interview was selected to be conducted after the maintenance phase with the remedial class teacher. A semi-structured interview was selected because of its flexibility where the target subject of the interview able to bring up new ideas, questions or suggestions besides answering the listed question that prepared by the researcher during the interview.

In this study, the semi-structured interview was conducted to collect the remedial class teacher feedbacks after observation of the intervention that carried by the researcher. Basically the interview was focus on her observation of the effect of Frog VLE in teaching vocabulary and the suitability of pupils in remedial class pupils learn by using web-based Frog VLE based on pupils‟ performance. The remedial class teacher only took part in the study indirectly as a non-participant observer without any interruption that may affect the result of this study. The teacher had watched the progress of the intervention session entirely from a distance.

An interview protocol (refer to Appendix G) was designed for this study. The interview was conducted face to face in semi-structured conversations without any interruptions. Open-ended questions were prepared for the interview session in order to explore the remedial class teacher‟s observation and perception towards the current study. The interview was carried out during the teacher‟s convenient time after the maintenance session. It took roughly 50 minutes and was audio-taped to be transcript into words. Teacher had informed the procedures of the interview session

and the purpose of audio-taping. Besides, notes were taken throughout the interview as well. The transcript based on the interview (refer Appendix G) was presented to the teacher for verification purposes before applied in this study as collected data.

3.9.4 Documenting Pupils' Work

In order to assess what pupils know and can do by using Frog VLE during the intervention session, it was necessary to collect evidence of pupils learning throughout the study. During the study, the teacher observed and monitored the progress of pupils as they worked on Frog VLE in learning Malay language vocabulary, all the sites of vocabulary created by pupils were documented. Since the researcher was not able to log in to pupils‟ Frog VLE account without pupils‟ permission and also not able to save or download pupils‟ work, the researcher had to use the "print screen" function to collect pupils‟ work as evidence. Samples of pupils‟ work throughout the study were the core of evidence in this study. It was included all the daily works pupils do throughout the intervention and maintenance sessions. It was helpful when summarizing pupil learning and the effectiveness of Frog VLE.

3.10 Experimental Conditions and Procedure

Before the intervention takes place, pupils were undergoing a baseline where they studied vocabulary like usual in remedial classrooms. After that, an introduction Frog VLE was undertaken. In the introduction stage, the researcher had introduced functions of Frog VLE and also explained to the pupils how to use the Frog VLE to proceed with their learning. After that, the three participants were seated for the

screening tests of vocabulary carry out during 10 minutes each session to assess pupils‟ vocabulary knowledge prior to the intervention stage. The items in the screening test were selected from standard Three Malay language textbooks where the vocabularies suppose to be mastered by pupils subsequently to 8 weeks. All pupils were seated for the post-test of vocabulary knowledge during 30 minutes to assess pupils‟ vocabulary knowledge following the intervention periods. A Planned Experimental Schedule was built to show the overview of the study (refer to Appendix H).

3.10.1 Baseline Phase

In the baseline phase, data of the usual vocabulary teaching and learning activity for participating pupils were collected during the remedial sessions of the respective classes. All participants started their baseline phase in the first week without any intervention. During the baseline phase, participants were sitting with their respective groups of peers. Participants were taught with other pupils placed in a remedial classroom to complete every activity related to Malay vocabulary acquisition and also to complete vocabulary knowledge worksheets. The remedial class teacher had provided coaching and assisting equally to pupils including participants and non-participants as they normally did. In the baseline phase, the data of participants‟ vocabulary knowledge were collected without intervention by using the pre-test instrument.

In this study, Pupils A who achieved higher results during vocabulary knowledge activity was first moved to the intervention stage after five days of observations. This was followed by Pupils B who needed more attention and

assistant from the teacher during teaching and learning sessions compared to Pupils A. Pupil B had begun intervention after 10 days of observations. Pupils C who achieved the lowest result during vocabulary knowledge activity were the last participant to move to the intervention stage. In this manner, the experimental schedule was shown in time-lagged fashion from baseline to intervention phase. Appendix H shows the planned experimental schedule.

3.10.2 Intervention Phase

The intervention phase (refer Appendix I) began in a staggering condition across three participants. It was only started after the baseline phase. The researcher attended a few courses and workshops related to Frog VLE before the intervention. Participants had undergone Frog VLE training in the first week of the intervention stage. In this Stage, Frog VLE was carried out on an individual basis at the school library. All participating pupils from the study had intervention at a different time and away from the remedial classroom that they usually used to prevent response bias. Pupil A started intervention from 7.00 a.m. until 7.30 a.m. every weekday. Meanwhile, Pupil B started intervention from 1.00 p.m. until 1.30 p.m. every weekday. Finally, Pupil C started intervention from 3.30 p.m. to 4.00 p.m.

At the beginning of the intervention phase, the teacher had first introduced the Web-based Frog Virtual Learning Environment. Every pupil's study in government school has a personal account that allows them to access the Frog VLE for free. The researcher had introduced functions of Frog VLE including the selected and non-selected widgets. The researcher had assisted participants to explore every function in Frog VLE that included in this study. Pupils were allowed to explore the

Frog VLE and built their own dashboard in Frog VLE by using selected widgets. The teacher facilitated the pupils at the beginning of the intervention to make sure pupils mastered the necessary skills before preceded to the next stage. After a week of exploring sessions, pupils continued the intervention with minor facilitation from the teacher and intentionally reduced and ceased the assisting when the pupil was able to carry out the Frog VLE activity independently. The intervention phase was conducted over 40 days duration within 8 weeks.

The intervention was carried out during 8 weeks, wherein there were 5 daily learning periods a week excepted weekend respectively. 8 themes that consist of 40 words selected involved in the intervention phase. The first session every week, 5 words were introduced to pupils. In the beginning, the researcher assisted participants to build their personal dashboard and made their own notes to learn the given words by using the functions and selected widgets in Frog VLE. After the first session, every participant was given another 4 sessions to build their notes in their personal Dashboard based on the 5 given words. The researcher observed the learning process and assisted the participants whenever necessary. Every week, participants were undergoing 3 vocabulary tests assigned by the researcher using Quiz Widget after they finished creating notes in the personal dashboard.

This study aimed to run intervention using Frog VLE across 40 days duration for each participant to find out the effectiveness of using Frog VLE in Vocabulary learning. Data during the intervention phase were used to answer the first and second research questions on the effectiveness of Frog VLE towards the development of Malay vocabulary of children from the remedial classrooms. A description of an overall intervention plan is shown in Table 3.6.

Table 3.6

Overall Intervention Plan

Phases of the Study	Objectives	Widgets used	Themes and Vocabularies
Orientation and introduction	To give orientation and introduction of the Frog Virtual Learning Environment	Media, Notes, Quiz, Wall	-
	Able to create and edit dashboard	Any of the Widgets	-
	Able to apply selected Widgets in dashboard	Media, Notes, Quiz, Wall	-
Intervention	Able to define the words using media, phrases or sentences (**semantic)**	Media, Notes	Nouns of things: *pakaian, gerai, kaunter, troli, rak* Nouns of persons: *pejalan, jiran, kumpulan, penunggang, pekebun*
	Able to explain the meaning of words to peers / discussion with peers / make simple sentences **(semantic/syntax)**	Wall	Nouns of places: *halaman, stor, taman ,rumah perpustakaan,* Verbs with *imbuhan men,mem: mencabut, membuang menjerit, membelai, menjahit*
	To assess participants‟ vocabulary knowledge through giving time series test (1&2) **(semantic & syntax)**	Quiz	Verbs with *Imbuhan beR-: berkebun, berbuah, bertanya, bercakap, berjoging* Adjectives to describe things: *Nipis, tebal, cetek, berat, rendah* Adjectives to describe persons: *ceria, cergas, obesity, kurus, cerdas* Adjectives to describe feelings: *Bimbang*, *seronok*, *sedih*, *takut, marah*

3.10.3 Maintenance Phase

In this study, the maintenance phase had begun immediately after the intervention phase. This phase was planned to examine the intervention effect upon the finishing of intervention. In this phase, there was no intervention involved. However, Malay vocabulary learning will be carried out on an individual basis at the Frog VLE corner in school library. A theme consists of five words selected from Standard 3 Malay Textbook will be introduced to pupils, all of the participants were required to create a site of five words by using Frog VLE. The researcher assigned vocabulary tests via Quiz Widget within the maintenance stage and pupils answered the quizzes when they were ready.

Based on the procedure from baseline to intervention phase, Pupil A was first entering the maintenance stage follow by Pupil B. In this study, each participating pupil underwent at least five days maintenance phase and the result will be analyzed to detect the trend of the maintenance phase. The trends of all participants stabilized after five maintenance sessions. Therefore, the study brings to a close and data collected in three stages that were used to do a comparison. The results were used to answer the third research question on the effectiveness of Frog VLE towards Malay vocabulary development of pupils from the remedial classrooms. A description of overall experimental condition and procedures is shown in Table 3.7.

Table 3.7

Overall Experimental Condition and Procedures

Phase	Procedures (learning session)
Baseline	(No Intervention) • Vocabulary learning session will be conducted as usual • Vocabulary knowledge worksheet will be assigned in respective group
Intervention	• Individual basis in vocabulary learning • Implementation of Frog VLE • Teacher provide assisting when necessary
Maintenance	(No Intervention) • Individual basis in vocabulary learning • Using Frog VLE without assisting

3.10.4 Social Validity

To achieve social validity in this study, the researcher had explained the study goals, procedures, and expected outcomes to the headmistress of the participating school. The researcher also discussed with the remedial class teacher of the procedures of the study. Besides, the researcher promised the procedures of the study will not disrupt the formal teaching and learning session of non-participating pupils. The researcher ensured that this study is acceptable and agreed by the headmistress prior to the study. With the acceptance of the school headmistress and teacher, the implementation of the study will be feasible for all participants in the study.

In this study, the researcher will be the main implementer of intervention procedures. The semi-structured interview will be conducted at the end of the maintenance phase to collect feedbacks from remedial class teacher who will act as an observer in this study. The interview will focus on their perceptions of the effects,

acceptability, and feasibility of Frog VLE. Additionally, the researcher will interview the teacher on the use of Frog VLE in future vocabulary learning activities. Evaluation of social validity will be shown with the presentation of results from interview findings in Chapter Four.

3.11 Pilot Study

A pilot study was conducted across ten days' duration before the intervention took place in the study. The aim of conducting the pilot study was to validate the use of Frog VLE and instruments. A pupil from a remedial classroom was selected to participate in the pilot study. The pupil met the criteria of sampling selection in this study. The first three days were the baseline phase. Teacher assigned vocabulary worksheet to the pupil. Implementation of Frog VLE was started on the fourth day of the pilot study. Intervention lasted for four days. Researcher recorded the result of pilot study. The maintenance phase took place on the eighth day of the pilot test. In the pilot study, the researcher served as a teacher and observer.

3.12 Ethical Considerations

Before the pupils participate in this study, informed consent had been obtained from their parents or guardians to ensure that they knew the goal and objectives of the study, and they understood the whole procedures of the study and how their children took part in the study. No incentives to be given throughout the whole process of study. All involved parents and guardians agreed to let their children involved in the study. Besides, participants were volunteered to be part of this study. In addition,

the researcher had prevented and avoided causing any harm to the participants throughout the study. Therefore, the code name was used instead of real name for all participants in this study and all data collected from them are strictly confidential and were only applied in this study.

