EFFECTS OF CRAZYTALK SOFTWARE ON YEAR THREE LINUS LEARNERS' VOCABULARY DEVELOPMENT

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ABSTRACT

Vocabulary is a core component of language proficiency as it provides the basis for how well learners speak, listen, read and write. Without extensive strategies to develop vocabulary, ESL learners are often discouraged from making use of the target language. The advancement in computer technology has prompted many teachers to use CAVI (Computer Assisted Vocabulary Instruction) as a tool in teaching English language. This quasi experimental study examines the effects of the CrazyTalk software as a CAVI tool on Year Three LINUS learners' (n=50) vocabulary development. This study follows the one group design as it uses the same subjects with every condition of the research. The instrumentation was based on pretest, posttest and questionnaire. The obtained data were analysed using SPSS version 24. The results of pretest and posttest were interpreted by using Paired Sample *t-test* and the results of the questionnaire was interpreted using Spearman Rho correlation test. The results of the *t-test* indicated that there was a significant effect, p=0.000, on year 3 Linus learners' vocabulary development using CrazyTalk software. The findings of the questionnaire also showed there was a significant correlation in learners' attitude towards CrazyTalk software, with r value = 0.658, p= 0.000. Therefore, this study concludes that CrazyTalk software does facilitate Year Three LINUS learners' vocabulary development.

KESAN PERISIAN CRAZYTALK TERHADAP PERKEMBANGAN PERBENDAHARAAN KATA MURID LINUS TAHUN TIGA

ABSTRAK

Perbendaharaan kata adalah komponen utama dalam kemahiran bahasa kerana ia menyediakan asas untuk bagaimana pelajar bertutur, mendengar, membaca dan menulis. Tanpa strategi yang menyeluruh dalam penggunaan kosa kata, pelajar ESL akan menghadapi kesukaran dalam menguasai Bahasa Inggeris. Kemajuan dalam bidang teknologi komputer telah mendorong guru-guru untuk menggunakan CAVI (komputer dibantu kosa kata arahan) sebagai alat dalam mengajar Bahasa Inggeris. Kajian kuasi eksperimental ini telah mengkaji kesan CrazyTalk perisian sebagai alat CAVI di perkembangan perbendaharaan kata pelajar LINUS (n =50) di Tahun Tiga. Kajian ini mengikut rekabentuk ukuran sekumpulan kerana ia menggunakan responden yang sama dalam kitaran intervensi. Instrumen kajian ini adalah berdasarkan pada ujian pra, ujian pos dan soal selidik. Data yang diperolehi dianalisis menggunakan SPSS versi 24. Keputusan ujian pra dan ujian pos telah ditafsirkan dengan menggunakan Ujian *sampel t* Berpasangan dan keputusan soal selidik pula telah ditafsirkan menggunakan Ujian Korelasi Spearman Rho. Keputusan ujian *sampel t* menunjukkan bahawa terdapat kesan yang signifikan, dimana p=0.000, dalam perkembangan perbendaharaan kata pelajar LINUS Tahun Tiga menggunakan perisian CrazyTalk. Manakala, hasil kajian soal selidik menunjukkan terdapat korelasi dalam sikap para pelajar terhadap perisian CrazyTalk tersebut dimana nilai r= 0.658 dan nilai p= 0.000. Maka, kajian ini menentukan bahawa perisian CrazyTalk mempunyai impak atas perbendaharaan kata murid LINUS Tahun Tiga.

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LIST OF SYMBOLS AND ABBREVIATIONS

CALL : Computer Assisted Language Learning

CAVI : Computer Assisted Vocabulary Instruction

LINUS : Literacy and Numeracy Screening

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CHAPTER 1

INTRODUCTION

1.1 Introduction

English continues to spread extensively around the world. In Malaysia, English is recognized as an important second language that is after the national language, Bahasa Malaysia. Every aspect of acquiring, learning and teaching of English has been put under a microscope, reviewed and dissected throughout the years (Kaur, 2013). One more element that has been in the limelight for decades yet has shrunk with the development of new teaching methodologies and challenges is vocabulary (Engwal, 2012). The traditional talk and chalk method has been the norm in a typical classroom and though this method has proved to be beneficial in some cases, it is no longer regarded as a sole method of teaching. It also no longer welcomed as a productive method by language learners around the globe (Rahimi et al., 2014). With that being said, there is a need to explore other more productive methods that can be employed in the pedagogy of vocabulary for students as well as language teachers (Laufer, 2010).

Vocabulary is the focal point in how one learns a language. Vocabulary knowledge and language use go hand in hand and it is a symbiotic relationship that only develops with the progress of both facets (Cameron, 2011). In the development of the language skills which are listening, speaking, reading and writing, vocabulary acquisition lays down the foundation that helps learners to learn the language. This rings true in every classroom that teaches English and Malaysia is no exception.

In the Malaysian classroom context, the pedagogy of vocabulary is a crucial part of the second language learning experience, numerous new words are introduced in

lessons and their definitions are very often highlighted, be it through books or through the lessons (Zarei, 2014). Both learners and language teachers are aware that the gradual progression of vocabulary is key to the learning and teaching of a language (Miller, 2012) and therefore it is important to explore alternative methods in the teaching of vocabulary.

As Kennedy and Fox (2013) have stated, in the business of mastery of a language, a large vocabulary is essential. Therefore, a programme named LINUS (Literasi dan Numerasi) has been implemented in the Malaysian primary schools since 2010 for Bahasa Malaysia and Mathematics in which the students undergo screenings of both subjects. They are screened for their mastery of basic reading and numeracy skills and their scores are recorded. Later in the year 2013, based on Malaysia Education Blueprint (2013-2025), the government implemented the LINUS 2.0 (LBI) with an expanded scope to address English language literacy in a focused manner. The main focus of the programme is to familiarize language instructors in the classrooms to the different pedagogical skills for learners with learning disabilities and appropriate methods to recognize learners who are in need of a specialized treatment because they have special needs and learning difficulties (Modul LINUS, 2015).

In the implementation of the revamped LINUS 2.0 assessment, learners are presented with 12 constructs of reading and writing, which are done in a two-pronged assessment method. The learners ideally should be able to read and write all the 12 constructs in order to be placed in the mainstream batch. The learners who fail to pass the chronologically arranged constructs during the screening will be isolated and are enrolled in the LINUS 2.0 remedial programme. This is to enable these learners to have the opportunity to receive additional and specialized treatment that will help them to learn better the targeted language. Following the streaming of learners, teachers are

given the challenging task and responsibility to ensure the learners are enrolled in the LINUS programme to master the required language skills, as aforementioned, listening, speaking, reading and writing, within three years of their lower primary schooling (Zahanim Ahmad, 2016). Through these assessments, it is soon realized that the learners who fail to pass through these constructs are the learners who show a lack of mastery in the facet of vocabulary learning.

In order to create a rehabilitated attention in the nature of vocabulary pedagogy, recent advances in technology have prompted its integration in education and it has been stressed in ESL classes (Vogel et al., 2010). The tradition of learning English has drastically changed as technology sets a favorable platform for teaching English in the modern world. Needless to say, applying computer technology in learning and teaching second language is an important educational issue.

In recent years, the education system has undergone many changes and experiments with new methods and approaches, computer assisted language learning (CALL) is considered to be an essential application in teaching and learning (Daniehelka, Hak & Zara, 2011). Computer Assisted Language Learning is not a term that one would consider to be new. In truth, it is a term that has been around since the 1980's and has undergone changes with the rise and fall of many infamous teaching methodologies. With the development of new teaching methodologies, technology has also experienced a steady rise along with this age of globalization.

The re-emergence of CALL has provided the world of teaching and learning a brand-new outlook and has proved itself to be an important tool in the sector of vocabulary development (Tabar & Khodareza, 2012). With this being said, the need and opportunity to investigate the effects of CALL in vocabulary development has

become a reality. According to Nakata (2011), CALL as a medium has the elements of multimodality that allows the learners to go beyond the confines of the classroom.

CALL has been recognized as one of the foremost and innovative approaches in the practice of foreign/second language item (Jones, 2015). The nature of CALL allows for multimodality to be brought into the classroom with ease. It is a forerunner in the practices of teaching and learning.

Many researchers have stepped in and taken up the mantle to evaluate the effectiveness of this innovative medium and its applications in the facet of language learning since the initial introduction of computers in the field of second/foreign language education (Jones, 2015). The field of language instruction has been greatly revamped with the implementation of computers and in this era of digital natives, computers play a chief role in the classroom (Messinger, 2011). An ESL classroom is now incomplete without the facet of CALL. It is highly likely that the importance of CALL will continue to increase with the progression of time and technological advances.

One of the applications of CALL that has been regarded as a widely used facet is Computer Assisted Vocabulary Instruction (CAVI). In layman's term, CAVI is the practice that focuses in using computers in vocabulary learning and instruction purposes. Since the inception of CALL, the facet of vocabulary learning and teaching has emerged as a highly prevalent subject matter in the computer assisted language learning and teaching applications.

In line with the development of CALL, the CrazyTalk software is used in this study to create an animated based multimedia application. The CrazyTalk software has been blazing the trail in the implementation of CALL in the classroom. The software

is an application that employs a virtual tutor in the form of 3D talking head animation and is enriched with animation, graphics, narration and text. It is strongly believed that this software has shown a marked contribution in the process of language learning among learners of different age groups (Karakas, 2010). Adding on, Yedla (2013) also states that the selection of texts, the use of vibrant colours, fonts, pictures, and music add much more diversity in the students' learning atmosphere and experience. This is where we can see that the role of CALL in aiding the learning process to be more versatile in understanding matters that work with the backgrounds, learning styles and preferences of students.

In a research that was conducted to understand the efficacy of an intelligent computer assistant language learning programme in the Turkish learners' vocabulary learning (Valarmathi, 2011), the study revealed that reading activities that were carried out with the Intelligent Computer Assistant Language Learning Programme, had favorable effects on both learner's vocabulary learning and their attitudes towards the application in their lessons. In another study conducted by Lin, Chan & Hsiao (2011), the researchers examined the effectiveness of a computer assisted vocabulary instruction programme (CAVI) found learners who were given the treatment of collaborative learning with computers did not outperform the learners in the control group. Both groups of learners were assessed using vocabulary tests that were designed for individual study.

As aforementioned there was no marked difference in the results. However, in the delayed posttest the learners in the treatment group demonstrated better retention, thus outperforming the control group in the delayed posttest. Through reading and analyzing of previous studies, the idea of computer and their roles in assisted vocabulary instructions has been wholly endorsed by the academic community and

this has enlightened us with insights, both practical and theoretical, to comprehend and appreciate the novelty of computer assisted vocabulary instruction.

On the other hand, vocabulary development among learners has always been a mind-boggling issue among teachers. However, with the aid of technology enhanced language learning programmes such as CrazyTalk, it is hoped that vocabulary development enters a new era. There has been little research done in the Malaysian context, specifically in the teaching of vocabulary development using CrazyTalk. With the heavy burden of educating the students to pass the compulsory screenings of LINUS 2.0, the English language teachers must improve and equip themselves with more than the chalk and talk method. This study is vital in exploring the effects of an animated software named Crazytalk for year three LINUS learners' vocabulary development.

The Animation through CrazyTalk Software for vocabulary development as a multimedia and computer graphic technology has developed and become widely available, animations have been increasingly incorporated into learning materials (Margayan et al., 2011). Algilasi (2010) refers to animation as "the rapid display of a sequence of static images that creates illusion of movement". Animation promotes better understanding, is aesthetically appealing, more interesting and therefore more motivating (Mohamad Ali, 2018).

Moreover, animations are believed to help learners understand complex ideas easily and through their use, the learners' performance and attitudes towards the teaching and learning processes are enhanced (Algilasi, 2010). Driven by the endless benefits of CAVI in a language classroom, this study has made its objective to explore the effects of the CrazyTalk software in a year three LINUS classroom, specifically in

the teaching of vocabulary as a prerequisite of reading. This study attempts to investigate the attitude of learners towards the software that supports vocabulary development. Moreover, this study gives us insights into the benefits on conducting CAVI-based English lessons will be fruitful and beneficial for other educators who also want to rely on CAVI in their language classrooms as they can prepare themselves better before they venture into the terrains of CAVI. It is also prudent to note that the LINUS assessment in this case study serves as a tool in identifying in who needs this treatment. It is through the assessment of this problem that this study is deemed important.

1.2 Background of the Study

The recent implementation of KSSR has seen the Ministry of Education (Malaysia) revive the basics in the teaching of English as there is a need to know the importance in learning the language. The emphasis in this policy is to begin primary education with a strong foundation of all language skills; Listening & Speaking, Reading, Writing, Language Arts and Grammar. In 2010, the Ministry of Education revamped the curriculum with the crucial aim of making sure that none of the student in school is left behind academically and to ensure they acquire the fundamentals in learning which are – reading, writing and numeracy.

Therefore, a programme called LINUS (Literasi dan Numerasi) was introduced for the primary school in Malaysia in 2010 for Bahasa Malaysia and Mathematics. The students had to undergo screenings in both subjects for their mastery of the basics in reading and numeracy skills. Their scores were recorded. Later in 2013, English was added as part of LINUS and now this assessment is known as LINUS 2.0 where the

mastery of English is assessed with a two-pronged strategy, in oral and writing skills. The oral and writing screenings in the English LINUS 2.0 consists of 12 constructs and are assessed by the English teachers. The constructs are as illustrated below:

Construct 1	Able to identify and distinguish the shape of alphabets
Construct 2	Able to associate sounds with the letters of the alphabets
Construct 3	Able to blend phonemes into recognizable words
Construct 4	Able to segment words into phonemes
Construct 5	Able to understand the use of language at word level
Construct 6	Able to participate in daily conversations using appropriate phrases
Construct 7	Able to understand and use the language at a phrase level in linear-texts
Construct 8	Able to understand and use the language at a phrase level in non-linear texts
Construct 9	Able to read and understand sentences with guidance
Construct 10	Able to understand and use the language at a sentence level in non-linear texts
Construct 11	Able to understand and use the language at a paragraph level in linear texts
Construct 12	Able to construct sentences with guidance

The introduction of the LINUS 2.0 assessment is in agreement with the objectives

of the educational policy that emphasises in developing a strong foundation in all the language skills in the learners' primary education (Curriculum Development Division, 2014). The assessment which is carried out twice in a year allows teachers to gauge the level of students' grasp on the English language and allow for remedial lessons to partake if the need arises.

The LINUS assessment is in its fifth year of implementation and the results of these screenings which are carried out biannually have shed the much needed insight into the problems that the learners face in the process of learning English in a Malaysian primary school. As illustrated above, there are 12 constructs in the assessments that progressively test the level of the learners, starting with the mastery of phonics, then to the use of language at word level, the use of language at phrase level and finally the assessment of use of the language at sentence and paragraph level. In order for learners to pass the assessments, they must be able to read and understand what is presented to them on print. Therein lies the problem that plagues learners and teachers alike which is the inability of reading and understanding the words.

Throughout the first two years of primary education, learners are consciously introduced to new sets of words topically, building the foundation for reading. However, the emphasis is not on the learning and retention of these words, but rather on the mastery of phonemic skills. While learners do learn the meanings of the newly acquired lexicon using picture cues and learning aids, the development of these words are not stressed. When no further vocabulary instruction is given in relation to its retention, its learning is left at a superficial level.

In the following years, reading comprehension and grammar take the lion's share, whereas vocabulary is merely a part of the language learning process. The importance

of learning vocabulary and the development of learning vocabulary are not sufficiently highlighted in the classrooms (Hussain, 2011). As aforementioned, no isolated vocabulary instruction is given and the progression of the modular configuration goes through the skills in a fixed manner: listening, speaking, reading, writing, grammar and language arts allow very little room for teachers to dedicate whole lessons that focus entirely on vocabulary instructions. This is the pea that shakes the layers of English instructions and disrupts the learning process of the English language, which is the lack of the mastery of vocabulary. Learners simply do not know enough words in the target language in order to understand and use the language.

Past researches have echoed the same problem faced by the learners. How could we expect learners to learn a language without the proper tools? It is akin to sending a soldier into the battlefield with a gun but with no ammunition. Words learned are the building blocks that pave the way for successful language learning. Thompson (2013) and Thinyane (2011), argue that adequate vocabulary development is essential for successful second language learning.

Research done by Rivens (2010) has also shown that second language readers rely heavily on vocabulary knowledge and the lack of that knowledge will be the largest obstacle for them to overcome. Not every student enters school with an adequate level of vocabulary knowledge (Bullen et al., 2011), and this is partly due to the difference in their family backgrounds. Family background plays an indirect but an important role in the learners' language proficiency as supported by Rahimi (2015). The researcher further states that the language learning process is influenced by the background of the family of the learners. The educational attainment and socioeconomic status of parents comes into play as influencing factors that pave the path of language acquisition or language learning of a learner. Proficient learners have

more family members teaching them in English compared to less proficient learners. It can be concluded that the teaching of vocabulary is a complex process as these learners come from different family backgrounds, personalities and preferences.

Thus, the need for an effective way for developing the four skills of students in English has become necessary to overcome this issue. This is where the teacher plays a crucial role as a source of help in the target language to the learners and steps in to help them learn words that will help with them with language learning. Although family background can't be changed by English teachers, these students can be given vocabulary enrichment by emplacing on phonemic awareness and phonics instruction to develop their knowledge and understanding in vocabulary (Supyan, 2011).

In the context of this research, a total of 50 pupils of Year Three Linus in SK Novena (pseudonym), Kota Tinggi, Johor were identified as learners who had still not acquired a satisfactory vocabulary level that would facilitate the successful learning of the target language. These learners are known as LINUS students. They are students who are in need of remedial classes and further help in their learning of the target language.

These 50 students are from Pusat Latihan Tentera Darat (PULADA) in Kota Tinggi as the school is situated near the army camp. There is a marked difference as they come from different socioeconomic groups (Muhammad, 2010). These students' daily communication is mainly based on their mother tongue and English is considered their third language of communication. They have no interaction in English with parents or others as it is not their native language. They tend to make sentences using their mother tongue and employ the method of direct translation when the need to use the target language arises. It is quite a conundrum, as these learners have been learning

the target language since they were in Year one. According to Rahimi (2015), the ability to acquire vocabulary is linked to background knowledge. Therefore, with no emphasis on the English language through reading instructions and communication since early childhood, they do not know how to engage in text exploration. Majority of the students do not enjoy reading and do not find the need to use the target language in their immediate circle of family and friends.

With the implementation of LINUS 2.0, the screenings have affirmed the fact that these learners struggle to understand meanings of words as they have lower vocabulary skills. According to Bianco et al. (2012), vocabulary development happens before any formal education takes place. If children are facing difficulties in key experiences or interactions that build vocabulary, then they are already behind in literacy skills since day one. In addition, based on the LINUS Screening 2 results, it was identified that vocabulary was the major factor that held back these students in their oral tests and academic writing tasks. One of the common problems faced by these students is their inability to memorize the target vocabulary. Rahimi (2015) further elaborate that students frequently complain that they forget new words as soon as they learn new ones because they find learning vocabulary a boring and tedious job.