3.13 Data Analysis

In this single-subject design study, two methods of data analysis which were quantitative and qualitative data had been used to enhance the reliability of the study. Both data analysis were discussed in detail in the following subsection.

3.13.1 Analysis of Quantitative Data

In this study, measurements were made before, during and after the intervention. So, for quantitative data, Vocabulary Assessment Test was conducted via Frog VLE to collect the data and then analyzed with the purpose of examining the effectiveness of Frog VLE on participants. Besides, measurement had made throughout the participants‟ performance in the baseline phase, the intervention phase, and maintenance phase. The magnitude of changes in participants‟ performance between baseline phase and the intervention phase, the intervention phase, and the maintenance phase were evaluated and compared.

To present the result from baseline to maintenance phase, simple line graphs were employed. From the graph, the percentage of intervals with dependent variables (vocabulary knowledge) was displayed on the ordinate (y-axis) and the number of lessons across the study was displayed on the abscissa (x-axis). The

following formula was used to calculate the percentage of intervals with the dependent variable:

$$\frac{\text{Total number of intervals with occurrence of vocabulary knowledge} * 100}{\text{Total number of lessons}}$$

As this study employed multiple baseline design, line graphs were plotted for each participating pupil, from baseline to maintenance phase. The graph showed the vocabulary knowledge within each participated pupil across the phases. Additionally, the pattern of data between pupils was compared. Mean and range (quantitative data) of the study were also being presented in tables for a simple comparison between participants and phases.

3.13.2 Analysis of Qualitative Data

This study employed a thematic analysis method in order to analyze qualitative data. Descriptive analysis was the main approach to analyze all data from non-participant observation and teacher interviews. Before analysis, data collected via field notes and interviews were presented in extensive transcripts. Semantic codes were used in the study to summarize the explicit content in the transcripts. Thus, words and phrases from the transcript were incorporated in semantic codes.

In this study, data extracted from participant observation and teacher interviews were collated into groups of codes. For example, data extracted from non-participant observation was coded based on categories relating to Malay language vocabulary knowledge, semantics, and syntax of the vocabulary of pupils in the remedial classroom. In the later part of the analysis for intervention effect, codes were collapsed into a single code. For instance, improvement in vocabulary

knowledge, semantic and pragmatic of vocabulary was coded under one title "improved vocabulary development in pupils from the remedial classroom". The code "improved vocabulary development in pupils from remedial classroom" was further distinguished into two categories: semantic and syntax of vocabulary. Both were the main aim of the intervention.

Lastly, thematic maps were created to illustrate a clearer relationship between codes and between themes (refer to figure H). The transcript and codes derived by the researcher were also being read by a third party to ensure the findings are representative of the context.

3.14 Summary

This chapter outlines the research methodology that will be used to investigate the use of Frog VLE on the Malay language vocabulary of pupils from the remedial classrooms. The details of how to conduct the study and methods of analyzing both quantitative and qualitative data will be discussed. Lastly, the analysis of the results will be discussed in Chapter Four.

CHAPTER 4

RESULTS

4.1 Introduction

This chapter presents the results of the intervention in order to answer the research questions in this study. Results from Frog Virtual Learning Environment (Frog VLE) were presented to answer research Question One which is relating to the effectiveness of Frog VLE in improving vocabulary development in the Malay Language among pupils from the primary remedial classroom. Besides, Intervention effects such as changes of level independent variables mean and trend across phases were examined to support Question One. Subsequently, results from non-participant observation were presented to answer Question Two and Three relating to the suitability of Frog VLE based activities and difficulties occurred in teaching vocabulary in the Malay Language by using Frog VLE. Alongside, a qualitative finding from participant observation during the intervention phase was reported to support the Second and Third Research Question. Finally, results from the teacher interview were presented to support Question Two and Three, as well as to form a triangulation in data analysis. Quantitative results in this study were summarised and displayed using line graphs and tables. For qualitative findings, a thematic analysis of data was presented.

4.2 Semantic and Syntax Skills of Pupils from Primary Remedial Classroom

Semantic is one of the domains affecting vocabulary acquisition of an individual. Semantic refers to the ability of an individual to define the meaning of words. In this study, Research Question One intended to measure the effect of Frog

VLE on the ability of pupils to define the meaning of Malay vocabularies. Semantic skill level of all participating pupils during the intervention procedure was examined as summarised in Table 4.1.

Table 4.1

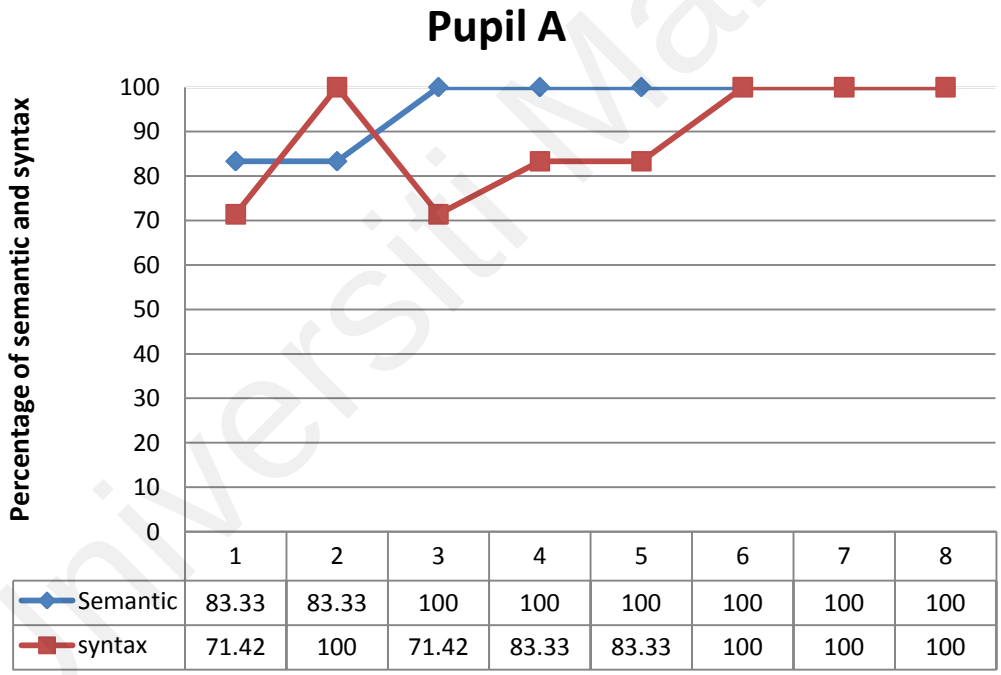
Range and Mean Percentage of Semantic Skill

Dependent Variable	Pupil A		Pupil B		Pupil C	
	Score (%)	Mean Score (%)	Score (%)	Mean Score (%)	Score (%)	Mean Score (%)
Semantic	83.33-100	95.83	71.42-100	85.21	50-100	80.35

Prior to the intervention, three participants had gone through a pre-test. Results showed that all three participants displayed a different level of semantic skills. Pupil C showed a relatively lower level of semantic (initial semantic=50) among three pupils. Pupil B (initial semantic = 71.42) showed higher semantic skill than pupil C. Meanwhile, Pupil A (initial semantic = 83.33) showed the highest percentage of semantic skill in the first session among participants. The overall percentage for semantic skill in the initial study ranging from 50 to 83.33 (refer Table 4.1)

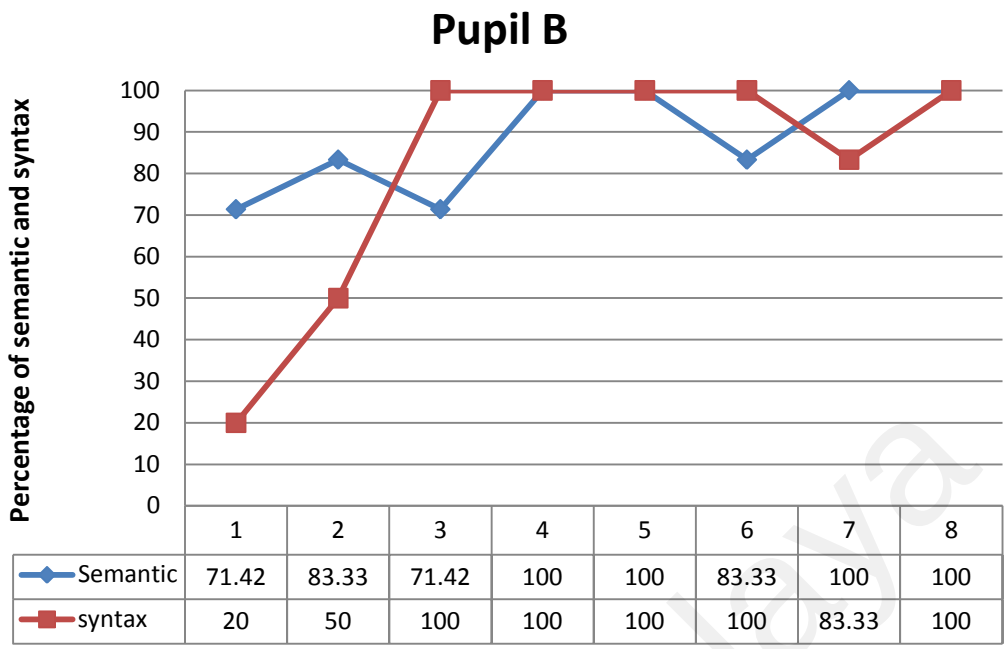
As shown in Figure 4.1, the percentage of vocabulary that successfully defined by the three participants from the remedial classroom in the intervention phase proves that all participants in this study had significant improvement in defining Malay vocabularies (semantic skill) through the intervention. The most significant improvement was found in Pupil C, with increasing of 50 from the first intervention to the seventh intervention even though his result for the last intervention was slightly dropped to 83.33. Meanwhile, Pupil B also showed

significant improvement with increasing of 28.58 throughout the intervention. Pupil B achieved 100 in 4 intervention sessions out of 8 intervention sessions. Markedly, Pupil A with increasing of 16.67 showed the least increase among three participants due to his good performance in the intervention. Pupil A achieved 83.33 for the first and second intervention, and he managed to achieve 100%defining words since the third intervention and maintained the performance until the last intervention, Hence, it caused the minor differences I percentage compare to Pupil C. In this study, all the participants achieved high mean percentage in semantic skills with mean percentage of 95.83 for Pupil A, 85.21 for Pupil B, and 80.35 for Pupil C.