Now that we have established the root cause of increased number of LINUS students and the importance of vocabulary instruction, arises the question, how do we teach vocabulary? Do we give lists of words and definitions for them to memorize? Do we ask them to glean through dictionaries and glossaries to learn new words? Will the chalk and talk method serve justice in teaching LINUS students the needed vocabulary? Or do we look at alternative methods?

Considering the large amount of vocabulary that L2 learners need to learn and

develop, the integration of computer technology in classrooms has gained much traction in the recent years. The integration of computer technology has been gaining momentum to enhance teaching and learning process (Nakata, 2011). According to Naranghizadeh (2013), Computer Assisted Language Learning (CALL) is increasingly seen as an attractive option for teaching and learning. Nation views (2011) CALL can provide a key principle of vocabulary instruction which can do much to assist language learning. Naranghizadeh (2013) highlights that CALL lessons can provide tools particularly for vocabulary learning.

Besides that, Hirschel and Fritz (2013), state that the employment of Computer Assisted Language Learning (CALL) as a medium for learning vocabulary yields a much more positive result for vocabulary development compared to the traditional vocabulary notebook approach. This is true since CALL in the language classroom is not only enjoyable, but also has many elements that help the students to learn better. These elements include pictures, music, animations, graphics, videos and animations. Additionally, Gorjian et.al (2011) states that all CALL materials are student centered that allows the opportunity for self-paced learning as well as a vessel that caters to the needs of learners. This is where we can see that the role of CALL in aiding the learning process to be more of an all-rounder, in taking account on what matters and what works with the students' backgrounds, learning styles and preferences.

In the same vein, to alleviate challenges related to vocabulary development, researchers have also found a variety of techniques to be adapted in the digitalized classrooms. Computer Assisted Vocabulary Instruction (CAVI) is considered one of the facets under the umbrella of computer assisted language learning (CALL) (Beatty, 2013). Numerous studies on Computer Assisted Vocabulary Instruction (CAVI) have proven that leaners' imagination and creativity can be enhanced through the effective

visual aids which the CAVI software provides such as CrazyTalk (Siti Maisyarah, 2013). Learners' engagement with the CAVI software namely CrazyTalk helps them develop vocabulary knowledge and increase the speed of word recognition (Thompson, 2013). These elements also undeniably lend a hand in the retention of the words learnt in the classrooms.

Overall, research conducted by many linguists on CAVI, have shed light on many computer aided teaching materials which have a positive impact on learners' vocabulary development. This relatively new interest in vocabulary programmes based on animation has gained the much-anticipated traction in the Malaysian classroom context. However, there is little research that has been done in Malaysia to measure the effectiveness of vocabulary development using talking head animation such as CrazyTalk among primary school students. Therefore, the objective of this research is to investigate the effects of the CrazyTalk software on Year Three LINUS learners' vocabulary development.

1.3 Statement of Problem

Vocabulary has an important role in English language learning (Thompson, 2013). Currently, vocabulary learning is regarded as a priority in second language acquisition and teaching vocabulary is stressed. This is because the more words the students know, the more they are capable of understanding what they hear and read, resulting in better speakers and writers of the target language. A wide lexicon allows students to express better their ideas (Ko, 2010). Firstly, the learning of vocabulary has been stalled despite the numerous ways of teaching that have been brought in and introduced in the classrooms. Vocabulary teaching and learning require several strategies to be put into

use and ideally supported by technology, which empower teaching and learning (Alexander, 2014).

Secondly, language learners also lack the ability to relate to all four language skills; listening, speaking, writing and language arts. As Yin (2013) stressed, "no matter what the teacher does or what the course book presents ultimately it is the learner who does the learning" (p.394). In an ideal Malaysian classroom context, maximum exposure to the target language, English, will be given to the students; whereas L1 would be avoided completely. The situation presents itself as an infinite loop. Lack of vocabulary mastery discourages the use of English as a medium of instruction and the lack of exposure to the target language results in a limited knowledge of vocabulary and command of the language (Neumeier, 2015).

Thirdly, the wide range of language ability levels in a classroom is another important issue related to this study. There are students who grasp concepts quickly while some have difficulty to follow classroom instructions and remembering concepts. The majority of the Year Three students in this research consist of low achieving students, who typically earn an "E" grade or even "F" grade. Most of these students find reading a boring and tedious task. These students hardly ask any question on the content of the book they read, and there was no question or discussion based on the content of the book.

In the view of Gabarre (2013), Computer Assisted Language Learning (CALL) application for vocabulary study can greatly assist students in comparison to the conventional methods students often use. This echoes the findings by Cohen (2014) that using CAVI software in teaching vocabulary provides opportunity to encounter targeted words in many contexts, leading to a better learning as it combines features

of multimodality. These issues were addressed with the implementation of the revamped LINUS 2.0 assessment where learners are presented with 12 constructs of reading and writing, which are done in a two-pronged assessment method. The learners ideally should be able to read and write all the 12 constructs in order to be placed in the mainstream batch. The learners who fail to pass the chronologically arranged constructs during the screening will be isolated and are enrolled in the LINUS 2.0 remedial programme. The objective of this remedial class is to provide learners with instruction and guidance that will eventually help them to pass the constructs.

This teaching method that has been applied in their classrooms has been proven to be less effective in the process of guiding these learners. Therefore, the need to introduce a different method arises. In this case, with the consideration of the learners' age and their predilection for an environment that is very much shaped by technology and its multiple facets, the application of CALL as a treatment is a step into the right direction. Teachers need to explore more interactive ways that include facets of animation and introduce these ways in classrooms, which nowadays, are made up entirely of digital natives (Shafaei, 2012). This is the core aim of this study, to step away from conventional methods of teaching vocabulary and introduce a technological based vocabulary lesson in the classroom of Year Three LINUS learners. This study focuses on a specific group of learners who are in need of a specialized vocabulary instruction that can help them pass the LINUS screening items.

It was important to choose a tool that would allow the researcher to manipulate its features to be moderated to suit the needs of the learners. Parallel to these needs, the CrazyTalk software was used in this study to create an animated based multimedia application. The software is an application that employs a virtual tutor in the form of 3D talking head animation. This software is enriched with animation, graphics,

narration and text and these features have been proven to be effective in the pedagogy of language learning.

As discussed earlier, although the application of CALL with the integration of CAVI has been meticulously researched around the globe, there is little research that has been done in Malaysia. As this study deals with the teaching and learning of learners in remedial language classes, the need to research the efficacy of CrazyTalk presents itself with much importance.

1.4 Purpose of Study

The objective of this research is to investigate the effects of the CrazyTalk software on the vocabulary development of Year Three LINUS learners. This objective is based on past researches which states that CAVI has had a positive impact in language learning, namely in the teaching and learning of vocabulary. The inability of learners to pass the LINUS assessment was presented as a marker for the learners' achievement in the classroom. Therefore, the treatment is specifically designed with their needs in mind. Parallel to this criterion, the need for a control group appears non consequential. The focus of this study was streamlined to be focused on mainly vocabulary development for reading skill as vocabulary plays an important role in shaping the language. The study has also delved into the attitudes of the learners towards the CrazyTalk software used for vocabulary instruction and development.

1.5 Research Questions

The present study has been designed to answer the research questions as mentioned below:

1) Does the teaching of vocabulary through the CrazyTalk software have a significant effect on the vocabulary development of learners?

2) Is there any significant correlation between learners' attitude and their post-test performance towards CrazyTalk software?

1.6 Research Hypotheses

These null hypotheses are proposed in accordance with the above mentioned research questions:

1) The use of the CrazyTalk software has no significant effect on the learners' vocabulary development.
2) There is no significant correlation between learners' attitude and their post- test performance towards the CrazyTalk software.

1.7 Limitation of Study

One of the limitations of this study is pertaining to the non-random sampling. The selected participants are year three LINUS learners who have not passed the LINUS assessment. For the purpose of this academic research, only learners who did not pass constructs 3-12 in the reading screening in the LINUS assessment in the previous year were picked as candidates for the treatment. These participants also belong to the same

socio-economic group in which their family income is not more than RM1500.

There is another limitation that pertains to the sample of this study. Only Year Three LINUS learners who are taught by the researcher are selected for the purpose this study. These participants do not attend any extra English classes after school hours. This shows that the participants in this study do not receive any source of external motivation in improving their English language. Therefore, the findings of this study may not be generalized to other teachers who teach LINUS classes.

The medium of data collection employed was the last limitation for this study. The CrazyTalk software is the only programme used in this study to note the differences in pretest and posttest results of the treatment group. This software was only applied for reading skill in this study. Hence, the findings of this study cannot be generalized to other studies using computer assisted vocabulary instruction for vocabulary development for other skills such as listening, speaking and writing.

1.8 Significance of the Study

Developments in the Information and Communication Technology (ICT), have efficiently transformed the roles of language teacher and learners (Gromik, 2012). This situation requires learners to be active participants in the learning process rather than being passive recipients. Therefore, CALL applications are recommended for language teaching as these are very practical and time saving with the presence of teachers as facilitators to monitor students' progress and clarify instructions.

Moreover, Chen and Massaro (2011) assert that the CrazyTalk software subsequently improves the learning process of acquiring vocabulary. Thus, vocabulary enables integration of oral, visual, interactive activities and context which lead to

vocabulary retention. Huang (2014) stated that presenting words through the CrazyTalk software leaves higher positive impacts to learn new vocabulary compared to non-moving pictures. The findings were supported by Sparks (2016) as they claimed that students learnt more and remember better using computer as it offers more quality of the words introduced.

Therefore, this study has provided some insights into the 21st century teaching technique by using the CrazyTalk software in the classroom. This study does not only help the educators to keep up with the advancement of technology, but has also drawn attention to the role of the CrazyTalk software for vocabulary development. It also makes the learning process more meaningful for the young digital natives. The CrazyTalk software has significantly changed the way of teaching and learning, leading more towards student-centered learning.

1.9 Definition of Key Terms

CrazyTalk. The term CrazyTalk refers to a software in which an animated character that is computer generated that may be a life-like video character or it is just a person on a website that can talk and hold a conversation with human users (Janeiro, 2011). It is a 3-dimensional full graphical representation which includes facial expression, audio-visual speech processing and lip synchronization (Janeiro, 2011).

Vocabulary. Vocabulary is a list or collection of word or of word and phrases employed by a language, group, individual in a field of knowledge which conveys one single meaning (Gardner, 2013).

Vocabulary development. It is a process that involves the amount of words acquired by one (breadth), as well as the amount of knowledge of the meaning and semantics of the words learnt (depth) (Coxhead, 2011).

LINUS. The Literacy, Numeracy and Screening (LINUS) programme is an educational intervention programme first implemented in 2013 by the Ministry of Education, Malaysia. The Literacy and Numeracy Screening (LINUS) programme is aimed at ensuring that all Malaysian children acquire basic literacy and numeracy skills after three years of mainstream primary education (KPM, 2018).

Year Three Learners. The term Year Three learners is used for children aged 9, which is equivalent to learners in primary school (KPM, 2018).

Computer Assisted Language Learning (CALL). The acronym CALL stands for Computer Assisted Language Learning. CALL is a tool to language teaching and learning in which the computer is used for presentation, reinforcement and assessment of material to be learning, usually including a substantial interactive element (Mohamad Ali, 2018).

Computer Assisted Vocabulary Instruction (CAVI). Computer assisted vocabulary instruction (CAVI) is about a practice that concerns itself the usage of computer software for instruction purposes to allow learners acquire a large vocabulary and vocabulary learning (Gabarre, 2013).

1.10 Theoretical Framework

1.10.1 Mayer's Cognitive Theory of Multimedia Learning

The principles of Mayer's Cognitive Theory of Multimedia Leaning and the Schema were employed in paving the groundwork and is the theoretical framework of this academic research. Mayer (2001) has mentioned that the "multimedia" principle states that "people learn more deeply from words and pictures than from words alone", (p.31). Based on Mayer's theory, human beings process information through a dual pronged channel, one through the visual channel and the other through the verbal channel (Mayer, 2001). The auditory narration goes into the verbal system whereas animation goes into the visual system (Mayer, 2001). Mayer (2001) believes that by mentally integrating both the visual and verbal representations of a subject, the learners understanding occur as it activates both channels simultaneously. Figure 1 outlines Mayer's cognitive theory of multimedia learning and how the information is processed in the human memory.

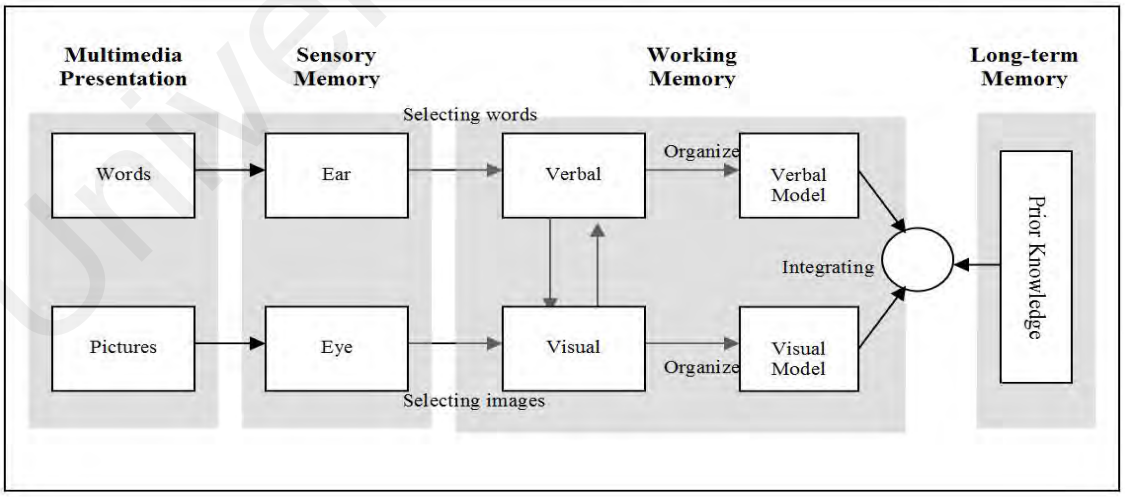


Figure 1.1 : A framework for cognitive theory of multimedia learning drawn from Mayer (2001)

This theory proposes three main assumptions when it comes to learning with multimedia. They are selecting, organizing and integrating. First assumption states that multimedia learning is a dual channel activity. This dual channel is made up of first the pictorial channel that involves pictures and videos. Then comes the auditory-verbal channel that involves in the words and auditory stimuli. In the context of this research, the CrazyTalk software conforms with the first assumption of the theory. The talking head animation, the cornerstone of this software, is processed in the visual-pictorial channel and the set of vocabularies taught were processed in the auditory-verbal channel. This is in accordance with the views of Mayer (2009) which states that it is better to present an explanation in words and pictures rather than solely in words.

Second assumption is organizing. Humans have limited capacity in processing information for each channel. There is a limit in the selection of media, namely words and pictures and the organization of the selected media into the verbal and pictorial mental model. Therefore, it was made sure by the researcher that the amount of words learnt in a given time did not overload the processing capacity of the learners. Words were chosen topically according to the textbooks and each set of lexicons contained less than 15 words.

Last but not least, the third assumption is called integrating. Integrating occurs with preexisting knowledge, which results a meaningful schema development (Ahmad Zamzari et.al, 2012). This happens when corresponding verbal and pictorial representations are in the working memory at the same time (Mayer, 2009). Therefore, the researcher also made sure the words chosen were in the context of the topics taught in the classroom.

The issue of integrating visual and audio information in order to retain it in the long- term memory is important in the CrazyTalk learning condition. The application must have the capability of assisting learners to integrate the visual form of the CrazyTalk software with facial expressions and lip movements and the audio. Likewise, they are able to store the knowledge acquired from the sensory memory (listening and watching the CrazyTalk animation) and working memory (integrating CrazyTalk animation and vocabulary) in the long-term memory and apply it precisely (Ahmad Zamzuri, 2012).

Mayer (2009), has also generated five major principles based on this theory. The five principles include multiple representation principle, contiguity principle, split-attention principle, individual differences principle and coherence principle. The first principle which is the multiple representation principle explains that it is better to present an explanation using two modes of presentation rather than one. By this way, learners are able to build two different mental representations - a verbal mode and a visual mode and build connections between them.

Contiguity principle happens when giving a multimedia explanation. The corresponding word and pictures should be presented contiguously rather than separately. This principle helps learners to understand better an explanation when corresponding words. Pictures are presented at the same time. The third principle is the split-attention principle. Based on this principle, words should be presented as auditory narration rather than as visual on-screen text.

Next is individual differences principle. This principle is more important for low-knowledge and high-spatial learners. Mayer (2009), believes that learners who lack prior knowledge tended to show stronger multimedia effects and continuity effects

than learners who possessed high levels of prior knowledge. According to cognitive theory of multimedia learning, learners with high-spatial ability are able to hold the visual image in working memory and thus are more likely to benefit from contiguous presentation of words and pictures.

Lastly, based on the coherence principle, when giving a multimedia explanation, only few extraneous words and pictures should be used. The fifth principle indicates that learners learn better from a coherent summary which highlights the relevant words and pictures than from a longer version of the summary. The following are the screenshots of creating a CrazyTalk series for vocabulary lesson based on Mayer's Cognitive Theory and multimedia principle. It should be noted that the avatar of the software was changed according to the topics in the textbook. This was done to retain the continued interest of the learners in the treatment lessons.

Step 1 : A still image which is related to the lesson (Sea Creatures) was obtained using the Google search engine. The CrazyTalk software was then used to animate the still image.

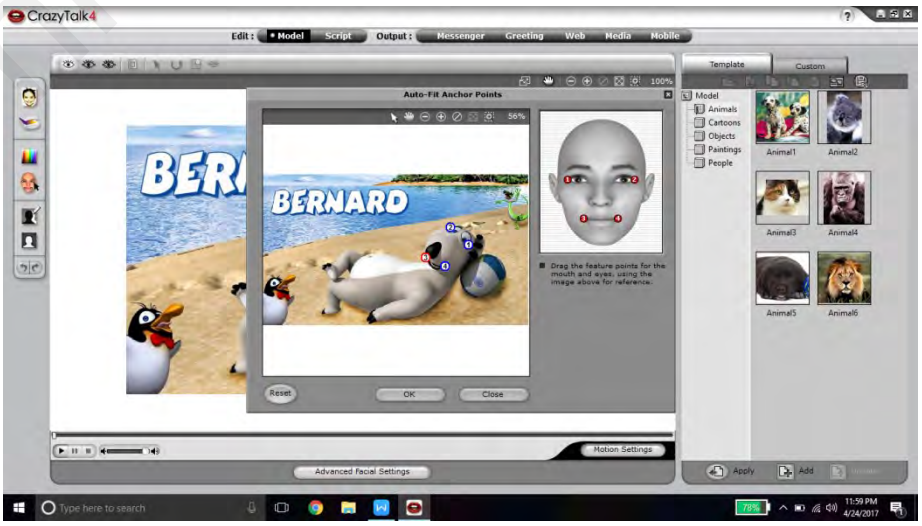


Figure 1.2 : Drag feature points for mouth and eyes

Step 2 : The facial settings for movements of the animation were applied.

Figure 1.3 : Apply facial settings for movement

Step 3 : Motion settings such as movements in head and shoulders and general movements such as nimble or quiet were applied. There was also an option of movement percentage that allowed the researcher to specifically control the movements of the avatar.

Figure 1.4 : Apply motion settings such as head movement, shoulder movement and general movement (nimble or quiet).

Step 4 : Further modifications in terms of facial settings such as eyes, ears, mouth and lips were applied. This was only done when the need arises.

Figure 1.5 : Apply advanced facial settings (if needed) to change the eyes, teeth, mouth and lips.

Step 5 : Lastly, animated emotions and recorded audio for the image were added.

Once the avatar has movements, the CrazyTalk was launched in the classroom.

Figure 1.6 : Add animated emotions and record audio for the image. Once the character has movements and starts talking, launch the CrazyTalk series.

Once the CrazyTalk avatar is ready, the researcher used the same avatar to search for a cartoon video which has no verbal audio in Youtube channel. Once the related cartoon video is found in Youtube channel, the researcher cropped the cartoon film and selected scenes related to the topic "sea creatures" from the original cartoon video.

Figure 1.7 : Screenshot of a scene introducing "oyster" as sea creature

Figure 1.8 : Screenshot of a scene introducing "shark" as a sea creature.

These cartoon scenes (Bernard Bear) mentioned above were taken from the YouTube channel. These cartoon scenes on YouTube channel comes with background music and has no audio.

Once the selected scenes were cropped from the original cartoon film, the Movie Maker application was used to combine both the CrazyTalk series and cropped scenes to launch it as an animated movie. An audio recording was played when a sea animal is found in each scene and the word appeared later after the scene. At the same time, the researcher pasted a word card of the word emphasized on the video so that learners could refer to the whiteboard for reference. A total of seven sea creatures were introduced. This movie series was created by the researcher alone. Relevant cartoons were chosen from Youtube channel and scenes were cropped in correspondence on topics in Year Three textbook.

The current study benefits from the reference of this study in writing the theoretical framework of Mayer's Cognitive Theory in Multimedia Learning. This goes with a study conducted by Abdelrahim and Eldin (2017). In his study, the researcher investigated the effects of two multimedia CALL programmes on vocabulary acquisition. The participants consisted of 86 (44 females and 42 males) intermediate English as a second language students in a large community college in the United States. The participants were divided into two experimental groups. The first group viewed a programme with Motion Graphics and text, whereas students in the second group viewed a Graphics and text programme. Participants had to study ten names of hand and power tools. There were two posttests, the immediate posttest and the delayed posttest. The immediate posttest was administered immediately after treatment. After two weeks, the delayed posttest was administered.

The results showed the effectiveness of using multimedia computer assisted language learning programmes in learning vocabulary. The study also indicated that both motion and still graphics can be effective in learning vocabulary.

It also revealed that the Motion Graphics group had better retention than the participants in the Still Graphics group.

Overall, there is a close relation between the current study as all of them deal with using animation and multimedia in teaching vocabulary. Most of these studies depend on experimental approach and that matches the current study. The basic premise in multimedia learning is that learners learn more deeply from words and pictures put together than just words alone. Mayer (2009) concluded that when the learner integrates the visual model and auditory model together with their prior knowledge in a functional way, the new knowledge can move into long term memory. Mayer's Cognitive Theory of Multimedia Learning shows that classroom instructions based on multimedia content are important and impactful.

1.10.2 Krashen's Theory of Second Language Acquisition

In the early 80's of the 20th century Stephen Krashen established his systematic and comprehensive theory of SLA. Stephen Krashen (1989) developed his Monitor Theory based on Chomky's concept of Language Acquisition Device (LAD). The Monitor Theory consists of five main hypotheses, namely: a. the Acquisition-Learning hypothesis; b the Monitor hypothesis; c. the Natural Order hypothesis; d. the Input hypothesis and e. the Affective Filter hypothesis. The Input Hypothesis is considered "the heart of the theory" and it supports the purpose of this study.

Krashen's Input Hypothesis theory forms the central part of an overall theory of second language acquisition. The Input Hypothesis claims that human acquire language through "comprehensible input" (input which is a bit beyond the current level of understanding), by listening or reading for meaning. This is done with the aid of an

extra linguistic context, knowledge of the world and previous language competence. To be more precise, Stephen Krashen's input hypothesis seeks to explain how individuals acquire knowledge, and how this understanding of language acquisition is important to second language learners. In line with the theory of this hypothesis, the process of learning in which the learner improves and progresses happens when the learner is given an input that is one step beyond their current stage of competence.

The Input Hypothesis builds on the Natural Order Hypothesis and answers the question of how we move from one stage of acquisition to another. In other words, *t* is concerned with how we move from *i,* where *i* is the acquirer's current level of competence to *i*+1, where *i*+1 is the stage immediately following *i* along the natural order. The answer to how we can understand language that contains structures we have not acquired is "through context, our knowledge of the world, our extra- linguistic information" (Krashen, 2003a).

This theory incorporates gestures, pictures, music and illustrations into the lessons. Designing lessons with visuals, music and gestures makes a lesson more comprehensible and memorable. At the root of vocabulary learning, Krashen's Input Hypothesis states that if students are exposed to vocabulary words multiple times in different contexts, they will be able to acquire the meaning of words subconsciously. If the teacher uses comprehensible input in the lesson while simultaneously developing vocabulary, majority of the students will meet the cognitive challenge presented by the teacher.

In sum, the art of teaching does not present itself without its own set of obstacles. These are the challenges that plague teachers and learners alike. This is where researchers play their role in determining problems and helping to solve these

challenges with a specialized solution, that is designed with many factors in mind. The direct pathway in designing a treatment is choosing the appropriate theoretical framework that will help researchers map their course of action.

For the purpose of this research, the researcher has chosen to employ these two theories for the construction of the treatment. First, is Mayer's Cognitive Theory of Multimedia Learning. The targeted set of participants for this study are Year Three LINUS students who are nine years old. They are classified as young learners and are now known as digital natives (Thompson, 2013). A treatment plan that has the facets of CAVI is the most prudent choice in this research as Mayer's Theory contains the five major principles, which are multiple representation principle, contiguity principle, split-attention principle, individual differences principle and coherence principle. These principles, as explained beforehand, create a clear framework as to how the treatment should be designed.

With the principles as a guideline, the researcher has chosen the software CrazyTalk as the treatment tool for this study. This is also in line in answering the first research question posed. The research aimed to investigate if the software has a significant effect on learners' vocabulary development. The main objective here is to help learners master vocabulary in an effective manner, therefore the need to design a suitable treatment is imperative. The use of this theory as a framework has helped to lay the foundations in the construction of the treatment. As mentioned earlier, with the five principles of the theory as a standard, the CrazyTalk software has been chosen for this research.

The second theory is the Krashen's Theory of Second Language Acquisition. The primary cornerstone of this theory is that learning happens when learners are

presented with input that is a step beyond their current level of understanding. This new input could be acquired either by listening or reading and it could be presented with the aid of an extra linguistic context, knowledge of the world and previous language competence. This theory has helped the researcher to streamline the lexicon that has been chosen for the treatment.

The words that were used as part of the treatments were words that were present in the natural class setting. It complies with their level of competence without being too easy or mundane.

1.11 Summary

Krashen's Input Hypothesis justifies that if students are exposed to vocabulary words multiple times in different contexts, they will be able to learn and retain the word. This reiterates back to the justification of using the CrazyTalk software in the treatment plan. This is also in line with the first research question that poses the need to investigate if the use of the CrazyTalk software has a significant effect on the vocabulary development learners.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter consists of various existing literatures that are connected with the research. It discusses the definitions and background to the theories and concepts related to this study followed by review of previous studies on vocabulary development and animation.

2.2 Introduction to Vocabulary

The English language is considered to have the largest vocabulary in the world (Oxford, 2011). According to Sparks (2016), vocabulary plays an important role in language learning and it is an essential part of mastering a second language. According to the Mizumoto (2010), knowledge of vocabulary is essential as it encompasses all the words we must know to express our ideas, to communicate effectively and learn about new concepts. Supporting the statement, Zarei (2013) claims that students who have large a vocabulary can understand new ideas and concepts more quickly compared to students with a limited ~~a~~ vocabulary because their word knowledge is linked strongly to academic success.

Many researchers have indicated the need for good vocabulary. Schmitt (2011), highlight that vocabulary is the knowledge of words and meanings. In other words, knowledge of vocabulary expands and deepens over the course of a lifetime; it is not something that can be fully mastered at one time (Supyan, 2011). Similarly, according to Kamariah et al. (2016) vocabulary can also be defined as “the words we must know

to communicate effectively, words in speaking (expressive vocabulary) and words in listening (receptive vocabulary)" (p.17). An extensive body of research on teaching and learning vocabulary clearly indicates that the growth of vocabulary has always been an important goal in literacy and learning (Teng, 2015).

On the other hand, Gardner (2013) defines vocabulary as "a list of signs or symbols constituting a means or system of non-verbal communication" (p.33). Likewise, Laufer (2004) argues that vocabulary is "the set of forms, techniques, or other means of expression available or characteristic of an artist, art form, etc" (p.261). Meanwhile, Laufer (2010) states that terms like vocabulary, lexis and lexicon are synonymous.

Likewise, Subon (2013) summed up the importance of vocabulary by stating that "your English knowledge will not improve much if you spend most of your time studying grammar. You will see most improvement if you learn more words and expressions. You can say very little with grammar, but you can say almost anything with words!" (p. 13). Furthermore, as argued by Tam (2013), learners who have wide vocabulary repertoire can understand new concepts and ideas more quickly compared to those with limited vocabulary knowledge. He further points out that the learning process will be incomplete for students with limited vocabulary knowledge, because it is always related to their academic achievement.

Based on the definitions above, it can be concluded that vocabulary is the core component of language proficiency (Schmitt, 2014). Zahedi and Abdi (2012) also points out that "by having rich vocabulary, students can improve their four skills; listening, speaking, reading and writing in the way they produce language" (p.39). It is undeniable that vocabulary allows us to communicate with a wide ~~a~~ range of

meanings. Huang (2014) for instance, pointed out that English language has the largest vocabulary; and it is somewhat impossible to teach all of these vocabularies, especially in the context of a classroom. This rings truer in terms of an ESL context in which learners, more often, only learn the target language in the classroom and nowhere else.

Therefore, undeniably teachers must practice various kinds of teaching and learning methods in an effective and principled manner for learners to acquire vocabulary (Traxler, 2011). Teachers are given the responsibility to encourage students to acquire vocabulary; although it is understood that learning English vocabulary is not an easy feat.

2.3 Importance of Vocabulary

In today's world English has become an important global language of communication. Based on the Article 152, the Malaysian government has officially claimed English as a second language (Normazidah et al., 2012). English has in fact been made a compulsory subject in the Malaysian education curriculum, in both primary and secondary schools (Melor Md Yunus et al., 2013).

In learning a second language, vocabulary is considered to be the basic step towards mastering the language (Schmitt, 2011). Vocabulary helps to build interaction among others as it plays a major role in the use of the English language (Thornbury, 2002). Many researchers have acknowledged that vocabulary learning is an essential component of second language proficiency (Zahedi, 2012). Considering this, vocabulary learning is currently gaining momentum in the facet of second language teaching and learning and research in it is accepted as a fundamental element of language learning (Schmitt, 2014). As in early primary grades, students begin to

acquire a significant amount of vocabulary knowledge through reading (Glende, 2013).

In agreement to this shared view, Webb (2013) has mentioned that between 6000 to 7000 families of words needs to be known in order to deal with spoken texts; and between 8000 to 9000 words families need to be mastered to deal with written texts. With these findings, teachers have the responsibility to meticulously select words so that learners are inculcated with the ability to use the selected word or word parts to learn other words (Kusumawati and Widiati, 2017). Additionally, many recommend that words encountered most frequently in English are good items for learning and that various word lists can help teachers select words appropriate to various grade levels and content areas (Akil and Rosida, 2018). As a result, students with limited vocabulary will find reading difficult. This is supported by Joyce (2011) who states that vocabulary development is crucial for students as they need it to read and it is the key component in language development.

Besides that, according to Ko (2010), vocabulary learning is a continuous process of discovering new words in meaningful and comprehensible context. In short, throughout the life span, people develop vocabulary effectively and effortlessly as long as they see words in meaningful contexts (Yong, 2011). On the other hand, Brabham and Villaime (2002) identified that during early childhood, children's vocabulary learning rate is approximately between 2000 and 4000 words per year, or on an average of seven words per day. Hussain (2011), estimated that, in school, children will have more than 100,000 words through reading. In short, students' vocabularies may increase by 3000 to 5000 words per year through reading. Furthermore, the findings by Daniels and Zemelman (2012), show that students are able to learn a significant number of vocabularies through reading, discussing their reading and listening to orally presented words.

The most recurrent 2000 words make up 80% of all words that are present in any given English text. Therefore, it is prudent to conclude that a vocabulary size of the said 2000 most used words should enable learners to be better readers. This is further supported by Huisinga (2017) who stated that learners with a lexicon of frequently used words will have "a good degree of comprehension of a text". Furthermore, Webb (2013) has also stated that in order for learners to have a larger vocabulary on reading, they need to read extensively in second language. Some scholars believe that a large vocabulary size can have a positive impact on understanding the grammar of the target language (Schmitt, 2014).

In the same manner, Webb (2013) has stated that readers need to know at least 97% of the vocabulary in a text for an adequate understanding of it. A learner may have serious problem in understanding a message without knowledge of the key vocabulary in a text. Likewise, Laufer (2010) claims that vocabulary determines the proficiency a student has in oral context in order to communicate effectively. In sum, significant ways for vocabulary instruction is crucial to improve learners' reading and listening comprehension, and speaking fluency (Palmer, 2010). Therefore, this belief requires much closer attention to the method and tools chosen for effective vocabulary instruction.

Moreover, Rouhi and Mohebbi (2013) have also stated that vocabulary instruction should involve various opportunities for learners to use new words, to discuss words and to compare new words with previously learned words. In short, effective vocabulary instruction should be given to learners in order for them to acquire new words and enable them to increase the depth of that knowledge over time.

2.3.1 The Importance of Vocabulary Development

Vocabulary development is presently gaining attention in second language pedagogy (Kaur, 2015). As stated by Sparks (2016), vocabulary development is the basis of learning any language and it is also a process of acquiring new words to use in the daily context. In short, the more words the reader knows, the easier it will be to read and understand what is read (Teng, 2016). Furthermore, Hulstijn (2013) has acknowledged that vocabulary learning is an essential component in second language proficiency, as it forms the biggest part of meaning in any language.

According to Teng (2016), learning vocabulary in the early stages is more fundamental than grammar. The teaching of grammar presents a set of rules and there are many universally accepted methods of teaching grammar items. Vocabulary teaching, on the other hand is a fickle aspect in the learning and teaching of a language (David, 2010). The clear emphasis on the teaching of facets such as grammar has had teachers in a bind, and they have been reduced to downplay the emphasis of vocabulary instruction in the classroom. Teaching words is a crucial aspect in learning a language as languages are based on words (Schmitt, 2014).

Considering this, Coriano (2013) has further elaborated that vocabulary development mainly focuses on helping students learning the meaning of new words and concepts in various contexts. Therefore, vocabulary development is considered a continuous process in which, children do not only add new words to their existing vocabulary bank but also build knowledge about words they already know (Chanlin, 2011). In addition, based on a convincing body of research, vocabulary development is the most important skill young children need to acquire in order to be successful in learning to read. Young children are amazing in learning new words.

They predominantly acquire vocabulary by hearing new words in their environment through conversations, televisions, and by read storybooks aloud (Paquot, 2010). A rich vocabulary increases comprehension and learning as it is a strong indicator of reading success (Fosudo, 2010).

Thus, the problem still remains that many children do not acquire well-developed vocabulary. Kaur (2015) identified that there is a considerable difference between children from the disadvantaged background and advantaged background. Children from a disadvantaged background have limited and narrow vocabulary compared to children from an advantaged background. This means, children with narrow vocabularies need to be targeted early, as they miss out opportunities to extend their vocabulary (Rott, 2013). As a result, Heidari-shahreza and Moinzadeh (2014) concluded that reading for children and getting children to read for themselves are the common core activities that helps vocabulary growth.

In particular, the amount of time spent in a meaningful and relevant context is the best predictor of vocabulary growth and development. To determine the effect of reading on vocabulary development. Proctor et al., (2011) conducted a quasi-experimental study on fifth grade students. The effects of using an Internet-based, strategic digital reading (SDR) was investigated in their research. The instructor programme was used in vocabulary development and comprehension skills of fifth grade learners.

The study by Proctor et al., (2011) consisted of 240 candidates from four participating schools. These four schools were located in three different districts in a northeast metropolitan area. The candidates of the study were required to spend 50 minutes each week to interact with short digital texts in their respective school labs. A

total of 40 words were embedded within the instruction of the digital text. The intervention group used the programme which consisted of Spanish translations, human read-aloud text, English monolingual, a multimedia glossary, and images illustrating the text content. The control group had more time spent on literacy than the intervention group.

The results showed that there were more mixed results on the SDR effects on both the standardized and researcher designed tasks (Proctor et al., 2011). The models used for analysis gave a better impact in explaining variation among students than among classrooms (Proctor et al.,2011). The intervention had led to large significant effects on the standardized measure of vocabulary knowledge and the researcher understood the depth of word knowledge (Proctor et al.,2011).

Based on the above research, vocabulary seems to be important to a good reading programme. In other words, Chen et al. (2010) claimed that vocabulary growth occurs when we "immerse students in words in a variety of ways and get them personally and actively involved in constructing word meanings" (p.182). In order to close the gap in vocabulary development, myriad methods must be included to enrich the understanding and achievement of all students. Educators can easily create a language rich environment with repeated and supported exposure to a large quantity of new words by using technological resources.

2.3.2 Traditional Vocabulary Development

As aforementioned, there has been an invigorating rise in the interest of nature of vocabulary and the role it plays in the teaching and learning of the target language (Kalajahi and Pourshahian, 2012). For most researchers, the status of vocabulary

development is undeniably important and the role it-plays is irrefutable. For this reason, most of the researchers have emphasized the importance of vocabulary teaching and learning in their researches (Kalajahi and Pourshahian, 2012). Now that we have established the importance of vocabulary, it is crucial to take a look at how vocabulary is taught in the classroom. The pedagogy of vocabulary has been categorically put in two columns that differ from one another. The first method is known as the traditional method or the decontextualized way of teaching. The second method is known as the contextualized method of teaching (Coxhead, 2011).