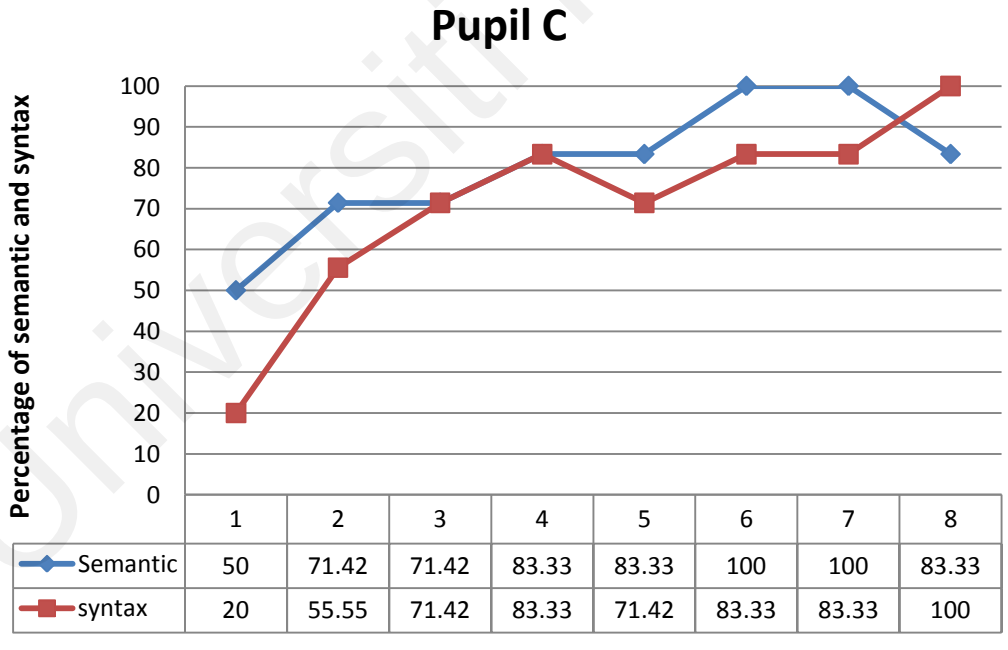
	1	2	3	4	5	6	7	8
Semantic	83.33	83.33	100	100	100	100	100	100
syntax	71.42	100	71.42	83.33	83.33	100	100	100

Figure 4.1 Percentage of semantic and syntax skills during intervention sessions for pupil A



	1	2	3	4	5	6	7	8
Semantic	71.42	83.33	71.42	100	100	83.33	100	100
syntax	20	50	100	100	100	100	83.33	100

Figure 4.2 Percentage of semantic and syntax skills during intervention sessions for pupil B



	1	2	3	4	5	6	7	8
Semantic	50	71.42	71.42	83.33	83.33	100	100	83.33
syntax	20	55.55	71.42	83.33	71.42	83.33	83.33	100

Figure 4.3 Percentage of semantic and syntax skills during intervention sessions for pupil C

In this study, syntax refers to the ability of pupils to arrange the given words correctly into sentences that convey meaning and make simple sentences that

contains at least one subject and one predicate by using the given words. Syntax is defined as one of the domains affecting vocabulary acquisition. Thus, current study intended to measure syntax of pupils from remedial classroom throughout the use of Frog VLE. The results in Quiz widget were recorded to examine the level of syntax skill of three participants from remedial classroom. Table 4.2 summarises the range and mean score for syntax skill in three participants.

Table 4.2

Range and Mean percentage of Syntax Skills

	Pupil A		Pupil B		Pupil c	
Dependent Variable	Score (%)	Mean Score (%)	Score (%)	Mean Score (%)	Score (%)	Mean Score (%)
Syntax	71.45-100	88.69	20-100	81.67	20-100	71.05

Compared with the results in semantic, syntax scores among the three participants were low in the initial stage of intervention. Both Pupil B and Pupil C scored 20% in the first intervention and Pupil A achieved a higher score which was 71.45. The overall percentage range for syntax in the initial intervention was 20% to 71.45% (refer to Table 4.2).

Throughout this study, both Pupil B and Pupil C showed significant improvement in syntax. An increase of 80 for both Pupil B and Pupil C was found in the intervention. The mean score for Pupil B was 81.67 while the Mean score for Pupil C was slightly lower than Pupil B, which was 71.05. Pupil A who showed the highest score in semantic results has shown the least improvement but the highest mean percentage among the three participants in syntax. An increase of 28.55% and a mean percentage of 88.69% was found in Pupil A.

A minor slipped back was found in the duration of intervention for all three participants (refer to Figure 4.1). Pupil A was found slipped back in the third session followed by steady improvement until the pupil achieved 100% since the sixth session of intervention. Pupil B was slightly slipped back in the seventh session with the achievement of 100 % from the third session to the sixth session. However, Pupil B able to achieve 100% for the last intervention session. Pupil C was found a minor slipped back in the fifth session of intervention followed by an improvement for the session afterward.

4.3 Vocabulary Acquisition in Malay Language of Pupils from Remedial Classroom

The aim of this study is to focus on the effect of Frog VLE on Malay Language vocabulary acquisition. Therefore, Research Question One had been used to examine the effects before and after the use of Frog VLE. The question focuses on the level of vocabulary acquisition of the participants from baseline through the maintenance phase in this study. Both semantic and syntax skills of participants were recorded through instruments created by using Frog VLE to measure their level in vocabulary acquisition. Quantitative data was recorded through the coding method. Semantic and syntax of pupils were evaluated for changes in level, mean and trend across baseline, intervention line and maintenance phases.

4.3.1 Semantic Skill of Pupils across Phases

Semantic skill is one of the domains of vocabulary acquisition in the current study. The semantic skill was enhanced using the Frog VLE in the intervention

phase. The performances of three participants in semantic skill were measured during the baseline phase, the intervention phase and also the maintenance phase.

In this study, Research Question One intended to investigate the effect of Frog VLE in improving participants‟ semantic skills in the Malay language. The semantic skill of all participants was examined; range and mean of semantic skill were displayed in Table 4.3. Figure 4.2 presents the percentage of semantic skill in Malay language vocabulary acquisition across phases. In addition, non-participant observation during the intervention phase also carried out by the researcher.

Prior to the intervention, Pupil A scored highest in semantic skill (Mean Score=25) among the participants, following by Pupil B (Mean Score=18) and Pupil C (Mean Score= 16). Baseline performance was relatively low in all participants. After the intervention was applied to them, there was a marked increase in the semantic skill of all the participants especially Pupil A and Pupil B.

During the maintenance phase, the mean percentage for semantic skill continue to rise in Pupil C. The achievement in the maintenance phase was increased by 1.55%. The performance of Pupil A and Pupil B in the maintenance phase was decreased compared with the intervention phase but their performance in maintenance generally better than their performance in the baseline phase.

Pupils were able to check their results every time after they had done the vocabulary test using Frog VLE. Discussion between researcher and participants after the intervention was conducted from time to time. Discussion about the satisfactory level of using Frog VLE, the constraints they faced while using the VLE. Pupils‟ performance in their vocabulary test had discussed in these sessions. Stimulation such as Compliment was given if pupils showed improvement in the

vocabulary test while suggestions were given whenever they achieved low in the test. The researcher always gets ready to assist in the intervention sessions. Such stimulation was given to ensure the pupils able to retain their interest to learn through VLE. Compliment and suggestion able to build their self-confidence

Pupils show good results and increment if the vocabularies related to their daily life experience. With the information, they obtained using Frog VLE easily assimilate with their prior knowledge and the process of creating sites of vocabulary helped them to accommodate the vocabulary in their mind. Conversely, when they encountered vocabularies that were not related to their prior knowledge, they showed slightly discouraged in the intervention session and they took a long time to search for suitable information.

Table 4.3

Range and Mean for Percentage of Semantic Skill across Phases

Dependent Variable	Baseline		Intervention		Maintenance	
	Score	Mean Score	Score	Mean Score	Score	Mean Score
Pupil A	20-30	25	83.33-100	95.83	71.42-100	87.62
Pupil B	10-30	18	71.42-100	85.21	71.42-83.33	76.18
Pupil C	10-20	16	50-100	80.35	71.42-100	81.9

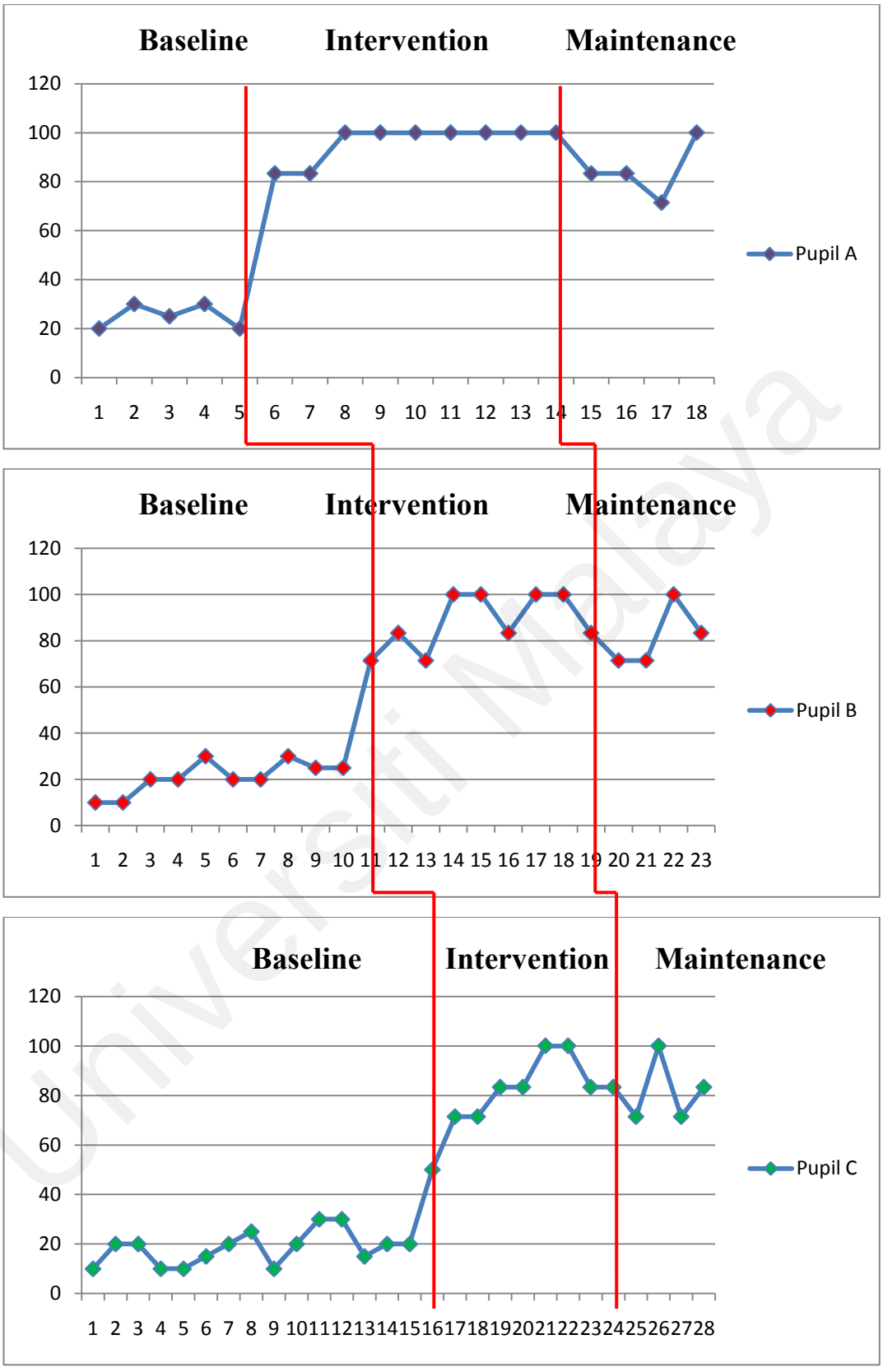


Figure 4.4 Percentage of semantic skill in Malay language vocabulary acquisition across phases

4.3.2 Syntax Skill of Pupils across Phases

The Syntax skill is one of the domains of vocabulary acquisition in the current study. The syntax skill was enhanced using the Frog VLE in the intervention phase. The performances of three participants in syntax skills were measured during the baseline phase, the intervention phase and also the maintenance phase.

In this study, Research Question One intended to investigate the effect of Frog VLE in improving participants‟ syntax skills in the Malay language. The syntax skill of all participants was examined, range and mean of semantic skill were displayed in Table 4.4 and Figure 4.3 presents the percentage of syntax skill in Malay language vocabulary acquisition across phases. In addition, non-participant observation during the intervention phase also carried out by the researcher.

Table 4.4

Range and Mean for Percentage of Syntax Skill across Phases

Dependent variable	Baseline		Intervention		Maintenance	
	Score	Mean Score	Score	Mean Score	Score	Mean Score
Pupil A	20-30	26	71.45-100	88.69	83.33-100	93.33
Pupil B	10-30	20	20-100	81.67	71.42-100	81.9
Pupil C	10-20	12	20-100	71.05	71.42-83.33	78.56

Prior to the intervention, Pupil A scored highest in syntax skill (Mean Score=26) among the participants, following by Pupil B (Mean Score=20) and Pupil C (Mean Score= 12). Baseline performance was relatively low in all participants.

After the intervention was applied to them, there was a marked increase of over 60% in the syntax skill of all the participants especially Pupil A and Pupil B.

During the maintenance phase, the mean percentage for semantic skill continues to rise in all participants. The improvement of Pupils A, Pupil B and Pupil C in the maintenance phase compared with the intervention phase were 4.64, 0.23 and 7.51.

The performance of participants shows increment after the intervention took place and the graphs showed a stabilised trend. Reinforcement and stimulation were given to the participants in the discussion session after intervention sessions to establishing the pattern of behavior among the participants towards the use of Frog VLE. Participants were encouraged to access Frog VLE after school time and explore the virtual world themselves. The familiarity in using Frog VLE able to increase their performance and build the self-confidence that allowed them to learn at their own pace without comparison with their peers.

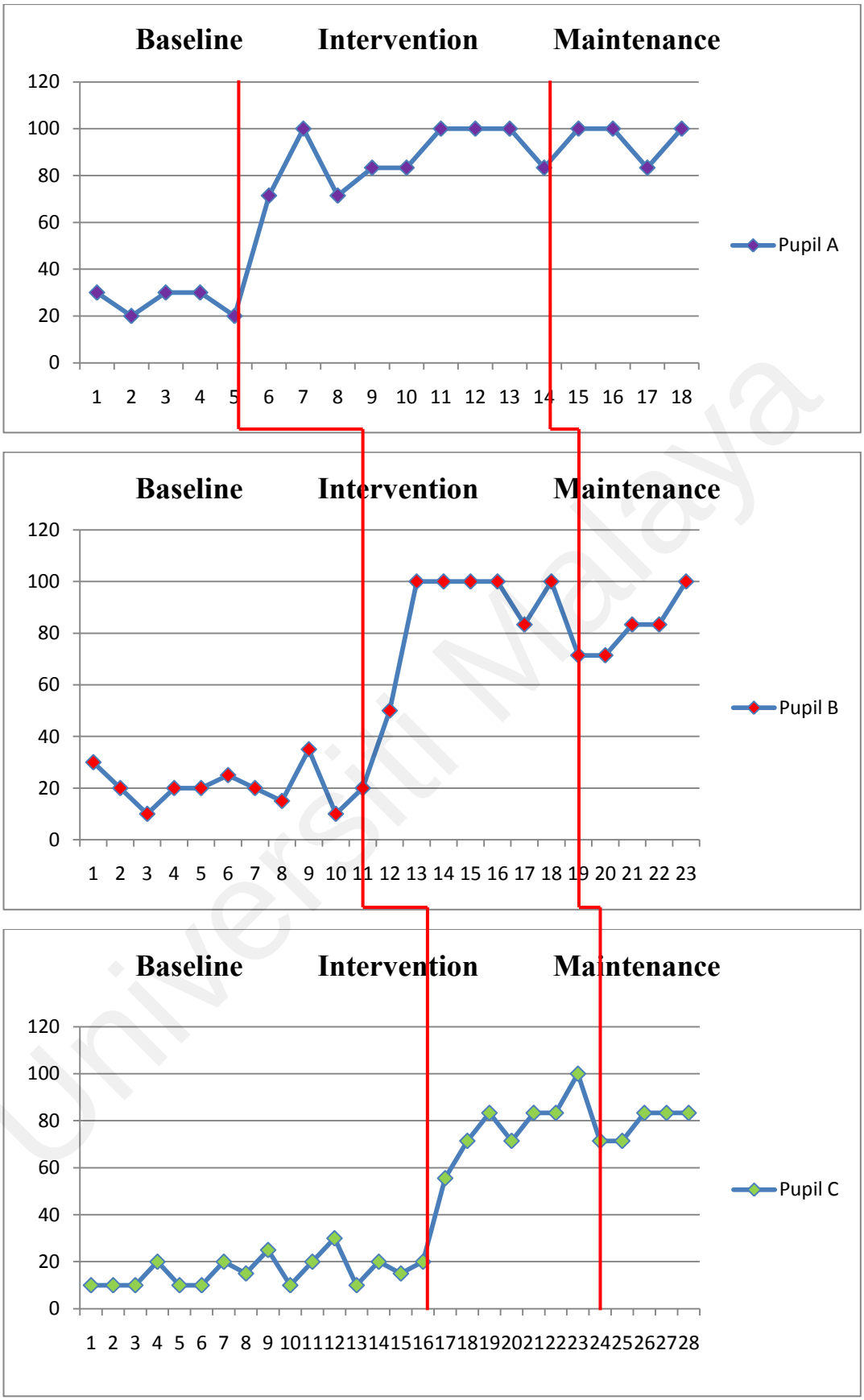


Figure 4.5 Percentage of syntax skill in Malay language vocabulary acquisition across phases

4.4 Feedbacks of Teachers in using Frog VLE

One of the intentions of the researcher is to collect feedback from the teachers after the use of Frog VLE on Malay language vocabulary acquisition among pupils from the primary remedial classroom. The researcher also aims to examine the social validity of the intervention study and triangulate the results from non-participants observation. Teacher‟s feedbacks were collected through a semi-structured interview. In the following subsection, themes extracted from transcripts were discussed.

4.4.1 What are The Changes that Take Place among The Three Participants after The Intervention using Frog VLE?

4.4.1.1 Increase Use of ICT in Teaching and Learning

Frog Vle provides an environment where teachers and pupils are inspired to power their teaching and learning outcomes with technology. In the interview, teachers had expressed their thoughts on the use of a web-based learning environment to teach Malay language to pupils from the remedial classrooms. The teacher suggested that Frog VLE should be widely used in the education field to replace the traditional teaching and learning methods.

In my opinion, technology should be fully utilized in education to replace worksheets, flash card or even text books.

(Remedial Class Teacher, extract from interview)

Teachers highlighted the use of Frog VLE in providing sufficient information to the pupils, through the Internet. The Frog VLE providing opportunities for pupils to explore the Malay language via the world of the Internet. It had generally helped to strengthen pupils‟ minds to recognize and memorize Malay language vocabulary.

According to teachers‟ opinions in the interview, teachers mentioned the Frog VLE helps to arouse pupil‟s curiosity and build mental representation, subsequently, an enhanced understanding of the pupil.

> *Pupils always request to learn by using computer. They show interest in logging in their Frog VLE account but I'm not familiar with it so I cannot guide them or teach them using the Frog VLE.*
>
> (Remedial Class Teacher, extract from interview)

In the reflection session after the intervention, pupils agreed that using ICT able to arouse their interest to learn. Different from ICT that had been applied in typical classrooms where ICT mostly used by a teacher only to display teaching and learning aids such as PowerPoint presentations, pictures, videos etc, Frog VLE giving chances for pupils to learn using ICT directly where pupils have the authority in using ICT to learn something new.

> *Pupil A reflected that he was happy that he able to use computer in school to learn, it was more interesting compared with the computer that only can be use by the teacher in classroom.*
>
> (Student A, extract from field notes)

> *Pupil B reflected that the intervention session was something new to her as she never imagined learning Malay Language in this way.*
>
> (Student B, extract from field notes)

> *Pupil C reflected that he rarely use computer, he was happy to have the chances to learn in using computer.*
>
> (Student C, extract from field notes)

4.4.1.2 Increase Focus and Engagement in learning Malay Language

Teachers mentioned that pupils were able to focus on the vocabulary acquisition activity with a long attention span for the whole intervention session. According to the remedial teacher, pupils' motivation in learning the Malay language increased after the intervention. From the interview, the teacher concluded that pupils in the remedial classrooms had higher focus and motivation in learning the Malay language when using Frog VLE compared to traditional learning activities. The teacher found that pupils were able to focus on vocabulary activities with a long attention span.

The pupils‟ performance in the intervention sessions was also proved by the field notes taken by the researcher. Field notes showed that pupils actively involved in the learning activities where pupils learned to build their own sites in their Frog VLE account and using the widgets to learn selected vocabularies. They were creating their sites with passion and had the courage to ask questions.

> *He looked at each item and functions in the Frog VLE attentively and clicked on the buttons and widgets to try and learn about Frog VLE. He concentrated on the Media Widget and asked for helps whenever he faced problems. In the end of intervention, Pupil A able to search for videos related to given Malay language vocabulary by using search engine and added into his site.*

(Student A, extract from field notes)

From the interviews, teachers stressed that pupils from remedial classrooms had a big difference after using Frog VLE compared to traditional teaching and

learning activities in the classroom. They had higher focus and motivation in searching the meaning of selected vocabulary using Frog VLE. They were more initiative in asking for help from the teacher to solve their problems.

They are willing to try to finish worksheets by themselves even though they are still unable to answer every question correctly without any assistant. They are more willing to raise up their hands to ask for help, this is a very good improvement for three of them.

(Remedial Class Teacher, extract from interview)

The teacher agreed that Frog VLE provides a good online learning platform for pupils to learn directly and indirectly. The high-technology of Frog VLE bridge the digital divide for pupils and enable access to quality knowledge and learning all across the world. Frog VLE is simple, fun and engaging that able to increase pupil‟s motivation to learn in the platform. The Frog VLE can be widely used in Malaysia‟s current education system and curriculum.

I agree that the usage of Frog VLE is good to keep pupils focused in learning and increased their motivation as well because of the technology and functions of the Frog VLE.

(Remedial Class Teacher, extract from interview)

I think that frog VLE can be used across curriculum. It can be used in any subject and any content area with different kind of activities

(Remedial Class Teacher, extract from interview)

4.4.1.3 Open Up In Learning Another Language

Throughout the intervention, teachers had acknowledged that pupils enjoy learning through web-based Frog VLE. All three pupils were excited throughout the process of every session of intervention. Pupils enjoy using a computer to access Frog VLE especially searching engines to search for images and videos related to the vocabulary. Pupils actively involved in the process of learning independently with minor assistance by the teacher. After the intervention, they started to show positive emotion in the remedial classroom. It showed that Frog VLE can be used to open up in learning another language besides pupils‟ mother tongue.

They show less resist in learning Malay language in remedial sessions compared with previous lessons. They looked more cheerful in the class and became more active in the teaching and learning activities.