According to Teng (2015), words lists and dictionary use are the commonly used strategies under the decontextualized teaching. Decontextualized vocabulary learning, simply put, is the method of learning the word without any given context. Therefore, the use of wordlists, dictionaries and glossaries is common within the lessons of decontextualized teaching. Thus, it is safe to assume that this method relies of the principles of rote memory, repetition and memorization.

One of the main criticisms of using this method is that decontextualized teaching makes vocabulary learning boring and it makes students know only one meaning of the word exposed to them (Naginder Kaur, 2012). Yedla (2013) also argued that words taught in isolation are generally not remembered by learners. In addition, students should not be expected to extract personal connections or meaning from a word simply through exposure to its definition (Brabham et al., 2012). Furthermore, Chung (2012) stated that many students are not successful when using context in order to identify meaning and have difficulty deciding which meaning is appropriate when confronting multiple meaning words.

Based on the literature as mentioned above, researchers have come to the conclusion that the application of contextualized vocabulary learning proves to be more advantageous in the classrooms (Kamariah et al., 2016). Learning vocabulary through contextualization creates an awareness of word classes among the learners. There is a better understanding of the word learnt in a contextualized learning situation and these words are also retained and committed in their long-term memory.

The traditional method of vocabulary instructions only concerns itself in the learning of basic definitions of words presented and pushes away all other contexts (Chapelle, 2001). This undeniably leads to a shallow level of word knowledge (Chung, 2012). Contextualization, on the other hand, presents the words in various context and learners are given the opportunity to learn in these different contexts. This leads to an enriched learning of vocabulary and the numerous definitions and usage of the words learnt.

2.4 Reading Habits Among Learners

Reading is a habit that has a desired effect on people of all stages of life across the spectrum. Webb and Chang (2012) agree with this view, as stated in their research that the acquisition of knowledge through reading is a good approach as the information that readers have obtained should be of use. It should be able to empower the knowledge seekers with opportunities that enable them to seek jobs, overcome educational hurdles and mold their rational thinking that help them in their decision-making abilities.

Additionally, Teng (2016) summed that reading is almost always linked with books. Reading is a gateway to a land of imagination, and it is through reading that

one finds the ability to fabricate or settle things, find the appreciation for stories, to figure out the acceptance level of others and to create considerate notions of their own. Reading is the pathway that gives one access to all types of information that are crucial in our daily survival and development. Kaur (2013) illustrated that the development of one's communication skills and wisdom can be supported by the habit of reading. Reading molds children and changes them in ways that are long-lasting, convincing and helpful to the general population.

Palani (2012) stated that "reading opens door to the accumulated knowledge of centuries which helps to enrich, illuminate the minds, and widen the mental and spiritual horizons of the reader because the continuous reading of material will serve as a means of strengthening the development of reading" (p.34). Palmer (2010) also emphasizes on the importance of reading as a vital skill that is widely accepted as one of the instruments of survival in the world that we are living now. Books and other reading materials impart knowledge that allows us to learn new information that we could adopt and adapt to suit our daily lives. Akinbola (2007) also concedes to this belief and states the importance of it as a skill that emancipates us from the confines of material boundaries and releases us from the bonds of hardship and frustration.

In support of the above, Nilforoushan (2014) has stated that reading is a dynamic part of our daily lives, that does not only serve as an instrument of pleasure but is also an extremely important method of learning. The habit of reading has cemented its importance on individuals in the advancement of knowledge in this era of globalization. Its influence is a phenomenon that transcends the needs of the cognitive nature. It is a habit that allows one learn new knowledge and elevate their living status, as well as give the opportunity to the readers to obtain pleasure and escape the boundaries of time and space.

2.5 Literacy Instruction Programme

A good command of English is crucial in academic and workplace settings. For many countries, the development of basic literacy skills begins as early as in preschool education. In 2013, The Malaysia Ministry of Education conducted a baseline study to investigate the literacy level of Year 1 students. The results of the study showed that only 50% of primary school students in Year 1 mastered basic English literacy, while the rest remained illiterates in terms of the inability to recognize alphabets and words.

Based on literacy, a research was conducted by Abdullah and Salleh (2010) that described there were several problems that relatively impacted the education of students. They claimed that the most significant problems were the state of poverty, communication, attitudes, teaching and learning facilities available in schools and the influence of mother tongue. This situation adds more concern to educators and policy makers alike as every Malaysian child is expected to acquire reading and writing skills after 3 years of mainstream primary education (MoE, 2015). This worrying situation led to the introduction of the Literacy and Numeracy Screening for English Language or LINUS programme in 2010, or LINUS 2.0. The LINUS programme was designed to screen and identify students who will need remediation in Bahasa Malaysia, Mathematics and English literacies from Years One to Three. On the other hand, LINUS 2.0 programme ensures that no child is left behind by the end of year six for primary education (MoE, 2015).

Literacy problems among primary level students are identified through the LINUS assessment, as the sole purpose of this programme is to enhance the rate of literacy in English among lower primary learners. LINUS assessment screens all enrolled students twice a year from the beginning of Year One up to Year Three. The

screenings are conducted by the teachers in schools in March and September annually as a pre and post measurement of the achievement of student of the standard competencies after undergoing remedial sessions (GoM, 2010). Hazita (2013) and Sulaiman et al. (2015) claimed that the screening is very important for students from rural areas and vernacular schools as majority of them do not live in English enriched environments neither at home nor at school.

At the same time concurrent remedial teaching as an intervention initiative will be given to students who fall below the established literacy standards after 3 years in primary school. The established literacy standards are based on twelve constructs (MoE, 2018) as shown below:

Construct 1: Able to identify and distinguish shapes of the letters of the alphabet

Construct 2: Able to associate sounds with the letters of the alphabet

Construct 3: Able to blend phonemes into recognizable words.

Construct 4: Able to segment words into phonemes

Construct 5: Able to understand and use the language at word level

Construct 6: Able to participate in daily conversations using appropriate phrases

Construct 7: Able to understand and use the language at phrase level in linear texts

Construct 8: Able to understand and use the language at phrase level in non-linear texts

Construct 9: Able to read and understand sentences with guidance

Construct 10: Able to understand and use the language at sentence level in non-linear texts

Construct 11: Able to understand and use the language at sentence level in linear texts

Construct 12: Able to construct sentences with guidance

The LINUS test is a guided test, where instruction will be given by the teacher for students to answer the given questions. Those who answer wrongly or are unable to answer with the minimum score will be considered incompetent. As such, this study will only focus on constructs 3 to12 during LINUS reading screening. These Year One and Year Two students involved in the LINUS reading programme indicated that a majority of them failed to acquire construct 3 to construct 12. They were unable to get a minimum score of 2 out of 3 to pass constructs 3, 4, 5, 6, 8, 9, 10, 11 and 12; and a minimum score of 3 out of 4 for constructs 7 to 10. Therefore, this study will use the CrazyTalk software to enhance learners' vocabulary development based on LINUS reading screening from constructs 3 to 12.

2.5.1 Background of the LINUS Learners

English is considered the most critical of all subjects tested in the UPSR; as it is a compulsory subject in Malaysian schools. The learning of English in Malaysia has been in the limelight for years and now captures the attention of policy makers and educators (Santa Singh, 2014). The Malaysian Blueprint 2013-2025, aims to produce Malaysians who are able to speak at least two languages. They are Malay Language as the national language and English as the global language. Despite this emphasis, some children without learning disabilities are still unable to acquire basic literacy skills. The implementation of LINUS 2.0 (LBI) programme found that English has the most pupils involved in LINUS BI compared to Bahasa Malaysia and Mathematics. Furthermore, various steps have been taken to rectify this problem as the Ministry of

Education considers English competence is a must for the younger generation in the twenty-first century. However, English is not used communicatively compared to Bahasa Malaysia in national schools. This is because English is only used as a medium of instruction in English Language classes and some Dual Language Programme (DLP) classes.

Besides that, the financial and education background of the student is also an issue worth examining. Parents of underprivileged LINUS students have low financial ability compared to urban parents. Most of their parents work as soldiers at Army Training Centre (PULADA), Kota Tinggi. At the same, their parents' highest educational level is only Malaysian Certificate of Education (SPM) and their monthly income is between RM1500 and RM1800. Most of these parents hold the rank of sergeant and all mothers are home makers. Furthermore, their per capita income is RM120 monthly.

At the same time, these parents support a minimum of six members in each family based on the data retrieved from Pupils Database Application (APDM). Therefore, some of their children receive additional food aid, Supplemental Food Plan Programme (RMT) for breakfast (Kementerian Kesihatan Malaysia, 2018). These students are also aided with Trust Fund for Poor Students (KWAMP) to ensure these underprivileged students do not drop out of school due to poverty (MoE, 2017).

Despite all measures taken by the government of Malaysia, it is understood that parents' socio-economic background and low educational attainment cause low confidence among students to use the English language. This statement is supported by Lamb (2018), who states learning is relegated to teachers in schools' as parents cannot support their children to go to tuition classes and to purchase extra learning

materials due to family's financial and low educational background.

Moreover, family members' involvement also contributes to the learners' low performance and reading habits in English. According to the research conducted by Abdullah (2011), the parents of these low performing pupils have never attended teacher-parent sharing sessions and the sense of being monitors is given less importance for these students. As such, Fang (2010), stated that the attitude of parents and their contribution to the education of their children affects their achievement, attendance, communication and reading habits.

Apart from the above-mentioned factors, instructional and pedagogical factors also create language learning difficulties among these learners. A study carried out by Abdullah (2011) found that students do not prefer fierce and strict teachers. They are comfortable with funny and encouraging teachers who use different kinds of teaching materials. A recent study carried out by Aminuddin et al. (2012) found the same results where students were excited to learn when there is new enrichment pedagogical approach such as "edutainment". This approach helps teachers to deliver lessons using the fun element but appropriate to the student needs. This aspect will be further discussed in this research and the findings will also be elaborated in this study.

In conclusion, several measures have been implemented by the government to arrest the decline in the standard of English among Malaysian students. The LINUS programme is to ensure that the primary students are able to acquire all three skills and improve the standard of English and reading habits among Malaysian primary school students. Teachers will have to cultivate the interest in learning English and reading habits among pupils and take several measures to improve the teaching and learning process. In other words, teachers should create a conducive environment to motivate

students and foster their interest to learn in order to achieve the optimal level of achievement.

2.5.2 Attitudes of LINUS Learners Towards Learning English

The attitude of students towards learning plays a vital role in maximizing teaching and learning output. It is the key factor that can nurture or hinder the learning process effectively (Fosudo, 2010). As educators, teachers should pay attention to the differences among individual learners to understand their learning styles. By this approach they can promote good learning attitudes. Gardner (2013) asserts that there is a close connection between attitude and achievement; he points out that learners' attitude toward target language determine how successful they will be to learn that new language.

Keeping this in mind, the LINUS learners in this study had been identified as learners who had not acquired a satisfactory vocabulary level. These learners also lacked the ability to relate to basic literacy skills namely listening, speaking, reading and writing. However, teachers are responsible to make the teaching and learning of vocabulary more effective in the classroom and there is a need to explore ways that go beyond the limitations of the use of whiteboard.

As discussed earlier, the literature shows that students' attitude is affected by numerous factors such as gender, learners' background, and age (Rosenthal, 2015). Therefore, these factors are crucial to be considered in order to discover the suitable teaching method (Zawiyah et.al, 2015). The LINUS learners in this study appear passive and non-responsive to classroom activities. Asgari and Mustapha (2011), believe that students will be more likely become agents of their own learning when a

learning environment that encourages a variety learning styles is provided. Therefore, the learning material should encourage learners to be inquisitive and motivated.

On the other hand, Ismail et al., (2012) have stated that students with low self -confidence due to their lack or prior knowledge and understanding, do not believe in themselves, thus tend to avoid classroom participation. These students will also show pessimistic attitude in the classroom when they are unable to speak the target language conveniently. Students' negative attitude shows that they do not have awareness about the significance of English language. LINUS learners in this study have strong influence of their first language, which could have deprived inspiration and increased a pessimistic attitude towards ESL.

Most of the teachers believe that the attitude of students is an essential part in the learning process that is be considered important in methods of teaching second language. According to Noriah Ismail et al. (2012), teachers' main tasks are to provoke curiosity and participation in the subject when students do not have interest in the related course. Therefore, thoroughly discussed features of a typical LINUS learner allows to understand the turmoil and challenges they face in a language classroom. With an in-depth understanding of the participants in this study, the researcher gains a clearer perspective her challenges as a teacher and helps to choose and design a treatment that caters to the needs of her learners.

2.6 Use of Computers in Education

The integration of information and communication technology in education has been widely accepted and endorsed by researchers all over the world. This amalgamation supports pupils in their own constructive thinking and engages them in

cognitive operations (Zorko, 2011). Hazita (2010) carried out a study that investigated the use of interactive computer technology in aiding the enhancement of learning. They discovered that using ICT in the classroom generates a powerful learning environment and provides intrinsic motivation for learners to learn and actively participate in classroom activities.

Wan Fareed (2012) further illustrates the efficacy of ICT by stating that academic learning coupled with computer technology gives learners much more autonomy and interest in their process of exploring and learning knowledge. Aminuddin et al. (2012) summarizes briefly that "students have greater enjoyment of classes using active learning techniques like using computer technology in the classroom" (p. 45).

As technological developments accelerate in educational settings, integrating computer technology into academic learning provides students with more opportunities to gain interest in exploring learning content. Computer and the technology that accompanies it has emerged as a crucial tool to facilitate better and newer ways of teaching and learning. The multimodality of computers and technology could be utilized to develop skills for cooperation, communication, problem solving and lifelong learning (Brigitta, 2011).

In this era of digital natives and globalization, computers have made their mark and now are highly regarded as an invaluable tool in the world of modern foreign language pedagogy in varsities around the globe. Lee (2012) in his research states that the use of computers in the classroom, specifically in the facet of second language instructions, can greatly improve practices for learners. The benefits include experiential learning, motivations, enhancement in student achievements and an

increased influx of authentic materials for learning. It also encourages greater interaction between teachers and students and students and peers, an emphasis on individual needs, an escape from a single and monotonous source of information and the enlargement of a global understanding.

Bianchi and Hussein (2019), investigated the effect of multimedia computer programmes on developing English writing and reading among the Palestinian tenth graders. The subjects were a 10th grade class in a primary school for boys in Southern Directorate of Education Hebron. The 32 students were chosen randomly from one of the schools that had a computer lab. A pre-test/post-test of data collection method was used to measure the difference in the performance before and after the experiment. The experimental group was taught a multimedia programme via computer. The results revealed that the experimental group performed significantly better in the posttest than in the pretest. This provided evidence for the effectiveness of using multimedia in enhancing English language learning. It also showed that adopting multimedia in teaching English can help students develop their reading and writing skills. Drawing on the studies of Alzaanin (2014), computer technology is considered as an effective teaching aid that should be enhanced inside schools in promoting ESL skills.

It has been established that the function of English as a Second Language can be enhanced through the thorough use of computers and its technological advancements. With the development of the computer and its related software industry, integrating language arts computer pogrammes into the curriculum is easier than other types of programmes (Sharp, 2013). However, the field has not been researched very much. Therefore, attitudes of learners toward CALL- based ESL classes is a topic that deserves the attention of researchers.

In a paper written by Li (2014), it was established that learners of attitudes in the use of computers played a crucial role in influencing their acceptance of computers as a learning gadget. It also molded their future behaviours in using computers in the pursuits of future studies and vocational purposes. Zhang (2011), agrees a key predictor in terms of successful application of computer to language learning is learner attitudes towards the computer-assisted language learning. Therefore, the attitudes of learners should be considered as key constructs in predicting technology acceptance for future use.

2.6.1 The Role of CALL in Classrooms

With the rapid development of technologies, educators have integrated different language skills like listening, speaking, reading and writing into language learning. Technology offers many opportunities to enhance the quality of learning and teaching. English language pedagogies are improved and beneficial to language learners if technology is incorporated into the classroom (Jiang, 2018). The Ministry of Education Malaysia (2019) reported that technology changes the class from teacher-centered into student-centered classrooms. Furthermore, technology provides the encouragement of collaboration and communication in learning activities (Morales, 2012). Finally, technology has proved to decrease anxiety levels among learners (Sulaiman, 2015).

According to Pun (2014)), technology helps learners to be responsible for their own learning as it creates an independent learning environment. In today's developed world, Computer Assisted Language Learning (CALL) is a system which is used as a medium to aid learners to improve and practice language skills (Ouni, 2013). Jones

(2015) defines CALL as "learners learning language in any context with, through and around computer technologies" (p.4). According to Methods and Awad (2013), CALL is not a method, but a tool to enable teachers to facilitate language learning process. According to Jones (2015), CALL can be used to reinforce what has been learned in the classrooms. In recent years, the number of teachers using Computer-Assisted Language Learning (CALL) method has increased markedly to overcome the obstacles of language learning and teaching (Morales, 2012). Adding on, Mansouri (2015) pointed out that there has been an increased amount of attention to CALL as there is a growing interest among digital native language teachers. In a large number of studies, CALL and different aspects of its programmes are evaluated. CALL includes three types of research: software, learning task, and learners (Agina, 2013).

Likewise, Wu and Marek (2010) have stated that the implementation of CALL helps teachers to avoid professional isolation and enhance creativity, collaboration, communication and critical thinking. Nie and Zhou (2017) highlight that CALL system offers learners the chance to practice and use additional learning materials at their individualized pace as wells as instills flexibility in a stress-free environment; which is a boon to learners who need remedial and extension exercises respectively. Based on previous studies, most of the research focuses on the first two types of CALL, where a shortage of investigation is identified regarding the learner, who is the final user of this process.

The final goal of CALL is not using various technological programmes and tools in the classroom, but rather to facilitate language learning by providing a suitable setting. Therefore, another role of educational scholars and researchers is to perceive learners' beliefs and reflection on CALL programmes and tools. Learners' positive attitudes toward e-learning and CALL will encourage them to use it more frequently

(Huisinga, 2017). The implementation of CALL has been found to spark off more interactions that are hoped to lead the use of the target language as a medium of communication. It should be noted that the use of computers as a learning tool is helpful and beneficial as in the recent days, and languages are taught to be used as a communication medium. Classroom management, activities and practices may also be facilitated with the implementation of CALL. Having a firm grasp of the control of the classroom is a crucial element in helping teachers explain and interpret the lessons adequately. CALL is also effective and time efficient. This has been proven over many times in the literature available.

One cornerstone in the world of teaching and learning that teachers try to grasp is the ability to teach effectively with the least amount of time and effort. Computers are a godsend in this facet as they are tools of extreme speed and accuracy. The added merit of utilizing of computers in the classroom is that it increases more active participation from the learners. Learners who actively participate in the lessons are a boon in any classroom. All these advantages of the use of computers and their technological advancements may help to tip the scale from a teacher-centered approach to a learner-centered approach (Lin et al., 2014).

In a study conducted by Han (2008), he mentioned that a) CALL programme could offer second language learners more independence. b) Language learners have the option to study at their convenience. c) CALL programme is a wonderful stimuli for second language learning as it provides immediate feedback. d) Computers can promote two-way interactions between learners and teachers. e) “Computers can help classroom teaching with a variety of materials and approaches” (p.41).

There are a number of studies which had the sole purpose of examining the use

of CALL for vocabulary instruction. Jalali and Dosti (2012) examined the efficacy of two alternative approaches in the teaching and learning vocabularies – the traditional and the CALL based method. A set of words which were adjectives were given to the control group. They were asked to study the list in a duration of seven days without any access to technological tools and the word processing software. The participants were left to their own devices and were given the freedom to choose the way they employed in memorizing the words. The experimental group, on the other hand, was given the access to computers and technological tools to help memorize the words in the same duration of time. It was found that the experimental group did much better than the control group.

Meanwhile, Taha (2014) employed a computer assisted oral reading method to teach vocabulary. The researcher developed his own software that was dubbed the "Listen's Reading Tutor". This software was designed to automatically modify speech identification to listen to children reading aloud, and help children learn to read. Learners need to realize the equivalence of the words and meet the words in context, in order to learn a word from the Reading Tutor. A total of 144 second and third graders participated in this study. The researcher compared Reading Tutor with classroom training and human-assisted oral reading for a year long. The results showed that the second graders did about the same on the word learning in all three conditions. Yet, the third graders from the experimental group had a meaningfully greater performance than the controlled group.

CALL is now regarded as an important accompanying instrument in the business of English Language teaching and learning. This approach of teaching comes with a list of advantages. Zarei and Al-Shboul (2013) conducted a study on Jordanian EFL learners' perceptions towards language learning via blog. Both researchers found that

learners perceived the blog as an interesting and helpful learning tool since interacting via blog helped them improve their English language skills as well as their communication skill based on peer feedback. Therefore, they clearly shortlisted the boons of using CALL in the classroom. They have mentioned that CALL increases learner motivation and allows the opportunity of individualization of learning process. With CALL, learners receive immediate feedback and that dramatically decreases the chances of fossilization of errors.

Lastly, CALL gives non-linear access to information and allows teachers to introduce new types of exercises in the classroom. Lee (2010) in his paper, further agrees with this line of thought and asserts that using CALL in the classroom creates a sense of global understanding and creates an experimental learning environment. It has also been stated that CALL helps learners build self-instruction strategies and promotes self-confidence.

Along with the positive impacts of CALL in the English language, Sivapalan and Wan Fatimah (2010), stated that highly interactive and communicative support for listening, speaking, reading and writing are now included in CALL. CALL creates a flexible environment for language learning and teaching (Jiang, 2008). For instance, Almekhlafi (2016) investigated the effect of CALL on elementary school students' achievement and their attitude towards learning English in the United Arab Emirates. A total of 83 students from an elementary school were selected and divided into experimental and controlled groups. The findings revealed that the experimental group showed positive attitude and better achievement towards CALL, than the control group.

CALL programmes are wonderful stimuli for second language learning as it provides a platform for communication between teachers and learners (Hussain, 2011).

For instance, in one study conducted by Yasin (2012), the effects of computer-assisted instruction on second graders English were investigated. The sample consisted of 50 female second language pupils randomly chosen from Hatem Basic Schools for Girls, in the District of Bani Kinanah. The sample was divided into two groups; experimental group and control group. Computer aided software (Action Pack 1) was used to teach the experimental group, whereas the control group was taught in the traditional method. The study revealed that CALL is very efficient in helping second graders learn English.

Furthermore, in a recent study by Al-Mansour and Al-Shorma (2012), a total of 60 randomly selected university students were assigned to experimental and control groups. The control group used the traditional method alone and the experimental group used the computers alongside the traditional method. A pretest was administered and a posttest immediately after it. On the whole, findings showed that the students taught through computer assisted language instruction showed better achievement than those who were taught through the traditional method alone.

CALL has made its way into the mainstream of teaching English as a second language in Malaysia (Hubbard, 2008). According to Reinders and Thomas (2012), "it can now be argued that computer-assisted language learning has come of age and that we are now entering a fully integrated and naturalized phase of CALL" (p.21). Based on a number of studies conducted by Agina (2013) found that students performed better using CALL than students using the traditional method.

Providing more insights to the merits of computer in the learning process, Marzban (2011) conducted a study to explore the effects of CALL on reading comprehension. A total of 60 Iranian female students were randomly selected in this study. The experimental group used CALL for reading comprehension, whereas the

control group was taught using the traditional way. The results of this study indicated that reading comprehension can be improved through the use of CALL. In a paper written by Hussain (2011), the researcher conducted a study in the Iranian EFL context, and investigated the efficacy of glossaries of textual, pictorial and textual pictorial on incidental vocabulary learning in adult Iranian EFL learners. There were 90 candidates involved in the study and they were chosen based on their performance in an English Placement Test and another test on their knowledge of lexicons used in the study.

The candidates were randomly put in three groups and were given the research treatment. During the duration of the treatment, five computerized reading texts including 25 target words were given to the candidates and they were asked to study the texts. The candidates consulted the glossaries given to them while reading the texts. At the end of the treatment, the candidates were tested for their incidental vocabulary learning. The raw data were collected through two methods of data collection, which were word and picture recognition tests. The data were analyzed using a one-way ANOVA analysis that showed that a combination of text and still images resulted in significantly better incidental learning.

CALL programmes also tend to have positive effects on retention in vocabulary learning. In a research conducted by Ghabanchi and Anbarestani (2010), 56 candidates were divided into two groups of control and experimental. The experimental group were allowed to utilize technological tools and computerized facilities to research word definitions of words that have been taught to them. The control group, on the other hand, were only allowed traditional methods such as dictionaries and bilingual list that could be memorized. Both the groups were taught 30 words a lesson and they were given the definitions, pronunciations, antonyms and synonyms. As expected, the experimental group did better in retaining the wordlist that they had been taught in

their delayed post-test but in the immediate post-test, the control fared much better.

Overall, as Annisa (2013) stated, "everyday language is so tied to technology that learning language through technology has become a fact of life with important implications for all applied linguists, particularly for those concerned with facets of SLA"(p.1). Therefore, it is undeniable that the richness of CALL makes it a powerful tool to learn the second language and it gives the opportunity to the L2 learners to learn at the same level as required by the second language curriculum (Nelson, 2014).

2.6.2 Computer Assisted Vocabulary Instruction (CAVI)

Computer Assisted Vocabulary Instruction (CAVI) is considered one of the sub fields of computer assisted language learning (CALL) (Ahmadi, 2018). A great number of CAVI researchers design software programmes that accommodate language learners with rich vocabulary development (Van de Poel and Swanepoel, 2013). CAVI programmes help creating a more comfortable and relaxing learning environment (Ellis, 2010).

Furthermore, educators have carefully integrated CAVI into the curriculum in presenting vocabulary to the students through reading texts (Nation, 2001). CAVI tools include pictures, videos, hypertexts and online dictionaries (Groot, 2000). Schmitt (2008) highlighted that CAVI helps learners to increase their exposure to new vocabulary by providing a variety of techniques according to their interests and levels (Chapelle, 2001). As a new medium of knowledge, Ahmadi (2018) states that the implementation of CAVI software is an enriching programme to improve the vocabulary of learners.

Kilickaya and Kraja (2010) conducted a research on a computer software named "WordChamp" designed for vocabulary acquisition over traditional teaching techniques in reading comprehension. The results of the study indicated that this educational software offered a variety of procedures for language learners. On the other hand, Groot (2000) conducted a study to compare a traditional vocabulary list and a computerized vocabulary learning. Results showed that learners scored higher marks memorizing a list of words and their definitions than the computer group which used vocabulary recognition tests; matching the target words with their L1 definitions. However, the computer group performed better than the vocabulary list learning group when the target vocabulary was tested through cloze tests. Moreover, the delayed post test showed that there was a decrease in scores among the vocabulary list learning group. Therefore, Groot (2000) concluded that the vocabulary list learning group did not enhance deep processing of vocabulary and successful retention.

Furthermore, in a survey carried out by Subrahmanyam et al., (2000), it was found that computer technology had an enormous impact on learners' development in a variety of skills. In addition, the study also highlighted that the CAVI application of visualization in computer games strengthens a range of cognitive skills. These views agree with results of the study conducted by Marzieh Sharifi (2014). Her study investigated the effects of the Rosetta Stone language learning educational software on Iranian EFL learners' vocabulary learning. This study compared the effects of the Rosetta Stone's language learning with teacher-led instruction (TLI) in terms of vocabulary achievement.

According to Kayaoglu et al., (2011), the Rosetta Stone programme manifests that it can teach effectively in a typical classroom environment to improve language skills. The study revealed that learners in the experimental group could retain more

words than the control group. This showed that CAVI programmes offer major advantages to language learners and could make an excellent teaching tool.

While others like Xiang (2011) conducted a computer assisted vocabulary instruction research that investigated the efficacy of concordance software in vocabulary knowledge used by students. Concordance is a method of learning vocabulary through the contextualized approach in which learners read sentences with target words. It also involves exploratory vocabulary learning that it is believed to promote a deep level of lexical processing, and therefore results in successful vocabulary retention. During the duration of his investigation, there were two groups which were controlled and experimental groups. The control group was asked to utilize dictionaries and wordlists to help them learn the words that was required. Whereas, the experimental group were allowed the usage of concordance. The researcher collected his raw data by comparing the level of vocabulary gained by the two groups. The analyzed data revealed that the experimental group fared better, and that the expansion rate of the vocabulary acquisition of learners was greatly aided by their utilization of the concordance software. This research had proved that concordance as emerged as a viable option in learning vocabulary without the use of teachers as a medium of instruction.

According to Kaur (2015), when visual aids are added in vocabulary instruction learners will produce higher attention and concentration. This is proven through her study which investigated the effect of two multimedia annotation modes on L2 vocabulary acquisition. The results indicated that using video clips are more effective in teaching unknown vocabulary words compared to still pictures. Additionally, many researchers argue that CAVI programmes have great potential in creating a maximally conducive environment for learning new words (Teng, 2015). These views are in line

with the results of the study conducted by Paquot (2010). She conducted a study to investigate the effectiveness of vocabulary learning with the help of the authorial on-line application of the Catch 'n' Practice V1.0. The participants were divided into experimental and control groups. The results of the study proved that the experimental group performed significantly better than the control group. There was a significant difference between the mean scores of both groups.

It is also important to be aware of the nature of learning vocabulary can be incidental and intentional. With this in mind, Ellis (2010) has suggested a set of guiding principles in the designing of CAVI programmes. He believes that CAVI programmes should provide equal opportunities for both intentional and incidental vocabulary learning. Facets of vocabulary learning such as pronunciation, spelling and production of word could be learnt incidentally through digitized texts. Learners could afford to give minimal attention to these facets and the utilization of the vocabulary would be done through intentional learning. Intentional vocabulary pedagogy could also be done through applications such as annotations and online dictionaries that offer definitions and examples of target word usage. Drills that are done through software and games could be done to help learners with retention of words.

In a case study, Coriano (2013) investigated how a L2 Spanish learner learnt the Spanish language in Spain for a span of a year. The learner was asked a list of words that he did not know in Spanish and was given computer assisted vocabulary instruction for a duration of 14 days. The learner was given access to concordance, a dictionary and a note-saving device which were attached alongside with the CAVI programme. During the span of the learning sessions, the behavior of the learner was observed and recorded. It was noted that the learner did not use the CAVI programme to its full advantage, thus resulting in the breakdown of incidental learning. The

researchers, at the end of their research, came to the conclusion that having technology only, is not sufficient. Learners need to be given training and instructions and exposed to the different types of tasks that are available in the programme given. It is akin to giving a man a fishing rod without teaching him how to fish. Learners, especially those in primary schools, need explicit and clear instructions in handling CAVI programmes in the classroom.

Lin, Chan and Hsiao (2011) researched the effect of collaborative vocabulary learning with CAVI and they found that the group working individually with CAVI gained most in vocabulary. As retention was better sustained by collaborating with the CAVI-group, the researchers believe that there is a mental process that occurs when working collaboratively which affects learners cognitively, leading to a long-term memory of words. Many of the potentials of CAVI lies in the ability to have variations in method and instruction that creates an environment where students become aware of suitable strategies (Golonka, Bowles, Frank, Richardson & Freynik, 2014). Using CAVI for vocabulary exercises contributes to a deeper understanding of form and meaning and encouraged positive attitudes amongst learners. Moreover, Li (2011) reported that students using CALL developed further understanding of suitable methods and a persistent use of strategies. Other aspects such as the awareness of learners of their progress and efficient methods contribute to more enjoyable learning and thus, an increase in motivation (Cohen, 2014).

To summarize, many findings indicate that the users of CAVI programme had better performance in the post-test and delayed post-test. Therefore, it can be concluded that CAVI programmes will be a good option to produce better results in vocabulary learning than traditional teaching methods. The results of the above-mentioned studies also show that learners have an intensive mental processing by using

the CAVI programme which results in better development and comprehension of words. As technology continues to grow and becomes a significant part of the daily lives of students, their use in the classroom has also been connected their attitudes.

2.6.3 The Use of Animation as a Teaching Technique

Sorour (2009) noticed a low level of achievement in English language among students, where many complaints were raised by teachers regarding students. This could have resulted from the nature of the curriculum evaluation instruments, strategies and methods used in teaching and the learning process (Nakata, 2011). Therefore, new and creative techniques including animation may contribute in solving this problem among learners recognized the power of using animation in the educational process, where a form of entertainment could be designed and used as an educational tool. Meanwhile, Siddiqi (2017) noticed that animation tools made teaching easier for teachers and help them think of more creative activities for children. It also became easy for children to retain their lessons as they were both fun and educational. Overall the entire animation tool was deemed a significant assistance to teachers and fun filled educational experience for kids.

Animation can fulfill the needs of different teaching styles, and it accommodates the basic activities of the Cognitive Theory. Mayer (2001) suggests that learners are able to create a deeper understanding of words when they establish connections between words and pictures than from words or pictures alone. From a pedagogical view point, computer animation can be used as a visual aid to illustrate meaning, and give organization to the materials being taught. The advancements in computer animation allows realistic scenes to be generated and provide interactive

tools that students are able to use to create an environment that they are able to control. Animation consolidates better understanding and greater retention. It also provides different opportunities for better instructional material (Morales, 2012).

2.6.4 The Use of Animation through CAVI.

In this digital age, the use of the chalk and talk method in teaching vocabulary has been criticized as ineffective and that it fails to engage the interest of students (Biemiller, 2004). Lampert (2010) claims that the current generation is known as "digital natives", "net- generation", "Y-generation" and "Millinieals" (p.2). Digital natives belong to the generation of technology, Internet and its networks. Therefore, teaching these digital natives, teachers as "digital immigrants", who are not born in the digital world, but who have adopted many aspects of the new digital age, must take into account the new ways of thinking and processing information (Prensky, 2011). Effective pedagogical methods in teaching and learning vocabulary have been the major concern (Ali et al., 2015). Moreover, teachers need to prepare good teaching and suitable materials in order to gain the target vocabulary. As such teachers must be capable of using simple technologies in classrooms for vocabulary learning. Nakata (2011) believes that vocabulary should be taught by including high exposure to words which learners should learn. Using multimedia technology in teaching language has created a favourable platform for reforming and exploring the English language (Deborah, 2014).

The scope of multimedia technology is believed to improve students' classroom activities and their initiatives. (Pun, 2014). As a result, teachers should engage learners through a variety of contexts such as audio, illustrative pictures and enjoyable melodies to develop vocabulary skills (Ahmad Zamzuri, 2012). In recent years,

animations have been increasingly incorporated into learning materials, as they have developed and become widely available in the education environment. Students in the era of digitalization, enjoy studying in the high-technology environment (Fu, 2013).

Many researchers and educational practitioners believe that animation would facilitate learning with limitless opportunities (Anwaruddin, 2013). Animation is considered one of the most promising tools in a digitalized world (Deborah, 2014). Series of studies have shown that learning in computer-based animation environment creates better mental representations of phenomena and promotes better understanding (Glende,2013).

Therefore, introducing new words to build vocabulary using new methods such as animation is necessary. This new method, using animation as a tool to present new words could make students more focused on the words because they are more likely to increase cognitive interest and address almost all the other senses (Kayaoglu, 2011). In fact, Lei (2012) also state that animations have a positive psychological effect on the understanding of learners through the cognitive and perceptual processes. They both believe that this process provides a great amount of visual and aural stimulation for learners. In this line, Levy and Stockwell (2013) cited that computer animation is a programme which uses software to create motions and copy individual frames. According to Mayer's Cognitive Theory (2001), the computer is a system for delivering information to learners. Adding pictures, such as animation, should deepen the meaning of the information that is presented and give it a physical dimension. Thus, young learners who prefer visual presentations would benefit from this process.

Arkan and Taraf (2010) carried out a case study that looked into the efficacy of animated cartoons in the teaching of the target language among Turkish learners. The

candidates in the study were young learners and they were put into two groups. One group was exposed to the traditional method of learning vocabulary and grammar whereas the experimental group was exposed to an animated approach of learning vocabulary and grammar. The animation that was utilized in the treatment was the long-running American television show, *The Simpsons*. The collection of raw data was done for a period of 4 weeks and the analyzed data revealed that the experimental group did much better compared to the control group in their post-tests.

A research by Chanlin (2011) had the aim to compare and contrast the utilization of dynamic animation annotations or static graphics annotations in the learning of motion verbs. For this study, 3 groups were used for the collection of data. The first group was assigned to dynamic animation, whereas the second and third groups were assigned as a static group and text-only group respectively. The raw data was collected through a pre-test and two post-tests approach and the data obtained were analyzed using Analysis Of Variance (ANOVA). The results indicated the two visual group fared better than the text-only group.However, there was no marked difference in between the two groups. The researcher concluded that vocabulary learning is much more efficient with visual aids and also suggest that dynamic animations may be more useful to illustrate unaccustomed, culture-specific concepts in vocabulary lessons.

At the same time, Tabar and Khodareza (2012), investigated the learning process of Iranian L2 learners learned vocabulary through a laptop-based delivery of multimodal items. The participants were put into four groups of short-term memory ability groups. They were divided into two groups using the Visual & Verbal Short-Term Memory Test. Once the treatment was carried out, the groups were tested on their retention – recognition and recall of vocabulary items that they had learnt. The

analyzed data showed that with the exception of the low visual/low verbal group, the other groups that were assisted with pictures or word cues, fared better on the tests. There is a need to note that in the context of young learners, it is always advised to utilize a visually supported approach in the teaching of vocabulary.

King (2010) on the other hand, listed out several positive aspects from her study in using animation in learning like a) increases motivation, b) removes affective filters, c) lowers anxiety level, d) improves contextual comprehension because of the display along with animation, e) fosters visual and verbal literacy and f) helps in the retention of concepts. He also added that an animation in language classrooms gives positive impact on learners with different learning styles. Besides that, animation doubles the chances of storing information, as they are presented visually and verbally (King, 2010).