(Remedial Class Teacher, extract from interview)

In the interview, the teacher had expressed her thoughts on the use of Frog VLE to learn Malay language. The teacher stressed that the use of Frog VLE in providing sufficient information to the pupils through the Internet. Frog VLE is very informative and helps to strengthen the pupil‟s mental representation during the process of creating sites and also the process of searching for suitable information in the Malay language. From the interview, the teacher mentioned that Frog VLE able to helps to enhanced understanding of pupils and cultivate pupils‟ problem-solving skill. During the interview, the teacher highlighted the improvements in understanding semantic and syntax skills in these pupils. Improvement was apparent in all participating students, especially in Pupil C who show the lowest score in both semantic and syntax skills at the beginning of the study.

Pupil A:

Pupil A showed good attitude and interest from the beginning of the intervention. He was able to complete every task independently most of the time. He has good skills in using computer.

(Extract from non-participant"s observation)

Improvement in Malay language acquisition in these pupils was further supported by the field notes. From the field notes and interview transcript, all participants had significant improvement in the Malay language. Their semantic and syntax skills in Malay language had gradually increased across the study. Pupils were able to define most of the selected Malay vocabulary using Frog VLE without referring to teacher towards the end of intervention. In addition, they able to rearrange words to form correct sentences or phrases without referring to teacher as well towards the end of intervention. They are able to maintain their performance when they were in the maintenance phase after the intervention.

Pupil A:

He definitely understands the ways to search for pictures or video via Media Widget to define the meaning of Malay vocabulary. For example, he can define "gerai" using a picture of a stall in market without any help from teacher. He managed to independently complete the quizzes assigned by teacher to evaluate his semantic and syntax skills.

Pupil B:

She answered particularly well in syntax part where she able to rearrange the words correctly after few sessions of intervention. The results of the quizzes show significant improvement in her syntax skill.

Pupil C:

He scored bad in the screening test and was very weak in Malay language when he was started the baseline stage and beginning of intervention stage. However, his semantic and syntax skills in Malay language had gradually increased across the intervention sessions.

(Extract from non-participant‟s observation)

4.4.2 How Would You Integrate Frog VLE into Your Daily Lessons in Remedial Classroom?

4.4.2.1 Through Systematical Training

In the interview, teacher agreed with the educational potential of Frog VLE in educational practices. Teacher believed that integration of Frog VLE in daily lesson is important to establish a better learning environment for pupils in remedial classroom. Frog VLE had changed the ways of learning and the ways of interaction between educators and pupils.

I believe that Frog VLE will be useful in teaching and learning session for those who facing learning difficulties in typical classroom.

(Remedial Class Teacher, extract from interview)

The opinion of the remedial classroom teacher throughout the use of Frog VLE was supported by an observation done by a teacher. She observed the intervention reported positive outcomes on the use of Frog VLE towards pupil‟s syntax and semantic skills. The teachers agreed that the use of Frog VLE enhances syntax and semantic skills of the three participants from the remedial classroom.

Pupil A:

He is very good in using the Frog VLE to search for the pictures related to the given words since the initial of the intervention. He is getting more confident in answering the quizzes of defining words and rearrange sentences.

Pupil B:

I *could see improvement in her from the beginning to the end of intervention. Although she needs major helps at the initial of the intervention, she manages to reduce the needs and able to do well neither semantic and syntax skills.*

Pupil C:

His performance is very weak in both semantic and syntax at the beginning of the intervention. He was weak in using computer and surfing Internet. He does improve a lot unexpectedly. In the end, he does very well in defining the given words and also rearranging sentences with minor helps from researcher.

(Extract from non-participant"s observation)

Frog VLE can be widely used in the current educational system to replace the existing of printed learning materials such as textbook, workbook, reference book, etc. Textbook can be added into their personal bookshelf in Frog VLE account, homework or any exercises can be created by using widgets such as Quiz Widgets. That means textbooks and homework can be everywhere as long as they can access the Internet. Therefore, Frog VLE will lead pupils to a paperless learning environment as it can solve the school bag overweight problems.

In my opinion, technology should be fully utilized in education to replace worksheets, flash card or even text books.

(Remedial Class Teacher, extract from interview)

However, the teacher seemed not confident and hesitant regarding their knowledge about the use of Frog VLE due to lack of training. Therefore, systematical training is necessary to equip teachers with the knowledge to apply Frog Vale in their daily learning sessions.

> *I think we need to go through some training session to learn the functions of Frog Vle and how to use it. Once we get used with it, and then only we can integrate it into our daily lesson.*
>
> (Remedial Class Teacher, extract from interview)

The statement given by the teacher in the interview was supported by the field note that jotted by the researcher along with the intervention.

> *Many problems occurred unexpectedly in the intervention sessions, without the knowledge related to Frog VLE, teachers are unable to solve the problems faced by pupils. In order to solve the problem, I strongly suggested teachers in school compulsory to take part in some kinds of training.*
>
> (Extract from field notes)

The training should start from the basic where teachers need to master skills in creating sites, the function of every widget that allow them to teach and guide their pupils in creating sites based on certain topics or subjects. Besides, teacher should be able to assist the pupils whenever they need. Pupils need someone to guide them to solve the problems in the process of creating sites so that they achieve the goal and build their confidence and also satisfaction in using Frog VLE as a learning tool.

In this stage, I'm not able to do what you had done with the pupils, I don't know how to create sites and what to do with the widgets. , but I will let my pupils to log in their Frog VLE account and learn together in order to arouse their interest in learning.

(Remedial Class Teacher, extract from interview)

4.4.2.2 Self-Paced Learning

Every pupil from standard 1 to standard 6 in government primary school will receive an account of Frog Vle provided by the Malaysia government without any charge. Frog VLE provides a personal learning platform that fully private. That means without the permission of the pupil, no one can access to their Frog VLE account including school administrators, teachers, their parents and etc. Frog VLE enables pupils to learn effectively in their own pace without comparison with other pupils or interference by teachers or parents. The teacher plays a role as a facilitator to support and give guidance to pupils when necessary.

Frog VLE allows pupil to study in their own pace that suits them, this is something lack in typical classroom where teachers always rush to finish the curriculum before examination. In that case, pupils who are slow in learning will definitely facing difficulties in learning.

(Remedial Class Teacher, extract from interview)

From the interview, teacher said that she found that once the pupils have get used with the Frog VLE, it will freed up some of the time where teacher usually do to give input the pupils. Teacher can create a site before the lesson and send it to pupils that allow them to study before and when it comes to the lesson what teacher

needs to do is just give pupils some tasks or quizzes. Teacher will be able to focus on coaching pupil individually to achieve their higher potential.

> *I found that implementation of VLE in classroom lesson freed up time that teachers would have spent on planning and teaching lessons. Frog VLE does allowing teachers to have more time on pupils instead of delivering lesson in time. It is easier for teachers to identify pupils' constrains in learning and have more time to focus on coaching individual pupils.*
>
> (Remedial Class Teacher, extract from interview)

> *Frog VLE automatically tracking pupils' learning progress as they do. This allows pupils to go over learning information and learning materials in Frog VLE as many times as they need to. It is giving opportunities to pupils to learn on their own pace.*
>
> (Remedial Class Teacher, extract from interview)

Throughout the intervention, pupils had more chances to use the computer and access to the Internet. It successfully arouses pupils‟ interest in learning via information and communication technology and web-based learning strategy. Frog VLE allows pupils to learn personally, they have authority in their learning. Pupils can learn at their own pace without any competition with their peers. Therefore, learning won‟t cause them pressure or low-esteem that kills their interest and enthusiasm in learning.

> *When I introduced a new topic, they will ask whether they can use the computer and log in to their Frog VLE account. They show interest in logging in their Frog VLE account. I did let them log in sometimes but I'm not familiar with it so I cannot guide them or teach them using the Frog VLE.*
>
> (Remedial Class Teacher, extract from interview)

4.4.3 What are The Constraints Faced by The Pupils when Using Frog VLE?

4.4.3.1 Financial Problem

Nowadays, computer and Internet access are being used for various purposes in our daily life. It"s hard to imagine our life without computer and Internet access and the fact that they have become a part of daily life. However, there are still numbers of children especially from low-income families facing inequity in their access to technology. Regardless of school environment, pupils from low-income families have less access to computer and Internet compared to pupils from middle-income or high-income families. They are missing out of opportunities to learn through computer such as technical skills that they need in the future.

> *I would say that not every family affords to own a computer and also Internet service especially rural area. Therefore, computer and web-based learning still something new and unfamiliar to certain pupils in our school.*
>
> (Remedial Class Teacher, extracts from interview)

This group of pupils has to rely on school resources, but computers in school are usually in far greater than supply, they have to share with other pupils and wait for their turn to use it. Even if the computers are available afterschool, pupils may not be allowed to use them if there is no teacher available to supervise. Therefore, usage of Frog VLE has been limited for this group of pupils where they only have limited time to use the Frog VLE when teacher available and willing to supervise them.

Pupil C was extremely lack of knowledge and skill in using a computer. He said his family can't afford to buy one. Therefore he only rely on school resources that giving pupils 1 hour lesson each week.

(Extract from field notes)

4.4.3.2 Isolation

The research design of this study is multiple single subjects, the participants went through the intervention separately at different time. Pupils learn through the visual learning environment under the supervision of the researcher without any direct interaction with other pupils. In fact, there are few functions that allow users of Frog Vle to make face to face interaction using web camera and it had been widely used by some teachers in the urban area that the school has the complete facilities provided under 1 Bestarinet project. However, the function does not include in the current study. Interaction only happens when pupils using Wall Widget to discuss with others in text form. It works like a social network that allows pupils to interact with each other. Most of the time, participants learn by themselves separately along with the intervention sessions due to the selected research design.

I found that verbal discussion among the pupils is lacking in using Frog VLE. Discussion among them is necessary from time to time for better understanding on the topics or contents of instruction. I would suggest collaboration learning and discussion to be added to enhance the outcomes of learning.

(Extract from non-participant"s observation)

There is no actual human communication involved in Frog VLE activities, that makes the virtual environment can feel a little lonely.

(Remedial Class Teacher, extracts from interview)

Lack of socialization for the participants that comes with spending time with peers in group work, discussion, and project-based learning. Pupils are able to learn a great deal at any time and at their own pace but they might lack of social experience when they're not around with their peers. Isolation was one of the disadvantages in the current study

Interaction happened between participant and computer most of the time in intervention, minor interaction happened between participant and researcher. Interaction with peers doesn't exist in current study and I believe it's an issue that I overlooked.

(Extract from field notes)

4.4.3.3 Unsuitable resources

Search engines in Frog VLE are actually linked to two search engines, video search engine function linked to "Youtube" and image search engine linked to "Flickr". Regarding the pupil's search results, it showed that the filter of both search engines is not strong enough to filter all unsuitable contents for pupils. When pupils search for information in images or videos, they may find some unsuitable contents that may mislead pupils in the process of learning. Therefore, the existence of a teacher or parent as the facilitator is necessary for the early stage of integrating Frog VLE in pupils' learning process.

I found that many unsuitable resources appeared when pupils searched through Frog Vle, such as videos and images that not related with the vocabulary they're looking for. Those videos and images may lead them to the wrong path.

(Extract from non-participant"s observation)

4.4.3.4 Equipping Learners

Participants in this study were ill-equip with the knowledge and skills to use Frog VLE until they involved in the study. They were exposed to the necessary knowledge and skills before the intervention started. In fact, most of the pupils in the school were ill-equip with the abilities or skills to use Frog Vle. They need certain skills in creating sites and building a personal dashboard. Therefore, equipping learners with the basic skills in using a computer, access to the Internet is the pre-requisite for pupils to expose to Frog VLE. Many pupils studying in the school located in an urban area accustomed to traditional school structures without technology involved in the daily lessons may not get used to the virtual learning approach. Besides, pupils that prone to procrastination will also struggle in a virtual setting. Learning through virtual learning environment requires a significant amount of self-discipline

They were still unfamiliar with the functions of Frog VLE. It takes times for them without any help from teacher.