On the other hand, Bani Abdo and Breen (2012) observed that animation such as the one used through CrazyTalk software makes the classroom become learner-centered and that it has increased the self-esteem of language learners. Fleming and Richard (2012) also agrees that animation helps learners to develop their listening, speaking and reading skills. Similarly, Chang and Lehman (2012) argue that students find it more satisfying and engaging to use animation than traditional learning modalities.

Based on the research conducted, the new paradigm English language learning requires students to be highly innovative, therefore the use of animation can thus be an effective visual learning source in developing higher level thinking skills and in stimulating reading skill (Lampert, 2010). In a research conducted by Kayaoglu, Dag Akbas and Ozturk (2011), who examined the effect of animation on learners'

vocabulary achievement, the results showed that the use of animation has a positive impact on students' achievement. Besides that, Zulfadhlan and Arifin (2013) looked into the effect of animation movies in narrative writing among sixth grade students in their research. The results proved that animation has a positive impact on students' narrative writing.

Furthermore, Chanlin (2011) conducted a research to identify the comparative effect of animation and static visuals on language learning. They concluded that learners grasp better, with more understanding and comprehension through the use of animation. The latest technology has provided learners a broader scope of accessibility and flexibility in the learning process. CAVI programmes such as CrazyTalk has the potential in improving human learning process particularly in promoting profound understanding of the subject matter (Zarei, 2014). The facial expressions, graphics, and jaw movement made by the CrazyTalk avatar makes language learning more efficient and robust (Lin, 2011). Furthermore, emotions, movements and facial expression of the CrazyTalk avatar may also possibly influence in capturing the learners' attention (Santa Singh, 2014).

Besides that, when learners are exposed to visual information and verbal information at the same time through CrazyTalk, they will be able to integrate them with pre-existing knowledge which results in meaningful schema in comparison to verbal condition alone (Mayer, 2001). Adding on, Sultana (2012) mentioned that multiple sources of verbal information that complements the visual information in the CrazyTalk software might trigger sufficient active processing in the memory structure for effective vocabulary development.

2.6.5 CrazyTalk for CAVI

Keeping in mind all the positive attributes of animation mentioned in this study, the researcher had utilized the CrazyTalk software to create the 3D talking-head animation for the development of vocabulary for Year Three learners. The theoretical framework of this study is mainly grounded on Mayer's Cognitive Theory of Multimedia Learning. According to Mayer (2009), human understanding takes place when learners are able to mentally integrate visual and verbal representations when both channels are activated simultaneously. Taking this into consideration, the avatar created using CrazyTalk software for vocabulary development; where animation will be processed in the visual-pictorial channel and the pronounced word will be processed in the auditory-verbal channel. Thompson (2013) cited that when animations help learners to build mental models, they make cognitive processing easier.

Notably, many of Mayer's studies on the connection between animation and cognition, have proven that students learn more deeply from animation and narration compared to narration alone (Ainsworth, 2008). As animation is believed to be an easy way to stimulate deeper learning to foster 21st century competencies (Karakas, 2010), employing animations in classrooms will help learners to process their language knowledge in both visual and audial memory channel that makes learning more effective (Deborah, 2014). In addition, Nurjanah and Thang (2013), also cited that learners would have more fun and joy when learning is combined with animations.

Based on the studies mentioned above, animations like CrazyTalk could create a lively and stimulating language classroom, where learners are given the opportunities for thinking, analyzing and exploring their own world to learn and develop their vocabulary. Students are enriched with deeper understanding and process new content

meanings more effectively when they use visuals (Thang et al.,2016). Additionally, Ghezelseflou and Seyedrezaei (2015) have mentioned that the various means of technological presentations and computer-based instructions allows students to have greater interaction with text and words that further lead to vocabulary development.

In conclusion, the utilization of CrazyTalk software promotes better performance in language learning and teaching. The emergence of CrazyTalk facilitates the multimedia elements such as animation to support the current education practices especially in vocabulary learning. Rahimi (2015) asserted that a successful animation syllabus should not only be interdisciplinary, but also encourage students to develop effective skills and practice interactive activities. Multimedia, particularly animation such as CrazyTalk software used in this study plays an important role and have made a significant contribution in improving learning process by making it more effective (Guan et al., 2018). It also plays an important role in the learning of second language which has been determined through the results of recent studies.

2.7 Previous Studies in Computer-Assisted Vocabulary Instruction

The major goal of Ma and Kelly's (2014) study was to investigate the impact of computer-assisted vocabulary learning software called "WUFUN" on vocabulary acquisition of Chinese students. The researchers collected data from two groups of freshman students from three different universities. A total of three low intermediate students participated in this study, where the first group contained 17 volunteered students and the second group consisted of 18 students deliberately selected by their teacher. The pretest administered included both receptive and productive tests before using the software; in order to ensure that they did not know the target words. Then,

students were given a mini dictionary with collocations, words in sentences, translation, definition and pictures. Students also listened to a sentence and were inquired to make a mental picture concerning it. Finally, in order to recognize the students' vocabulary improvement, some tests were administered after using the software. A post-questionnaire was given to identify their ideas and meeting their needs. The results of the study indicated that there was positive feedback on computer-assisted vocabulary learning ie., "WUFUN" was effectual inside and outside classroom.

Lee, Lee, and Lee (2016) carried out a study, aimed to see the difference in vocabulary growth and retention when working with different aids like a CAVI-dictionary, paper glossaries, or no aids at all. The 80 intermediate level participants were Korean undergraduates studying EFL. The researchers were thorough when selecting unfamiliar words as they originally chose 30 words in the pre-test. However, out of those 30 words, only 10 words were unknown to almost all students (they were not unfamiliar to 8 students). The different groups were given a text consisting of 893 words, 50 of which were replaced with low-frequency words (Nation, 2001). The experimental group using CAVI-assistance read the text on the computer and were able to click on the unfamiliar lexical item, from which a small box would appear with the definition in the target language. The other experimental group, using paper glossaries, were asked to use their word lists when encountering unfamiliar words. Thereafter, students conducted an immediate post-test in the form of an MCT and after another two weeks, a vocabulary test (none of which were mentioned to the students beforehand). The participants using the CAVI-dictionary gained more in vocabulary growth than the other two groups in the immediate post-test and showed retention of these words in the delayed post-test. Furthermore, the results also showed that the electronic dictionary group put in most cognitive effort in their process than the other

groups, which may be one of the reasons for better retention scores. The researchers also noted that these participants were experienced computer users, and, therefore, instructions were easy to follow.

Anwardruddin (2013) found in his study on the effects of CAVI on motivation that student attendance increased and that students developed their cognitive and metacognitive strategies. The participants became more organized with their materials, monitored their learning and were self-aware of their developments. For their increase in motivation, it is given that the CAVI-programmes are user-friendly and that students have received proper instruction of them. If not, the outcome will be that the motivation of students will be constrained instead (Mohamad Ali, 2018).

In a quasi-experimental study, Chen and Yen (2013) attempted to investigate the effects of iPad App on the English vocabulary acquisition in a Taiwanese classroom. The 74 research participants were chosen from two freshman English classes were from a private university in Taiwan. The participants were divided into two experimental and control groups. The research participants were assigned to use "Learn British English Word Power App" in iPad which contains approximately 2000 words and phrases showing the spelling, translation, pronunciation and image related to the words, semantic map method, and appropriate pre and posttests. IPad application was used to teach English vocabulary in the experimental group after the pretest. The instructor used traditional semantic map method to teach English vocabulary in the control group. The treatment lasted about 18 weeks (15 minutes each session). Students in the experimental group were able to study the words by watching words, word pictures, and example sentences through the classroom projector. At the end of the treatment, both groups were given the same English posttest to check their progress. The findings showed that the students in the experimental group performed better than

the control group in English vocabulary. The researcher summarized that the iPad App provided a meaningful learning interface in the traditional Taiwanese classroom and students seemed to be more focused during the study.

Next, the major aim behind Loucky's study (2010), was to seek out novel methods to improve both vocabulary learning and online reading. There were various types of online reading comprehension and vocabulary programmes and tests that were compared in this study was to find out how useful they may be for guiding individuals or L2 vocabulary instruction. This study was also conducted to identify how these programmes evaluate the vocabulary students in a more creative and innovative way. A total of 45 graduates who studied in the national university in Kyushu participated in this study. The instruments used for this study included vocabulary knowledge scale, online testing and a computerized management system. These instruments were used to assess the participants separately. The researcher also found that in order to ensure a satisfactory acquisition of most words, several strategies for world knowledge need to be employed.

Sun and Dong (2014) conducted a study to examine the impact of online dictionaries on English vocabulary acquisition. In this study, the researcher focused on the following research questions: When and how do learners use electronic dictionaries? What are the learner's views about electronic dictionaries as a tool for vocabulary acquisition? Data collection was conducted through 74 learners where their proficiency level was between upper-intermediate and advanced levels. This study was conducted for four sequential semesters in a real classroom where electronic dictionary was introduced during their reading tasks. The data collection was done using screen observation, Likert scale questionnaire and interviews. The results of the study showed that electronic dictionaries developed student's vocabulary knowledge. Electronic

glosses were perceived as an effective instrument for teaching particular vocabulary and were useful for general language teaching goals as well.

Abo Oda's (2010) study aimed at investigating the effectiveness of computer-based learning on developing fourth graders' English language achievement in Gaza UNRWA schools. The researcher adopted the experimental approach. The sample of the study consisted of students of the fourth graders in the Elementary school in Beit Hanoun. The instrument was a pre -post achievement test. The data of the study were analyzed using (T-test) and Mann Whitney pretests and posttests. The results of the study revealed that there were statistically significant differences in the fourth graders' achievement of English due to the method in favor of computer-based learning method. There were statistically significant differences at ($\propto \leq 0.05$) between the light achievers' mean scores of the control group and their counterpart in the experimental group in favor of the experimental group. The study also revealed that there were not statistically significant differences at ($\propto \leq 0.05$) in the mean scores of the experimental group due to gender.

Banez et al., (2009) examined the possibility of using an animation tool in facilitating pre-school student's basic spelling lessons. This study was carried out as a qualitative descriptive research. Two interview guides were used by the researchers; one before the production of the animated tool, and another after the use of the same. The animation tool dealing with alphabets and spellings were also used in this study. The results proved that animated tool was a significant help in teaching alphabet and spelling to the pre-school students.

Another study was conducted by Algilasi (2010) which investigated the effects of using animation on the performance of students in English among students of the fifth

grade in Southern Hebron. A total of 125 participants were selected for this study. Out of this number, 61 females were from Al-Zahra Girls' School and 64 males were from Tha-Elreji Boys' School. The results showed that there were significant differences in the performance of the two groups in English due to the use of animation which was in favour of the experimental group.

Besides that, Wafi (2013) conducted a study to identify the effectiveness of animated pictures on first-grade students. These students had acquired basic skills of critical thinking and were dealing with computers. The researcher used descriptive and experimental approach, a total of 85 junior secondary school participants were selected randomly by the researcher. The researcher surveyed procedures that were followed by remodeling and organizing the computer decision for first grade secondary school. Animated pictures were used in the preparation of the proposed programming scenario. In order to examine students' performance with computer, note card was also used as a tool. The results indicated that there were statistically significant differences at (0.01) between pretest and posttest of the experimental group.

At the same time, Thomas (2014) conducted a study to identify the "effectiveness of Animation and Multimedia Teaching on Students' Performance in Science Subjects". The participants were divided into control and experimental groups. The control group received a written description on the scientific principles and the experimental group received a drawing which described the scientific principles. This study used a pretest and a posttest to measure their understanding. There was a statistically significant difference on the posttest conceptual understanding measure between students who generated descriptive drawings and those who wrote in a science log. The findings indicated that the use of generative drawings is a viable way for students to learn scientific concepts.

The study conducted by Faruk (2016) aimed to discuss how different instructional attributes provided by animation could facilitate descriptive and procedural learning in physics. This experimental research consisted of 357 eighth grade students. It used an experimental and control groups. The participants were divided into nine classes. Students learned individually with different visual treatments on class basis. Computer was used by the researcher to teach physics. After a period of time, the criterion test which was used to assess the student's learning performance revealed that the use of animation and graphic representations facilitated better assimilation of scientific knowledge.

2.8 Summary

In accordance with the above mentioned studies, the use of CrazyTalk software has facilitated immediate and also delayed achievement in the classroom. Furthermore, all the previous studies dealt with animation as an independent variable. This indicated that there was a strong relationship between animation and its positive effect on the achievement of students. Moreover, results of many previous studies have also uncovered the existence of general weaknesses in the development of vocabulary among students that supports the urgent need for this study. Therefore, the researcher concludes that the current study agrees with all the previous studies that the utilization of CAVI programme such as CrazyTalk gives positive impact for progress in vocabulary development among students.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter elaborates the methodology of the study. The research aims to examine the effects of the CrazyTalk software for vocabulary development among LINUS 2.0 learners and their attitudes towards this software. It also discusses the methods and procedures that are used in collecting the required data which includes the design of the research and information on the sample of the population. This part attempts to provide the approach to answer the following research questions:

Research question 1: Does the teaching of vocabulary through the CrazyTalk software have a significant effect on the learners' vocabulary development?

Research question 2: Is there any significant correlation between learners' attitude and their posttest performance towards CrazyTalk software?

3.2 Research Design and Method

It has to be mentioned at the onset of the research that the dependent variable is the vocabulary development while the independent variable is the learning instruction. This research was a quasi experimental study. According to Loewen and Plonsky (2016) while conducting an experimental research, the researcher investigates the intervention to the treatment group, and then measures the outcome of the treatment statistically. This quasi experimental study follows the "one-group posttest pretest" design. The method denotes that all participants are part of a single condition- meaning all

participants are given the same treatments and assessments

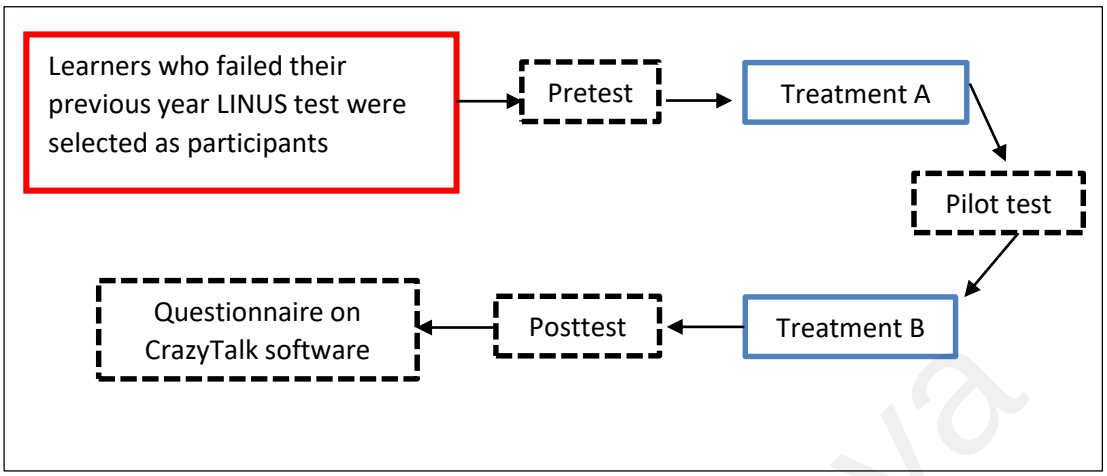


Figure 3.1: One-group posttest pretest design

In this study, the treatment groups were exposed to the independent variable (learning instructions) after the pretest. The respondents have shown a similar level of proficiency collectively. This is an important factor as it is necessary to regulate the threats of the confounding variables that could affect the findings of the study. As such, this quasi experimental study attempts to indicate the effects of the CrazyTalk software for vocabulary development among Year three LINUS learners. Therefore, this study aims to seek answer for the following research questions:

Research question 1: Does the teaching of vocabulary through the CrazyTalk software have a significant effect on the learners'vocabulary development?

Research question 2: Is there any significant correlation between learners' attitude and their posttest performance towards the CrazyTalk software?

Furthermore, this study constitutes a quantitative research method which involves a statistical data collection methodology (Creswell, 2012). Adding on, Creswell (2012) defined quantitative research as a type of research that employs numerical

representations which are analyzed using mathematically based methods particularly statistics Loewen and Plonsky (2016) mentioned that the findings from quantitative research can be predictive, explanatory and confirming. Creswell (2012) added that a quantitative method is considered to be apt when:

i. factors that influence the impact need to be identified

ii. an intervention needs to be utilized

iii. the best predictors of the impact need to be understood

Due to the limitations that were caused by the number of pupils in a classroom (the number of pupils per class is determined by the administrators of the school), the researcher was forced to enlist participants from two intact classes to meet the research requirement. Therefore, two intact classes were selected non-randomly, with a total of 25 English underachievers in each class. As both classes consisted of 50 low performing students who did not pass their LINUS constructs 3 to 12, the threat to internal validity in terms of differential selection of subjects was avoided.

Regarding the pretest and posttest approach, Creswell (2012) mentioned that "the power of the test represents the probability of detecting differences between the groups being compared when differences exist; and experimental designs provide the most reliable information on the effectiveness of a given intervention." A pretest was conducted prior to the intervention using the CrazyTalk software. The present study involves an independent variable which is the learning instruction. The intervention group used the CAVI ESL software known as the CrazyTalk to support reading skills. This group spent three days in a week for 60 minutes in the CAVI ESL classroom for 16 weeks, excluding the training the week prior to treatment. Standardized instruments such as the LINUS reading screening test paper will be used as a tool for data collection

to control the instrumentation threat.

The test was administered twice; prior experiment as pretest to evaluate the selected two groups of LINUS learners on the variable of proficiency in reading skills and after the intervention as a post test. The participants were not told about the post-test to prevent them from paying more than usual attention to the words during the learning session, which might invalidate the results. The pretest and the posttest contained different questions, however the level of the questions and the number of questions for each construct remains the same (MoE, 2017). Additionally, a set of closed ended questionnaire was administered to find out learners' response towards the software used and which learning style they are comfortable with after the post test. The revised questionnaire was administered as pilot test. Standardized instruments for the study was helpful to control the instrumentation threat.

Furthermore, this study was carried out for 16 weeks (April 2018 – July, 2018) to minimize the effects of maturation. In addition, to limit the maturation threat in this study, the post test was carried out immediately after treatment.

3.3 Research Sample

The population for the present study consisted of low performing ESL learners in Year Three, SK Novena (pseudonym), a government school in Kota Tinggi, Johor. This institution was particularly selected based on the prior information collected by the researcher that many of its learners have limited English language proficiency and the researcher herself was a teacher in the institution. These learners attend remedial classes to improve their English language proficiency since Year 1 and they exhibit low performance in English language even though they receive 300 minutes of English

language instruction per week (5 times x 60 minutes per lesson). This institution also carried out a ninth lesson specifically for LINUS learners, for 4 days per week to support learning the language.

In selecting the participants, convenience sampling techniques was adapted. According to Plonsky (2017), convenience sampling is also known as Haphazard Sampling or Accidental Sampling. It is a type of nonrandom sampling where respondents are selected by convenience due to their availability at the time given, geographical proximity, easy accessibility or the willingness to participate for the purpose of the study. Moreover, Lightbrown and Spada (2019) claimed that convenience sampling is affordable, easy and subjects are readily available to the researcher. The main objective associated with convenience sampling is that the member of the target population is homogenous (Mackey and Gass, 2016). According to Porte and McManus (2019), this method was appropriate as long as the needed information is obtained.

The total sample was 50 participants from two intact Year Three classes of which both classes consists of "English underachievers". Due to the limitations that is caused by the number of pupils in a classroom (the limitation is determined by the administrators of the school) the researcher was forced to enlist participants from two intact classes with same ability to meet the research requirements. McKay (2013) asserts that in quasi experimental designs, when many participants are involved during the treatment, the quality of treatment that the participants receive may drop, which can result in incorrect assumptions. This was because too many students in a classroom lessen the effect of the instruction; while overpopulation in the class makes teaching ineffective. Therefore, smaller treatment groups are generally preferable (McKay, 2013). A total of $n=50$ participants were selected to receive treatment in this study. The

sample comprised of males and females and they were of low proficiency level. The number of respondents was appropriate as Fraenkel and Wallen (2015) suggest that thirty participants (in minimum) are considered sufficient for quasi experimental study purposes. Consequently, the oral screening results of September 2017 had been the benchmark for the selection of the participants as they did not pass from constructs 3 to 12. Although this study required underachievers, it did not have any biasness towards the excellent students in terms of academic level.

The LINUS constructs 3 to 12 are based on the description as stated below:-

Construct 3: Able to blend phonemes into recognizable words.

Construct 4: Able to segment words into phonemes

Construct 5: Able to understand and use the language at word level

Construct 6: Able to participate in daily conversations using appropriate phrases

Construct 7: Able to understand and use the language at phrase level in linear texts

Construct 8: Able to understand and use the language at phrase level in non-linear texts

Construct 9: Able to read and understand sentences with guidance

Construct 10: Able to understand and use the language at sentence level in non-linear texts

Construct 11: Able to understand and use the language at sentence level in linear texts

Construct 12: Able to construct sentences with guidance

As such, these students were unable to get a minimum score of 2 out of 3 to pass construct 3, construct 4, construct 5, construct 6, construct 8, construct 9, construct 11 and construct 12; whereas a minimum score of 3 out of 4 for constructs 7 and 10 in their LINUS screening 2, which was conducted in September 2017. The worrying percentage of Year 2 students who were unable to fulfill the minimum requirement of the test result was further investigation.

Therefore, this study focuses on developing the LINUS students' vocabulary competency using the CrazyTalk software.

Table 3.1

Demographic distribution of the participants.

Ethnicity	**Number of participants**	**Percentage (%)**
Malay	10	20
Indian	3	6
Iban	15	30
Kadazan	22	44
Total	50	100

3.4 Research Instruments

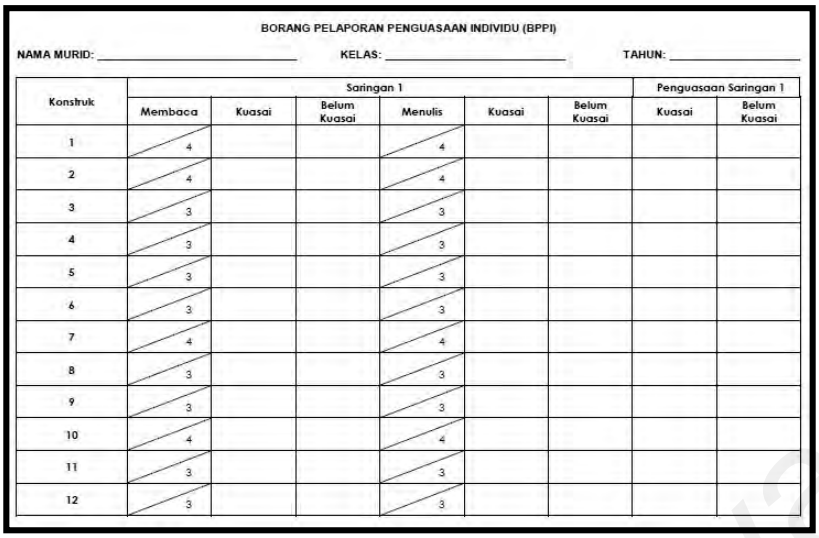
This study used two types of instruments in answering and getting insights into the proposed research questions. A pretest was carried out at the beginning of the research period to determine the learners' level of reading knowledge. Next, a posttest was administered to determine the effect of treatment of post-task CAVI approach on vocabulary development. Questionnaires were administered at the end of the study to receive feedback based on the method used. A total of six topics were selected based

on Year Three learners' textbook. Needless to say, the participants were taught the same types of topics in the allocated time on daily basis. The participants will be exposed to the traditional method before the pretest; in-class reading instruction using textbook and flashcards and later will receive the treatment in the software.

3.4.1 Pretest and Posttest

The pretest and posttest of LINUS oral screening test were taken from the Ministry of Education, 2018 test papers. This paper contained 40 questions (constructs 1 to 12) and the pretest was conducted on March 2018 and the posttest on September 2018. (Appendix 2). Although the questions for the pretest and posttest contained different questions, the level of each question and the number of questions from constructs 1 to construct 12 were the same. However, the main concern was to fulfill the minimum requirement from constructs 3 to 12. These tests were given to all $n=50$ participants of the study. Pretest and post test questions were based on words taken from LINUS textbook provided by the Ministry of Education.

Scores were calculated separately for the pre-test and posttest. The researcher identified the differences in mean score and standard deviation for both tests. Then, a paired *t*-test was used to see if there were significant differences between the two groups with regard to their results based on the pre and posttests. For all descriptive and inferential statistics, SPSS version 24 was used to tabulate the data. A sample of LINUS reading screening score sheet is attached in Appendix E.



BORANG PELAPORAN PENGUASAAN INDIVIDU (BPPI)

NAMA MURID: _____ KELAS: _____ TAHUN: _____

Konstruk	Saringan 1						Penguasaan Saringan 1	
	Membaca	Kuasai	Belum Kuasai	Menulis	Kuasai	Belum Kuasai	Kuasai	Belum Kuasai
1	4			4				
2	4			4				
3	3			3				
4	3			3				
5	3			3				
6	3			3				
7	4			4				
8	3			3				
9	3			3				
10	4			4				
11	3			3				
12	3			3				

Figure 3.2 : LINUS reading screening score sheet

3.4.2 Closed-Ended Questionnaire

A set of closed ended questionnaire was adapted from Ikonta and Ugonna (2015) and Santa Singh (2014) to collect data in this study. According to Creswell (2012), closed ended questions allow a limited number of answers, leaving no alternatives to the respondent. Furthermore, closed- ended questionnaires were easier to recall for the respondent, had great precision, uniformity and has easier analysis (Creswell, 2012).

As the respondents in this study were Year Three LINUS learners, closed-ended questionnaire was considered the best method to collect feedback. These close ended-questions were convergent questions and had a narrowly defined correct answer. A Likert scale of 2-pointer, “yes” and “no” were used in the questionnaire. Respondents were required to complete the questionnaire by specifying their level of agreement or disagreement for the questions given (Appendix 1).

The questionnaire used in this study was divided into two parts. The first part was “Section A”, where the background information of the respondents was collected. These questions were basically on their gender, age, how long they have been learning

and practicing English, and when they started learning English (see Appendix A). In the second section of the questionnaire, a "yes" or "no" dichotomous questions were designed; where the respondents selected one response from the choices given.

This area of the questionnaire was based on the participants' interest in learning the CrazyTalk based reading lessons. Respondents were guided by the researcher in a small group to answer the questionnaire. There were a total of 40 "Yes" and "No" questions for learners to answer. All questions were translated into Bahasa Malaysia and a brief explanation was given before the respondents answered the questions. A Malay translation was necessary for the participants to ensure they did not misunderstand the questions which might lead to wrong choice of answers. This questionnaire was given continuously for four separate days, where participants answered 10 question each day. All participants were given enough time to answer the questionnaire without any pressure.

3.5 Reliability and Validity

Validity and reliability are important characteristics of a good test (Yahya et al.,2012). Rosenthal (2015) asserts that when a test lacks validity and reliability, results obtained using the test or procedure will be difficult to interpret.

In order to control threats to internal validity for this study which used non-randomization procedure for selecting its participants, the single blinding research method was used. Tashakkori and Teddlie (2013) recommended single-blind study because it is the best conduct when the participants' or researchers/ assessors' knowledge of the treatment might bias the result of a research. Therefore, single blinding method is used in this study so that the participants are unaware and not

influenced by the assigned intervention (Tashakkori and Teddlie, 2013). Accordingly, in this study the researcher did not inform the participants that they will go through a computer-based treatment after the posttest. This was done in order to ensure that participants would not bias the results by acting in ways they thought they should act.

According to Creswell (2012), pilot study is necessary when a new measure is being developed. This step is important because items that were lacking in clarity or items that are not appropriate participants in the study can be discarded; and to do that item analysis is a means to pilot test the items. Reliability test was not conducted for pretest and posttest as both papers were from the Education Ministry. The reliability test for the questionnaire items was measured using Cronbach's Alpha Coefficient SPSS (Statistical Package for Social Sciences) version 24. The Cronbach's Alpha Coefficient is a well-known test for reliability purposes (Creswell, 2012)

3.6 Research procedure

3.6.1 Data Collection Procedure

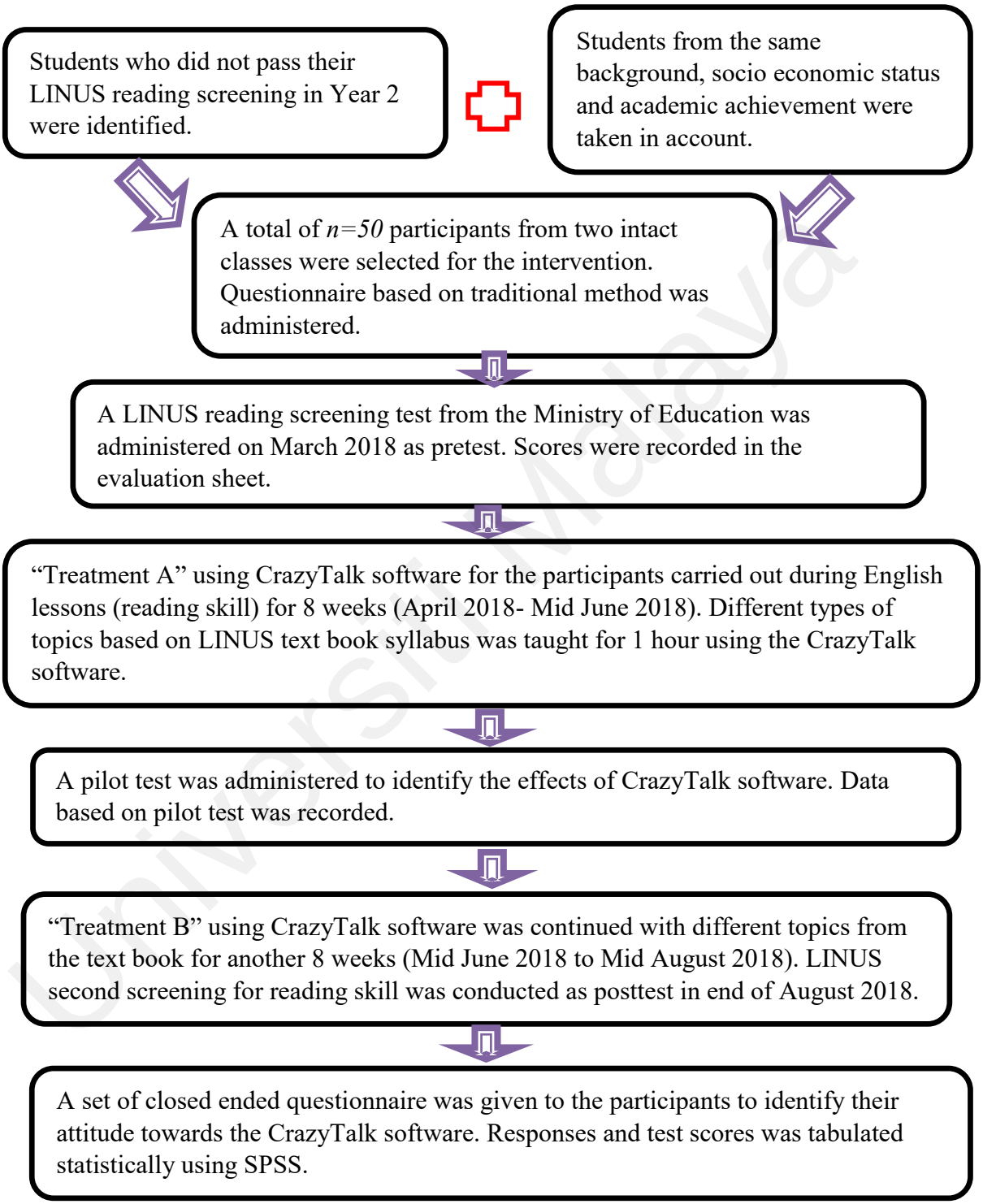


Figure 3.3 : Research procedure of the study

The data collection procedure for this study was done through the distribution of pretest and post-test, and questionnaire. After selecting two classes, *n=50,* of all 9 years old students from two intact classes of English underachievers, the researcher created a name list and sent consent forms to the parents to explain the purpose of the research. The participants were chosen based on similar family background and socioeconomic status where their family income was not more than RM1500. These participants did not attend tuition classes. These participants were required to remain in their classes as divided by the researcher until August 2018. The participants from both groups were given a LINUS oral screening pretest on March 2018 before the treatment. The lessons were conducted separately by the researcher.

Participants from each group were gathered separately in a classroom by the researcher after school hours. The treatment was conducted for 16 weeks, starting from April to August, 2018, by the researcher on different days. Two lessons each foran hour were conducted in a week after school. This method was adopted in order not to disrupt the normal lessons. The results of the pretest were analyzed immediately through t-test to see whether or not there was any statistically significant difference between the mean grades of the two groups. Once the pretest scores were recorded, the researcher made full use of the well-made multimedia courseware for eight weeks as Treatment A. A pilot test was administered after Treatment A to establish the reliability of the questionnaire prepared for the study. Then, Treatment B was conducted for another eight weeks and followed by a posttest. Students were given the same type of worksheets and exercises.

Participants were given the second LINUS oral screening post-test after 16 weeks of treatment in August; which comprised CAVI based teaching and learning for the experimental group. Post-test results were recorded. The mean scores of the pretest

and posttest for both groups were analyzed through paired *t*-test to see whether there was any improvement from the intervention group. The *t*-test p-value was analyzed at 0.05 significant level (p).

Thus, to understand whether the CrazyTalk software had a positive effect upon reading, a set of questionnaire was administered to identify the effects of the software and learners' attitudes based on gender differences. In general, the questionnaire was conducted one-on-one basis; hence the researcher could work directly with the participants. This questionnaire also helped the researcher to collect better perceptions as the respondents were given enough time to give their responses. It would be advantageous for the researcher to obtain input especially from the participants who are "hesitant to speak, articulate, and share ideas comfortably" (Creswell, 2009). This instrument is best used to seek answer for the second research question.

3.6.2 LINUS Lesson Plan Procedure

In planning a LINUS lesson, the researcher looked into the materials and activities in the LINUS module and was aware of the proficiency levels of the learners, the suitability of the activities presented to the learners' proficiency level and the need to adopt fully or to adapt the activities to suit the learners. In this way, when planning a lesson, the researcher considered the following: a) what to cover from the KSSR for remedial pupils; b) how that related to the activities in the module for the remedial pupils; c) how to incorporate the activities in the module to the lesson and d) how to group pupils in a class that has remedial pupils using the activities and materials in the module. As such, in each remedial lesson conducted by the researcher for 16 weeks, five to nine words were targeted in each lesson plan.

All the lesson plans were designed incorporating the CrazyTalk software to introduce the targeted words. Learners will articulate words and sentences mentioned in the video. Writing skills and language art skills were included in the lesson plans as complementary skill in remedial lesson plans. Each lesson plan was designed to evaluate how well each learner has learned the targeted vocabulary and to evaluate their ability to read whole words and spell out words previously introduced. Samples of lesson plans and target vocabulary are attached and highlighted in Appendix E.

Following are the examples of screenshots taken from the CrazyTalk animated software based on the topic "Sam the Fat Cat".

Figure 3.4: Introducing "fat" and "cat" as target vocabulary

Figure 3.5: Introducing "hat" as target vocabulary

Figure 3.6: Introducing "mat" as target vocabulary

3.7 Methods of Data Analysis

The data collected from this study were analyzed quantitatively using SPSS version 24. Frequencies, mean and standard deviation were used for descriptive statistics. Descriptive analysis was conducted to determine the frequencies of preferences in vocabulary development by comparing pretest results and post test results. The inferential statistics includes paired *t*-test. The paired *t*-test was applied to test the score achievement difference between pretest and posttest. In addition, Spearman rho test was used to analyze the responses collected through the questionnaire to identify the correlation between learners' attitude and their posttest performance towards the CrazyTalk software in vocabulary development. The following Table 3.2 illustrates the data collection method for this study.

Table 3.2

Data collection method in the experimental study

Instruments	Participants	Techniques of collecting data	Type of data	Techniques of analysis
Pretest **Post test**	Students (*n = 50*)	1) LINUS reading test	Test scores (%)	RQ 1 : 1)Descriptive statistic 2)Paired sample T-test
Questionnai-re	Students *(n = 50)*	40 Dichotomous questions (Yes, No)	Students attitude towards vocabulary development	RQ 2: 1) Descriptive statistic 2) Spearmanrho correlation

The first research question aimed to determine the effect of CrazyTalk on Year Three LINUS learners' development of vocabulary. A paired sample *t*-test was used to analyze the data gathered. The data obtained in the form of total scores of pretest and posttest is analyzed through statistics. The second research question intended to determine if there is a significant correlation between the attitudes of learners and their post -test performance towards the CrazyTalk software in their vocabulary development. The data gathered from questionnaire was tabulated using SPSS version 24 and analyzed using the Spearman Rho correlation test. The *p* value was set at .005 significant level

3.8 Summary

This chapter has explicated the design of the current study and its methodology. It provides clear descriptions of how the data will be collected and analyzed in meeting the research purposes and answering the research questions formulated earlier in the introduction chapter.

CHAPTER 4

RESULTS

4.1 Introduction

As discussed in Chapters 1 and 3, this chapter presents the results for the two research questions in the vocabulary development of Year Three LINUS learners. SPSS version 24 was employed to analyze the data in this present. All data were double-checked after being computed in the SPSS. Pallant (2010) advocates that statistical procedure should be checked to ensure proper research techniques haS been adhered (Pallant, 2010).