Computer and web-based learning still something new and unfamiliar to certain pupils in our school.

(Remedial Class Teacher, extracts from interview)

4.4.4 What are The Challenges Faced by Teachers in Applying Frog VLE in Teaching and Learning Process?

4.4.4.1 Big Class Size

Frog Virtual Learning Environment is basically a platform that allows pupils to learn independently at their own pace. Thus, it is not suitable to apply Frog VLE in the big size class that contains a big number of pupils. In the early stage, the teacher needs to teach and equip pupils with the basic skills related to Frog VLE. Therefore, the teacher unable to take care of each of the pupils if the class size is too big, the early stage more on one to one teaching and facilitate. Once pupils were able to build their own sites in Frog VLE, the teacher will still have to play a role as facilitator to assist pupils from time to time. It will burden the teacher if the quantity of pupils in the class is high and part of the pupils will be mistreated.

> *Quantity of pupils need to control. Teacher will not be able to handle if many pupils need helps.*
>
> (Extract from non-participant"s observation)

Frog VLE can only be integrated in a big size class once pupils have mastered all the skills needed to employ Frog VLE fully independent. Teacher will only gives task for pupils to complete via Frog VLE and require minor helps to pupils.

> *Cannot apply in big class size unless pupils already master frog vle and familiar with every function so that they able to do it independently without any help or less help.*
>
> (Remedial Class Teacher, extracts from interview)

4.4.4.2 Technology Issue

Internet connection in school is weak and sometimes not stable, it was not able to afford if too many pupils logging in at the same time, this happened in many schools and the teachers in charge had complained many times to the technician of the company and officer from Ministry of Education. However, the problem still unresolved until teachers fed up with the Frog VLE. In this case, only part of the pupils in a class able to log in their accounts and carry on the assignment assigned by the teacher. The rest can only keep refreshing the page and wait until they are able to log in to their personal account.

> *Technology problems are always frustrating, especially schools in rural area like this school. If technological issues take place when pupils are in the middle of logging in Frog VLE, it can be tremendously troublesome. A virtual learning approach is only as good as the technology behind it. If the Frog VLE server doesn't work well in a lesson, or Internet connection suddenly fails in the middle of a lesson, teachers may end up wasting more time working with the software or repairing the connection than learning the material.*
>
> (Remedial Class Teacher, extracts from interview)

> *The netbook that provided by the government to the school were not functioning well, outdated windows and antivirus, and lack of maintenance work. It took 5 minutes to start up the netbook and it ran very slow to achieve Frog VLE.*
>
> (Extract from field notes)

4.4.4.3 Knowledge and skills

Teachers in the rural area especially Kuala Lumpur have more opportunities to attend courses and workshops related to Frog VLE. However, it doesn‟t happen in urban areas, many teachers were never being invited to attend courses or workshops. Only a few teachers as the facilitators had been involved in courses with limited time, teachers reflect that the courses were not enough for them to master the skills to use and also to guide their colleagues. The government aims to apply Frog VLE in every school in Malaysia and hoping that Frog VLE able to benefit every student studying in primary schools and secondary schools. Teachers supposedly the pioneer of the Frog VLE to be implemented in Malaysia education but unfortunately, lacking in knowledge and skills is a big challenge in the implementation of Frog VLE.

> *Teachers in this area were not gone through proper trainings. We lack of knowledge and skills in Frog VLE.*
>
> (Remedial Class Teacher, extracts from interview)

The statement given by the remedial class teacher was supported by a teacher (non-participant) through her observation. After her observation on the interventions, she comment that teacher must be knowledgeable and skillful in implementation of Frog VLE in the classroom

> *Teacher must be able to use Frog Vle so that teacher can design or set tasks for pupils to do in class. Teacher must also be able to solve any problems faced by pupils immediately,*
>
> (Extract from non-participant‟s observation)

4.5 Triangulation of Data

On the whole, the positive effects of Frog VLE have been supported by the quantitative data from the vocabulary test that assign by using Quiz Widget and analyze automatically by Frog VLE. Besides, qualitative data also collected from researcher field notes, non-participant observation, along with teacher‟s interview. Throughout the intervention, results collected in the maintenance phase indicated an increment in the semantic skill and syntax skill. For the intervention phase, the data from the researcher field notes concurred with the results of the non-participant observation. Additionally, the intervention also indirectly added knowledge of practical life skills, as well as increased motivation and ability to focus on learning Malay vocabulary. Markedly, the quantitative results were further supported by excerpts from the teacher interview.

4.6 Summary

In this chapter, quantitative and qualitative data were collected and then analysed. Quantitative results were used to answer two research questions regarding the semantic skill and syntax skill of the participating remedial pupils following the intervention. Results were presented using visual analysis of graphed data plus the interpretation of statistical data. The quantitative results during the Baseline, Intervention and Maintenance Phase were supported by field notes and non-participant observation. In addition, the remedial teacher‟s interview was conducted to provide qualitative findings to reinforce the quantitative data. In addition, it provided insight into teachers‟ perception of Frog VLE. The next chapter will further discuss the effects of Frog VLE on Malay vocabulary acquisition among remedial pupils.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Introduction

In this section, a summary of the findings will be presented. Next, topics on semantic and syntax of Malay language vocabulary of pupils from the primary remedial classrooms will be discussed. Subsequently, teacher‟s feedback on Frog VLE will be demonstrated. This chapter will also include the implication of the findings, suggestions from finding and conclusion for this study.

5.2 Summary of Findings

The main goal of the current study was to study the effectiveness of Frog Virtual Learning Environment in improving Malay language vocabulary acquisition among pupils from the primary remedial classrooms and explore the suitability of Frog Virtual Learning Environment based activities. Frog VLE works as a web-based learning platform provided by government for free under the 1Bestarinet project to connect over 10000 National-type schools across Malaysia to the Internet with YES 4G connectivity. Frog VLE replicates real-world environments by assimilating virtual equivalents of conventional concepts of education. There were four widgets from a total of 30 widgets in Frog VLE that were selected to be the focus in the present study. Meanwhile, vocabulary acquisition in the current study includes 2 domains which are the acquisition of words by understanding its meaning (semantic) and the ability to use the vocabulary to fill in the blank and to form simple phrases or sentences (syntax). Another objective of the current study investigated difficulties that occurred in teaching vocabulary in the Malay Language by using Frog VLE.

A total of three Year Four pupils enrolled in remedial classrooms participated in the study. Pupils completed a screening test designed by the researcher to evaluate pupils‟ Malay vocabulary level prior to any intervention or new instruction. The screening test includes 54 items in 12 constructs that had been used to ensure the pupils met the needs to be involved in this study. Following the screening test, the pupils were assigned to the typical remedial classrooms as baseline stage where pupils were taught their new Malay vocabulary with their peers. In the baseline phase, the data of participants‟ vocabulary knowledge will be collected without intervention by using the pre-test instrument. Following baseline, pupils were assigned to the intervention phase separately based on multiple baseline designs. The intervention was conducted in a staggered interval to allow the pupils to serve as their own control. The intervention will be carried out in five daily learning periods a week except weekend respectively for a total of 8 weeks. In the intervention phase, pupils were logging in personal Frog VLE account and built sites related to Malay vocabulary using selected widgets in Frog VLE. Media Widget can be used for inclusion of videos and images in site. Wall Widgets can be used to create a discussion wall within the site where users can leave comments on the wall that others can respond to. Quiz Widget used to display quizzes within a site or as part of an assignment and it had been used by researcher to assigned vocabulary test to participants every session. The maintenance phase will begin immediately after the intervention phase. This phase was planned to examine the intervention effect upon the finishing of intervention. In this phase, there will be no intervention. However, Malay vocabulary learning will be carried out on an individual basis. Non-participant observations were applied to collect data from the study. The responses of participants were coded based on its occurrence. The results were then presented

in a visual inspection of graphed data to evaluate the changes across the three phases of the study. Simultaneously, field notes were recorded; after the three phases, a semi-structured interview was conducted to further support the data collected from non-participant observation. Transcript from participant observation and semi-structured interviews were analyzed through thematic analysis method. The findings of the non-participant observations were supported by the researcher field notes and the interview of the remedial teachers.

The findings of the current study show that Frog VLE has remarkable effects on Malay language acquisition among the remedial pupils. Generally, the participants had better semantics skills and syntax skills that helping them to develop Malay vocabulary knowledge after they went through the intervention. All participants were able to maintain the intervention effects and performed well across the maintenance phase. Frog VLE has generally served as an effective tool for pupils from remedial classrooms. Besides enhancing vocabulary acquisition, teachers had pointed out several benefits of applying Frog VLE in delivering lessons that happened in classrooms. The advantages include increased focus, interest, motivation, and involvement of pupils in the study. It is vital to note that Frog VLE can also be used on pupils with different learning disabilities as well as mainstream students to enhance their learning in Malay language vocabulary. Present study plays a crucial role to guide future studies relating to Malay language vocabulary acquisition

5.3 Discussion

This section discusses the results of the present study including semantic skills, syntax skills, and Malay language vocabulary acquisition. Other than that, feedback of teachers using Frog VLE will be discussed.

5.3.1 Semantic Skills and Syntax of Pupils from Remedial Classroom

Semantic refers to the collection of words of an individual. This means the individual recognizes the words, understands the meaning carried by the words and the ability to apply the words in oral and written activities. Semantic works as the key to an individual‟s word knowledge, semantic boosts the vocabulary growth of a person. (DeKemel, 2003). There are many existed studies that show the effect of semantic skills on language development, especially in reading comprehension. Children with weak semantic processing abilities will directly affect their comprehension ability as well as their limited word knowledge (Nation &Snowling, 1998). Nation, Snowling & Clarke (2007) suggest that the source of weak comprehension difficulties with vocabulary learning may due to poor semantic skill rather than a phonological component. Semantic skills delay may limit not only comprehension, but also the growth of words recognition. The present study suggests that a web-based Virtual Learning Environment can eventually improve semantic skills in these remedial pupils as the foundation of word recognition and comprehension. Subsequently, helping remedial pupils to understand and define Malay vocabulary spontaneously. Thus, pupils are able to understand the links and differences between semantic concepts. This was supported by Paul (2007) in his study on language disorders from infancy through adolescence. When remedial pupils can define a word, it would help them to build the foundation and move

forward in the path of learning of Malay language. In the present study, Media Widget, Wall Widget, and Notes Widget had been applied to enhance remedial pupils" semantic skills.

Syntax defines the structure of words that arranged in a sentence to express meaning. The term syntax is also widely used in the study of syntactic properties of a language. The syntax is one of the major elements of grammar and the study of the structure of language in forming grammatically correct sentences using words (Chomsky, 2014). Syntax knowledge which is the most basic and the most practical in language learning should be taught thoroughly (Jiang, 2010) to ensure the accuracy of language expression. The present study suggests that web-based Frog VLE can be utilized to improve syntax skills in these pupils that helping them to understand the correct structure of Malay language phrases and simple sentences. After the pupils obtained the meaning of vocabulary through widgets in Frog VLE (semantic), they will be assigned quizzes to require pupils to rearrange given words in a correct form of simple sentences (syntax). Once pupils master syntax skills, they will be able to apply vocabulary that they learn in writing activity as well as a speaking activity.

Chomsky (1986) believes that the child is born with the ability to learning the language. A Language Acquisition Device that naturally exists in our mind provides a set of native skills that enables the child to understand the phoneme patterns, word meanings and syntax in his/her language learning lesson. Language Acquisition Device work as a system that encodes the major principles of a language and its grammatical structures into the children"s brain. It provides children the capability to acquire new words and then apply the syntactic structure from the Language Acquisition Device to form phrases or sentences correctly and meaningful.

According to (Wen, 2013), Chomsky‟s theory can be practiced in every language as long as the language contains grammatical knowledge such as nouns, verbs, proverbs, conjunction and so on. Therefore, Chomsky‟s Language Acquisition Device can be applying to learn the Malay language as well. Frog VLE works as a supportive tool to support pupils‟ Language Acquisition Device in learning the Malay language. By creating sites in Frog by VLE, pupils search for information themselves and construct the meaning of Malay vocabulary. They learn the rules of language as well where all sentences should have the structure 'subject-verb-object'.

5.3.2 Malay language Vocabulary Acquisition of Pupils from Remedial Classroom

The present study strongly agrees that lacking in Malay vocabulary acquisition affects Malay language development of remedial pupils. The difficulty to understand the meaning of written words caused them strenuous in learning the Malay language. They are facing a tough time to link each of the alphabetical words with the meaning and also having difficulties to differentiate the Malay words that formed by 26 alphabets. Without the knowledge of receptive vocabulary, problems occur when they try to read, write and speak in Malay. Eventually, this group of pupils will be demotivated and felt low esteem in learning the Malay language. In order to build their vocabulary knowledge, pupils must learn the meaning that words carry (Langenberg, 2010).

After the intervention, all participants involved have exhibited a higher level of Malay vocabulary. The improvement was significantly shown in Pupil A, Pupil B, and Pupil C. An individual‟s vocabulary knowledge includes knowing,

understanding, and ability to use words correctly (Alldrin, 2011). The effectiveness of Frog VLE in enhancing semantic skills and syntax skills by using Widget has greatly enriched the Malay vocabulary of pupils from the remedial classrooms, they are able to understand the selected words by defining and also use it to answer questions correctly. Nevertheless, this study presents the knowledge and skills that enable pupils to acquire more Malay vocabulary in the future. The result was supported by research done by Hsiao, Lan, and Kao (2017) that shows the VLE allows teachers to share ideas and opinions within the platform provided in Frog VLE followed by searching for teaching and learning materials. Then, pupils can achieve the materials prepared and shared by teachers.

The traditional model of teaching vocabulary no longer suitable in acquiring vocabulary as it focuses too much on teachers‟ role and overlooks to pupils‟ role. Creativity and activeness of pupils in learning vocabulary always ignored by teachers that applying the traditional model of teaching (Lin, 2015). Therefore, the existence of Frog VLE reduces the traditional teacher‟s role in the learning process and it is providing more opportunities for pupils to show their creativity and activeness in learning. The implementation of Frog VLE in learning is coherent with Piaget‟s constructivism theory where Piaget believes that a variety of activities should be provided in a classroom to challenge students and guide them to acknowledge individual differences in the context of learning, arouse curiosity to encounter new understandings and ideas, increase their willingness and interest to learn, and construct their own knowledge based on their surroundings.

5.3.3 Integrating Technology in Remedial Classroom for Malay Vocabulary Acquisition

Many studies had been done on integrating technology in vocabulary class and show significant positive results. Tozcu and Coady (2004) found that implementing technology in the language showed positive implications for vocabulary development and reading instruction in language learning. Students who used interactive computer-based texts achieve better literacy skills as opposed to traditional materials.

In the current study, pupils attracted by learning through technology and results show they achieve higher scores in vocabulary tests compared with traditional remedial learning methods. Dalton and Grisham (2011) emphasize cultivating pupils' interest in vocabulary learning as they read, view, and create word meanings in digital and multimedia contexts. Technology and Internet resources can be used to evoke students' engaged vocabulary learning and also serve as a non-threatening means of expanding pupils‟ technological knowledge base in our society that evolve speedily (Nisbet and Austin, 2013). Remedial pupils gained basic technology knowledge via Frog VLE that benefits them in the future.

Moreover, the past studies also found that technology for vocabulary learning allows pupils to set their learning schedules, set their own learning pace, and focus on their personal needs and goals. This has been observed in the present study, where pupils could study in their own pace using Frog VLE without any negative competitive with peers. They are able to focus on study individually and have more authority in their learning. Frog VLE provides a platform for pupils to create learning sites that help pupils to improve vocabulary acquisition. This is supported by Clark (2013) who found that an individual‟s vocabulary knowledge can be

improved by creating a learning environment that centered on words acquisition and utilizing technology to support the learning.

5.3.4 The Feedback of the Teacher in Using Frog Virtual Learning Environment

In the present study, the remedial teacher was asked to provide opinion on the use of Frog VLE with remedial pupils. On the whole, the remedial teacher provided positive comments on the Thinking Maps. She agreed that Frog VLE able to enhance the Malay vocabulary acquisition of pupils. Several aspects of her feedback are discussed in the following subsections.

5.3.4.1 Implementation of Frog VLE in Remedial Classroom

Nisbet and Austin (2013) suggested that teachers and students must build up their knowledge as technology is one of the important components in education. Obviously, Frog VLE has the incredible potential to apply Interaction and Communication Technology as an instructional tool to speed up pupils‟ vocabulary knowledge and enhance their learning as well as thinking that written in Malaysia Education Blue Print (2013-2025). This is evident from the study of Dalton and Grisham (2011) who found creating a learning environment centered on word knowledge and utilize tools like technology can help improve language. In addition, the study of Jingjit (2015) proved that an integrated model of learning material is able to improve the pupil‟s vocabulary knowledge.

Media Widget in Frog VLE provides an opportunity to pupils to access multimedia that allows pupils to link the Malay vocabulary with the pictures or

videos that they are familiar with to understand the meaning of vocabulary. This is coherent with the study of Nelson (2013) saying that children acquire vocabulary meaning by placing meaning upon objects within their vocabulary. When recognition of words occurs, children will slowly obtain more vocabulary gradually.

5.3.4.2 The Feasibility of Using Frog VLE in Remedial classroom

It is feasible to use Frog VLE to teach remedial pupils Malay Language. Virtual Learning Environment is providing multimedia supports, feedback, over the pace of learning is useful to improve pupils‟ achievement (Kay, 2011). Frog VLE is considered helpful resources for remedial pupils and to supply the needs of pupils that unable to keep pace with the activities designed by a teacher for the typical classrooms (Selvarajan, Vasanthagumar, 2012). In the present study, the remedial class teacher found Frog VLE able to assist remedial pupils to master Malay vocabulary rather fast. This accelerated the learning process of remedial pupils, as the Frog VLE successfully develop Malay vocabulary acquisition among remedial pupils. Association using a Web-based tool shows positive effects on knowledge development (Liu, Lan and Ho ,2014). Web-based tools provide an opportunity to contextualize the learning experience as a window into cultural practices of the target language country and as a means to engage learners (Collado, 2017). Coordinate with the purpose of enrolling pupils in the remedial classroom, Frog VLE can be applied to provide suitable instruction in the basic skills that lacking in this group of pupils such as reading, writing, or mathematics skills (Arendale, 2005). Once more Malay words are acquired, the feasibility of instruction increases. Eventually, it will be helpful, as vocabulary is one of the keys to successfully mastering a language.

It is noticeable that Frog VLE is a simple, fun and engaging learning approach to help teachers, parents, and pupils in developing remedial pupils‟ language development. The prerequisite to make it useful to all the Frog VLE users is going through training or workshop related to the knowledge and skills that necessary in using Frog VLE. The informative Frog VLE enables remedial pupils to access information easily by themselves rather than spoon-feed by the class teacher. The process of looking for information and create sites enables them to assimilate and accommodate knowledge. It is important to provide remedial pupils a chance to construct knowledge independently.

After the intervention of Frog VLE, the remedial class teachers agreed that they had a positive effect on remedial pupils‟ Malay vocabulary acquisition. The teacher emphatically declared her satisfaction with Frog VLE and she is wishful to implement Frog VLE in the remedial classroom. The teacher commended that Frog VLE not just benefit the pupils but also the teacher in class, it enable the teacher to control the pupils more easier as they will assigned task to be completed using Frog VLE. The teacher will just be playing role as a facilitator to guide and help the pupils

5.3.4.3 Increased Focus and Engagement in Learning

Generally, Frog VLE can effectively attract remedial pupils to be engaged in Malay language vocabulary acquisition. Past studies revealed that Frog VLE able to arouse pupils‟ interest in learning, helped them to learn fascinatingly, and also drew pupil‟s attention so that they could focus longer in learning. Chai (2016) study the use of online music games called “Joytunes” that integrated in

Virtual Learning Environment. Joytunes allows pupils to play the music game and getting connected to their teachers at the same time and the results of the study show the significant positive effect that proved the virtual learning environment can be applied interestingly in various ways to attract the attention of pupils so that they could increase their focus in learning. The variety of widgets and its functions in Frog VLE attract pupils‟ attention to focus on the Malay vocabulary learning with longer attention spans.

In the present study, the remedial pupils were able to engage in Malay vocabulary activities with longer attention spans in comparison to their attention spans during traditional teacher-centered activities in the remedial classroom. The finding was supported by the research of Barnes & Pressey (2012) that showed achievement of pupils involved in the virtual world learning environments practice significantly higher levels of engagement compared to the traditional learning environment. A meaningful and engaging curriculum, personalized learning environments are conditions needed to exist in learning to provide optimal learning opportunities for children. Virtual Learning Environment is not limited to distance education as using VLEs for replacement of face-to-face learning experiences and maintenance after learning sessions can also be beneficial. Online virtual activities encourage and focus on interaction to make possible social cognitive effects and improve engagement (Jacob, 2012).

5.3.4.4 Self-Paced Learning

Self-paced learning differs from the traditional classroom that teacher-centered and pupils most often play a passive role in pacing and organizing their

learning progress. Self-pace learning allows pupils to customize the way they learn by using learning materials and resources. The self-paced method refers to learning approach that pupils are given the opportunities to plan for their own learning based on a few components such as individual pace of learning, interests and learning style. Teachers have to change from a traditional teaching approach to pupils‟ centered learning. Teachers are playing the role of facilitators that give guidance, provide feedback on proficiency and adjust the learning environment to pupils based on their needs.

According to the remedial teacher in the interview session, she highlighted that Frog VLE allows the pupil to study at their own pace, this is something lacking in a typical classroom where teachers always rush to finish the curriculum before the examination. In that case, pupils who are slow in learning will get benefit from this method. Past studies proved that self-paced learning is a successful way for pupils to customize their learning environment to robust their needs in learning.

Previous studies point out that a self-paced, personalized learning environment results in increased success for pupils (Green, 2017; Davis, 2016; Curtis & Ullman, 2015). Frog VLE provided a platform for pupils to plan and design for their own learning, increase self-confidence and allows a teacher to mark pupils‟ assignments and give comments to each pupil anytime and anywhere as long as the teacher has a gadget with the Internet. Thus, pupils who use technology gadgets every day to access online interactive provide them continuous opportunity to show their learning. It allows pupils to show for themselves in the best way they learn and to get helpful information about their own learning. Pupils can carry the best way to learn for life. The findings in the current study were coherent with Palaigeorgiou & Papadopoulou (2018) study the interactive video with tablets and an online course

learning environment in promoting efficient and effective self-paced learning in the classroom. Pupils in the experimental group were following a learning path of interactive video and other learning units in pairs while the teacher played only a facilitator that give a supportive role. Students in the study were asked to follow a learning path of interactive videos and other learning units in pairs while the teacher played only a facilitator that provide guidance. The result shows students achieve significantly better in the post-test compared with the pre-test they did in the past. They show a positive view on the approach, which they linked with learning competency, learning efficiency, self-sufficient learning, learning pleasure, and better learning environment. Students effectively manage their own learning progress and showed remarkable self-control and independence in learning. Green (2017) in her case study found that students prefer a self-paced, personalized learning environment rather than all students learn at the same pace. Besides, participants perceived peers as barriers to their education. They felt that the disruptions caused by peers and the required teacher's attention to these disruptions acted as a barrier to their success. Every pupil learns differently and remedial pupil surely not able to learn at the same pace with a typical pupil. With Frog VLE that allows self-pace learning, pupils are allowed to make the most of the time to learn, sequentially to meet their personal approximate goals. In a self-paced learning approach, both those extreme and severe pupils are easily remedied. Pupils who are able to learn fast have the opportunity to achieve competency rapidly and then can set higher objectives to be achieved. On the other side, remedial pupils who learn slowly or having learning difficulties are able to take their time to gain knowledge without comparison with typical peers.

5.4 Implication of Findings

The finding of the study demonstrated that Frog VLE play a significant role in enhancing vocabulary acquisition among pupils from remedial classroom. The results strongly advocate the feasibility of Frog VLE in the field of remedial education.

5.4.1 Implication to Theory

Based on the results of the current study on the effectiveness of Frog VLE on Malay language vocabulary acquisition among primary remedial pupils, it is evident that Frog VLE engaged pupils in vocabulary learning activity more effectively. This study implies that remedial pupils would focus on the learning activity when the activity providing a platform for them to customize their learning in their pace and the use of technology in the classes attracts pupils‟ interest to learn in the classroom. The results of this study also supported Piaget‟s Constructivism Theory, in which by replicating our previous knowledge, we create our own understanding of the surrounding. Each of us produces our own understanding and perspective, which we use to make sense of experiences. The use of Frog VLE enables pupils to expose to the environment that they are not able to achieve in the classroom. The information obtained from Frog VLE links up the Malay vocabulary with pupils‟ experiences that assist pupils to recognize the meaning of the vocabulary. However, Piaget (1953) raises that information received from others cannot understand and apply by children instantaneously. Children must construct knowledge from the information given by others on their own. Frog VLE provides a platform for pupils to create personal sites that enable them to construct an understanding of the vocabulary by creating sites

related to Malay vocabulary. Based on their prior knowledge, pupils can actively construct or create their own subjective representations of objective reality (Karagiorgi & Symeou, 2005) using Frog VLE. Jia (2010) declared that learning instruction in school should include students‟ prior knowledge and previous experience as the growth point of new knowledge, and guiding them to construct new knowledge from the past. Children at the concrete operational stage of Piaget‟s stage of development only apply logic to existing physical objects that they are able to see such as humans and objects (Piaget, 1951) to assimilate and accommodate new ideas or concepts. Frog VLE offers a rich and diverse learning environment that supports pupils in the Malay vocabulary acquisition.

5.4.2 Implication to Practice

This study also implies that web-based Frog VLE able to arouse student‟s curiosity and interest towards learning by using it. With better concentration and interest in the learning activity, the stereotypical behaviors in the traditional classrooms will eventually reduce and pupils able to learn effectively. Media Widget can greatly enhance semantic skills of remedial pupils. The images and videos that can be found via the Media Widget would help the pupil to relate the vocabulary with personal knowledge and also the environment around them. It helps them to define the vocabulary and further transfer the knowledge on answering quizzes in Quiz Widget. Quiz Widget consolidate pupils‟ ability to define selected vocabulary and also enhance syntax skills through rearrangement of words quizzes. Furthermore, the current study implies that teaching vocabulary by inculcating knowledge relating to daily living is essential to help remedial pupils to grasp the

meaning of vocabulary more easily. Remedial pupils will understand better and memorize better with the familiar content and learning material.

This study also implies that the virtual learning environment able to improve the teaching and learning approach. Teachers were no more information providers and pupils were not learners that passively receive information in the classroom. Pupils were given authority to learn at their own pace. Teachers‟ workload can be reduced and teachers play the role of facilitators to guide the learning of their pupils. Teachers can share the resources in the Frog Virtual Learning Environment world widely that enhance the interaction of teachers in guiding students learning. Besides, teachers and parents able to monitor the learning progress of the pupils. VLE can also improve the interaction between teachers and parents that able to develop a healthy teacher-parent relationship. The involvement of parents using VLE can be a great way to improve pupils‟ performance while parents also benefits from being involved in their children‟s education by getting ideas on supporting their children‟s learning.

5.5 Suggestion from the Study

This study proposed that Frog VLE can be applied in learning the Malay language in an advance and inspiring manner. Different from the traditional classroom and outdated approaches, Frog VLE is currently the best way in a government school to engage pupils directly and actively in information and communication technology. Pupils are given opportunities to learn throughout a web-based virtual learning environment at their own pace. This will further stimulate the learning and understanding level of pupils from the remedial classroom, after all, benefit pupils in

mastering ICT skills during the learning process. Pupils‟ performance in Malay language vocabulary acquisition will be enhanced and improved when the pupils creating sites in their personal Frog VLE account regarding to the selected vocabulary. In addition, pupils are allowed to customize their learning according to the preferred learning method that they able to do by using Frog VLE for a better understanding and acquiring vocabulary.

To teach pupils with weak and limited vocabulary knowledge, the teacher is suggested to introduce alphabetical language using concrete material such as images or videos relating to pupil‟s daily living or prior knowledge. Pupils can understand better when the vocabulary is familiar to their daily living. In fact, the virtual learning environment has been widely used in the educational field as the web-based approach is informative and accessible at any place and at any time. Frog VLE has been provided free for every pupil in the government school, the teacher is advised to fully utilize the well-prepared tool and platform to benefit remedial pupils in learning the Malay language.

More importantly, how the teacher generates the activity is crucial in the pupil‟s Malay language improvement. Teacher‟s knowledge in using Frog VLE, encouragement, guidance and creativity in facilitating pupil learning through Frog VLE yields pupils with better outcomes in vocabulary acquisition. The teacher qualities in technology and VLE might influence the learning experience of pupils towards the Frog VLE and may cause disappointment in using the virtual learning platform or lack of experience in using a virtual learning environment will be the reason of failure in implementing Frog VLE. Therefore, training or tutorial related to Frog VLE practice should be provided prior to implementing the Frog VLE in daily

teaching and learning sessions. Results from the current review should benefit both remedial teachers and mainstream teachers.

Lastly, more attention should be paid in building substantial background knowledge in remedial pupils to foster Malay language development. The field of remedial education and special education such as dyslexia, autism, ADD, ADHD that suffer from learning difficulties need more research on vocabulary acquisition and language development to help special needs pupils to develop better in the Malay language.

5.6 Recommendations for Future Study

The present study has provided a web-based virtual learning environment to enhance Malay language vocabulary acquisition among pupils from the remedial classrooms. The use of Frog VLE in the current study has provided observational improvement in pupils" semantic skills and syntax skills which subsequently led to better vocabulary acquisition. The knowledge and skills learn from the activities have been maintained across a period of time upon the finishing of intervention.

However, pupils should at least be able to use the Malay language in the contexts of speaking, reading and writing to be considered as mastered Malay language. Therefore, besides vocabulary, many elements in the Malay language have to be mastered by pupils including grammar, spelling, pronunciation, etc. It is important to study the effectiveness of Frog VLE in other elements of Malay language especially grammar. Grammar itself provides information that is important that us to comprehend. It is the structure that expresses accurate meaning from one to another person and correct grammatical provides clear communication. In other

words, grammar provides the rules of language for common use so we can more easily understand each other. There are eight parts of speech from the building blocks of grammar including nouns, pronouns, adjectives, adverbs, prepositions, conjunctions, and interjections. These eight parts are very important in learning Malay language and studies on these eight parts of grammar using Frog VLE are meaningful and able to provide a brand new learning method in Malay language learning not just beneficial the pupils from remedial classrooms but also the typical pupils from the mainstream, across larger populations. Studies need to be conducted to determine the effectiveness of Frog VLE on other elements in the Malay language.

The present study shows the effectiveness of Frog VLE on Malay language, it can be a guideline to conduct research on other languages such as Mandarin, English. Tamil. Other than the Malay language, many pupils also facing difficulties in learning Mandarin and English as their second language in school. Frog VLE may help them to develop the languages that they are weak at. Referring to the current study, Frog VLE can be applying to examine the effectiveness of enhancing pupil‟s Mandarin or English vocabulary acquisition. Besides, this study only focuses on Chinese pupils, it can be a guideline to conduct a study on different ethnic pupils such as Malay and Indian pupils.

Results and methodologies of the current study can be used as a guideline in conducting any types of study such as single-subject study, action research, quasi-experimental, case study etc in the future. Besides, future research could be conducted to identify other widgets in Frog VLE that not being used in the current study, to establish a foundation for basic skills in teaching the Malay language to pupils from the remedial classrooms. This could be useful for future teachers to guide pupils from remedial classrooms to learn using Frog VLE.

Other recommendations for future research include selecting a sample with different kinds of special needs, comparing the use of Frog VLE and other virtual learning environments. The results of the current study can contribute to the field of special education to ensure every kid can benefit from technology such as VLE. Early exposure to VLE may able to help children to expose to vocabulary at early stage such as kindergarten. Therefore, a study on the implementation of VLE in kindergarten should be carried out by educators.

Notably, additional research on Malay language vocabulary acquisition to pupils from the remedial classrooms will add a deeper understanding of the teaching and techniques to enhance vocabulary acquisition of pupils from the remedial classrooms. Lastly, further research on Frog VLE will provide more information related to VLE for better understanding among teachers in functions and strengths of Frog VLE in delivering lessons and developing pupils‟ ability in learning, as well as adding to a deeper understanding about the techniques to apply.

5.7 Conclusion

In government primary schools, pupils from the remedial classrooms are consistently identified as having difficulties in learning the Malay language throughout a screening test called LINUS (Literacy and Numeracy Screening Test). The development of vocabulary in the Malay language has vitally influenced their performance in the Malay language. Furthermore, the inadequacy of learning instruction in the typical classrooms, differences between Malay language and pupils‟ mother tongue, together with the differences in pupils‟ cognitive ability, may further lead to learning difficulties. Development of Malay language among pupils from the

remedial classrooms may improve when pupils acquire more vocabulary and assimilate the vocabulary of written words. In order to achieve the goals, they have to develop their semantic skills and syntax skills. Present study has provided web-based Frog VLE to enhance Malay vocabulary acquisition of pupils from remedial classroom through 4 selected widgets in Frog VLE. This approachable to fit the differences of pupils from the remedial classroom and allows them to learn at their own pace. As recognized, vocabulary is the foundation of learning the Malay language; a virtual learning environment is a new era learning approach that can be widely used in the education field. Thus, future research and interventions to accommodate the learning difficulties of Malay language and the usage of the virtual learning environment in this population should be highlighted.

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