Paired sample *t*-test was employed for the assigned groups with pretest and posttest scores as covariates and dependent variable respectively. ~~and a~~ Spearman rho correlation test was employed to identify the significant correlation between learners' attitude and their posttest performances towards the CrazyTalk software. To shed light on the two research questions of the current study, assessment of the data of the two groups were performed so that the research questions and hypotheses were answered.

4.2 Assumption Testing

According to Leech, Barrett and Morgan (2011), prior to computing the statistic Paired *t-test* and Spearman rho correlation test, its first assumption is tested. The study should address a random sampling from the total population. This is in light of the fact that random sampling best ensures that the observation is independent. Regardless, prior to the collection of data the design issue was addressed. Since random sampling was

not applicable in this study, the researcher kept up a vital separation from any relationship among the participants in the study.

The second assumption states that linear relationship should exist between the dependent variable and the covariates. In this study, the dependent variable was the vocabulary development and the independent variable were the learning instructions. These assumptions were tested for LINUS test scores before the CrazyTalk instruction and after.

4.3 Test of Normality

As per Razali and Wah (2011), typical conveyance is an essential assumption of many statistical procedures, and when it is violated interpretation and inferences are no more valid or reliable. According to Ebadi, Abedalaziz, Saad and Chin (2014), choosing a legitimate statistical test and analyzing the collected data quantitatively, the data ought to be checked for its normality. This is significant for recognizing which test is (parametric and non-parametric) required for estimation.

Numerical method was applied in the current study. As expressed by Razali and Wah (2011), numerical method or descriptive statistic, should be performed before any conclusion about the normality is made because it is more formal and supports the graphical method. In addition, measurable tests have the benefit of making target decisions of typicality. In this way, SPSS version 24 procedure of assessing normality was utilized to assess the typicality of scores for the LINUS pretest and posttest.

The Shapiro- Wilk normality test was taken into account in this study to test the sample for normality. The Shapiro-Wilk test is more appropriate for small sample sizes (<50 samples).

The Shapiro-Wilk normality test results indicated that the sample is drawn from a normal population.

Table 4.1

Test of Normality for Pretest and Posttest

	Shapiro-Wilk		
	Statistic	df	Sig.
Pretest	.975	50	.357
PostTest	.983	50	.667

The alpha level is set at <0.05, and the test results indicated that *p* value was greater than 0.05, which is 0.357 significant level for pretest and a significant level of 0.667 for posttest. As the significant value of the Shapiro-Wilk test is greater than 0.05, the data is normally distributed. Therefore, it can be concluded that the data is normal for pretest and posttest.

4.4 Results

4.4.1 Pretest and Posttest Analyses

In order to investigate the significant effect of the CrazyTalk software on Year Three LINUS learners' vocabulary development in the control group and experimental group, Statistical Package for the Social Science (SPSS) version 24 was used in order to analyse the data. The scores were analysed using paired *t* -test focusing on the mean scores and standard deviation. The paired *t*-test was carried out at a significant level of 0.05 to determine the significant contribution of the CrazyTalk software in improving the Year Three LINUS learners' vocabulary development.

Research Question 1

Does the teaching of vocabulary through the CrazyTalk software have a significant effect on the learners' vocabulary development?

H_o : The use of the CrazyTalk software has no significant effect on the learners' vocabulary development.

Table 4.2 indicates the results of the pretest and the post test conducted on 50 participants. In reporting the results, the differences between the mean score and the standard deviation for pretest and posttest were used.

Table 4.2

Paired t-test descriptive statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	24.02	50	9.477	1.340
	Posttest	70.28	50	12.309	1.741

As illustrated in Table 4.2, the mean score for the pretest is 24.02, whereas the mean score for posttest is 70.28. There is a significant difference between the means before and after instruction which rise from 24.02 to 70.28. Considering the standard deviation for both tests, increasing from 9.48 to 12.309 also shows a significant upward change.

Table 4.3

Paired Sample t-test results

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Pre test – Post test	-46.26	9.521	1.346	-48.966	-43.554	34.35	49	.000

Based on the results of the paired sample *t*-test, the degree of freedom (49) the calculated *p* value ($p < 0.05$), the significance level shows that after the intervention period, the post test results increased significantly. In other words, there is a significant difference in vocabulary development to the CrazyTalk software between pretest and post test results. This research question examined whether the CrazyTalk software had a significant effect on learners' vocabulary development. Paired sample *t*-test was employed to observe whether the participants in this study had significantly gained a higher score in the post test. This was done after the differences in the scores of the pretest was attained.

This result could mean that the participants learned to use new vocabulary while reading English words from the software (Coriano, 2013). The post test results *r* (49) showed statistical significance at the $p < 0.05$ as shown in Table 4.1. The CrazyTalk software did cause a difference in the LINUS post test scores in a positive way. When learners were taught with the aid of CrazyTalk software they showed measurably better accomplishments in contrast with learners taught with the traditional method of teaching-learning of vocabulary.

Thus, the null hypothesis, the use of the CrazyTalk software has no a significant

difference between the mean scores of the LINUS learners is rejected at 0.05 levels of significance in favor of CAVI class. It explains that treatment of the CrazyTalk software has shown vocabulary retention ability among learners. The simultaneous use of audio, text, animation, graphics and other special effects has provided better learning experience and increased the vocabulary retention among the learners. Consequently, the software is a proficient mode that can utilize the SLA strategies in addressing the issues related to ESL instructional method and basic literacy skills of English Language.

4.4.2 Questionnaire Analysis

A set of dichotomous questionnaire adapted from Ikonta et al., (2015) and Santa Singh (2014) was designed to gather the data for research Question 2. The questionnaire was given to the participants to measure their attitude towards using the CrazyTalk software in English. The first section of the questionnaire was based on participants' personal information such as gender, English learning experience, mode of communication at home and reading materials used by the respondents. Next, the questionnaire was followed by Section B which intended to collect feedback about the CrazyTalk software and participants' perception towards learning the English language using the software. The questionnaire was pilot tested before distributing them to the students.

A Cronbach's alpha persistent quality infers the general understanding among the things that measure/address a given structure (Garson 2005). This is seen as a general rule is imparted similarly as relationship among the things in the scale that address each item. The scale of items is considered reliable when Cronbach Alpha is greater

than 0.7 (George & Mallery, 2003). The alpha value that ranged from 0.80 to 0.85 is considered a good statistical score (Garson, 2005). All attitude subscale on the CrazyTalk software were analyzed using Cronbach's Alpha to determine internal reliability. Table 4.4 shows the reliability test results for the set of questionnaire administered in this study.

Table 4.4

Reliability Statistics for Questionnaire Items

Cronbach's Alpha	Cronbach's Alpha Based on the Standardized Items	N of Items
.853	.836	39

Cronbach's alpha coefficient reading was 0.853, which is considered good in a questionnaire design. Statistical Package for the Social Science (SPSS) 22 was used to analyze the data gained from the questionnaire.

Research Question 2

Is there any significant correlation between learners' attitude and their posttest performance towards the CrazyTalk software?

$H_0$2: There is no significant correlation between learners' attitude and their posttest performance towards CrazyTalk software.

Table 4.5

Language used by respondents at home

	Ethnicity			
Language	Malay	Indian	Sabahan	Sarawakian
Malay	18	-	4	8
English	-	-	-	-
Tamil	-	3	-	-
Bisaya Language	-	-	5	-
Iban Language	-	-	-	8
Melanau Language	-	-	-	4
Total	18	3	9	20

This section in the questionnaire sought to obtain information on languages used by the respondents at home. As expected, the languages used by the respondents differed from one ethnic group to another. Among the Malay respondents, all 18 of them use Malay only as a medium of communication at home. Whereas, the Indian respondents, prefer using Tamil language as a medium of communication at home. As for the Sabahan, a total of 4 respondents speak Malay, and another 5 of them speak Bisaya language. Among the Sarawakian a total of 8 respondents reported that they use Malay and Iban languages and another 4 use Melanau language. It has to be noted that none speaks English while the Malaya language has the most speakers.

Table 4.5 is a good evidence that learners prefer to use their mother tongue as a medium of interaction and avoided the target language especially the English language. This is one of the reasons for teaching English as a second language to these

learners who have limited scope of acquiring the English language to learn faster and better. In other words, there is no active role for English besides classroom instruction. Parents' involvement in the children's learning enhances their academic performance and intellectual capabilities. In this case, it is clear that parents themselves are not English educated nor do they practice speaking in English at home. Therefore, these learners do not feel the immediate need to learn English. Communicative competence cannot be developed in this classroom without using English as often as possible and without establishing English as the language for communication outside classroom (Normazidah,Koo & Hazita, 2012).

As indicated by Arikan (2011), the path analysis revealed that in addition to the direct effect of parental education on reading attainment, wealthy guardians don't just have more books at home than the less educated parent. They also utilize their wealth and invest in books to make a conducive English speaking environment for their youngsters. This section of the questionnaire obtained information on years on learning English among the respondents. The results are presented in a bar graph form.

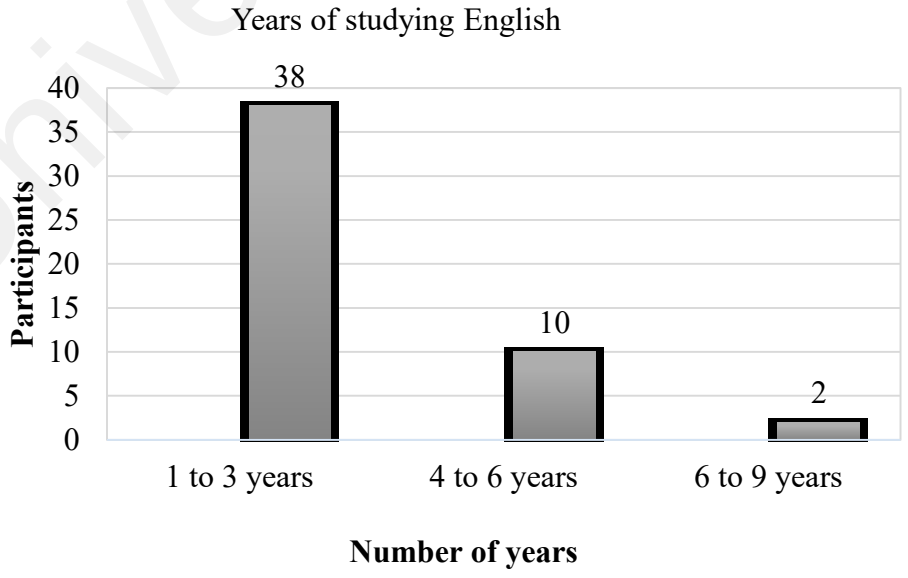


Figure 4.1: Years of studying English

A total of 38 out of the 50 respondents have been studying English between one and three years. There are ten respondents who have four to six years of experience studying English and two respondents have six to nine years of experience studying English. The findings of this section clearly indicates that respondents were not exposed to English language learning at early stage as they are associated with other languages as a medium of communication.

According to Mantiri (2019)) socio-economic background of learners plays an important role to motivate the learners to learn new languages. Munoz (2008) states that having different socio-economic status indicates the way the students are exposed to language, as they attend private classes and home tuitions. In addition, Cohen (2014) stated that the longer the learner is in poverty, the stronger is the impact on the acquisition of second language. All respondent in this study are selected from average families where their parents' monthly income is between RM1500- RM1800 and they have to support six to seven members in the family. Family background influences students' language acquisition and level of performance in school (David, 2010). At the same time, Mantiri (2019) claims that the main reason is parents with low-income may be busy with the necessities of life that they have little time to consider their children's cognitive development. The findings here, agree with the research conducted by Huisinga (2017) that revealed home conditions influenced the language development of a child as parents are the main caretakers.

Figure 4.2 shows the reading materials which are commonly used by the respondents. This question was asked to know if the learners are extensive readers or intensive readers and what sort of English reading material they use to read.

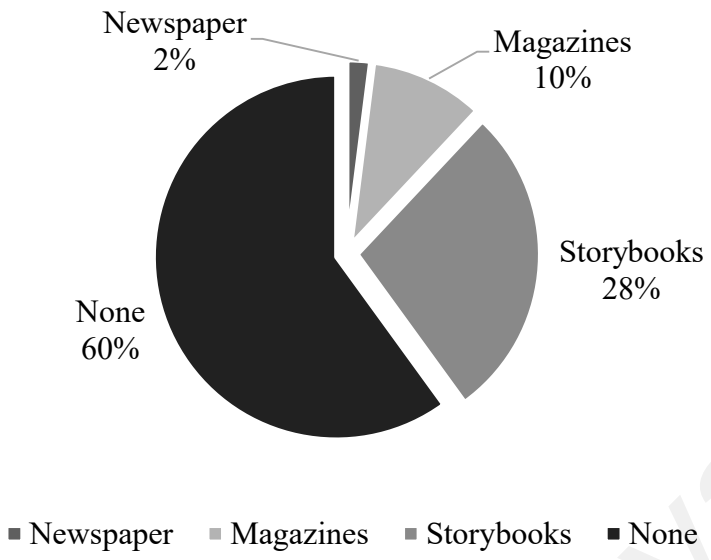


Figure 4.2: Reading materials used by respondent

A total of 28% students read storybooks, 10% students use magazine as their preferable reading material, 2% read newspaper, and 60% do not read at all. Clearly supporting the reading skill, Madhumathi and Gosh (2012) reports that reading habit is a crucial practice that positively affects all age groups. Reading reluctance which has emerged among Year Three LINUS learners tends to lead to the problem of poor English Language reading habits among them.

Vandergrift and Goh (2012) pointed out that underachievers usually give up easily when reading materials do not match with their cognitive capacity and when the teaching strategy do not match their needs and interests. This statement matches with the data collected in the questionnaire where 60% of the learners do not practice reading. Adding on, Xiang (2011) asserts that children with poor reading skills receive poor grades at school, get irritated and frustrated easily, have behavior problems and often have low self-esteem. Moreover, this question tallies with the statement of problem for this study, where students from poor background and less educated families are usually the ones who are most handicapped by gaps in knowledge as they

do not practice reading (Jiang, 2018). Furthermore, poor knowledge of English of these learners further discourages them to read English materials (Ko, 2010).

Lee (2000) collaborated this view and stated that children observe their parent in jobs that do not require great deal of reading in English, therefore they get the impression that it is not necessary to learn reading English based materials. Besides that, Asiah, Mohd Sallehhudin & Norizan (2010) also observed some home situations which are not conducive as parents do not play their role as role models to their children at home and so they do not encourage their children to read by creating a reading environment. Ko (2010) stated that reading builds vocabulary and background knowledge and exposes students to language that may differ significantly from their everyday speech. As technology advances, the integration of CAVI tool in language learning may encourage the learners to read and process the meaning of the text more deeply and more actively.

The Section B which is the questionnaire was used to further probe the views of pupils regarding the software during the English lesson. A non-parametric test, the Spearman rho correlation test was used to analyze the data collected from this section. As these data are in nominal scale, it did not meet the significant level in the normality test. The Spearman rho correlation test was conducted to identify the significant correlation between the attitudes of the learners and their posttest performances towards the CrazyTalk software. Spearman's correlation coefficient is a statistical measure of the strength of a monotonic relationship between data (Creswell, 2012).

According to Creswell (2012), correlation is an effect size where the strength of the correlation follows the guide for the absolute value of r*s* :

Table 4.6

Value of r and Correlation Strength

Value of r	Correlation strength
.00-.19	Very weak
.20-.39	Weak
.40-.59	Moderate
.60-.79	Strong
.80-1.0	Very strong

The data were collected via a dichotomous design questionnaire that consisted of 40 "yes" or "no" questions. Spearman rho correlation test was used to identify the monotonic correlation between the attitudes of learners and the posttest performance towards the CrazyTalk software.

Table 4.7

Correlation Between Learners' Attitude and Post Test Performance

Correlations

			Post test	Attitude
Spearman's rho	Post test	Correlation Coefficient	1.000	.658
		Sig. (2-tailed)	.	.000
		N	50	50
	Attitude	Correlation Coefficient	.658	1.000
		Sig. (2-tailed)	.000	.
		N	50	50

The Spearman correlation coefficient value is significant at 0.658 level and confirms that there is a strong positive correlation between the attitude of learners and their posttest performances towards the CrazyTalk software. The significant level was set at $p < 0.05$. Since SPSS reports p-value for this test as being .000 significant, it can be concluded that there is evidence to accept the null hypothesis that there is no

significant correlation between the attitudes of learners and their posttest performance for the CrazyTalk software is rejected at p-value .000.

These results indicate that the LINUS learners have a favourable attitude toward English language learning using the CrazyTalk software. Furthermore, the CrazyTalk software maximizes the interaction between learners and the CAVI programme. Karahan (2014) stated that "positive language attitudes let learners have a positive orientation towards learning English" (p.84). As such, attitudes may play a very crucial role in language learning as they appear to influence the success or failure of students in their learning. Therefore, the finding which is positive may lead to the success of learning the English language and basic literacy skills of English that was conducted in the class as it becomes a great desire among learners to master English.

4.5 Summary

In this chapter, exclusive discussions are presented on the data analysis of the results of the research based on the two research questions mentioned derived from the population based on *n*= 50, Year Three LINUS learners. The data analysis illustrates that i) the use of the CrazyTalk software has a significant effect on the development of the vocabulary of the learners; ii) there is no difference in learners' attitude towards CrazyTalk software based on their posttest performances.

In conclusion, this data can provide empirical proof to support existing literature that CAVI is a tool that caters to the needs of 21st century learning environment. It can also facilitate vocabulary development in the English language among Year Three LINUS learners as demonstrated in the current study. A strong foundation based on the building blocks of vocabulary development is the crucial corner stone in the process of language acquisition and learning. With a continued effort in using this treatment,

learners would acquire basic literacy skills that can allow them to be better language users in the future. The use of the CrazyTalk animation software allows the learner opportunities to develop an awareness of the sounds of the word, the relationship between letters and sounds and the relationship between meanings and words. These skills in turn would help the learners to develop better reading habits, acquiring a wider lexicon and eventually become competent users of the language.

CHAPTER 5

DISCUSSION, RECOMMENDATIONS AND CONCLUSION

5.1 Introduction

Computer Assisted Language Learning (CALL) has emerged as the most innovative medium for second language teaching and learning in this age of digital learners (Li, 2011). The literature and the findings of this study have thoroughly supported this belief. From an educational point of view, the role of computers in promoting student centered learning has been regarded as crucial by stakeholders in education (Melor Md Yunus et al., 2013).

Integrating a diverse language learning strategy in classes is proven to enhance learners' opportunities for developing their skills in language development (Li, 2011). In order to actualize these learning objectives, a computer assisted vocabulary learning software was developed by the researcher. The participants' posttest results and their feedback in the following questionnaire have supported the results of the experimental study which indicated that CrazyTalk has a positive impact on learners' vocabulary development.

5.2 Discussion

The present research set out to investigate the effects of the CrazyTalk software on the teaching and learning of vocabulary among Year Three LINUS learners. The findings of the research, as discussed in Chapter Four, have indicated that the use of a CAVI-based treatment during English lessons have significantly improved the targeted

ESL learners' vocabulary development. It has also a positive impact on learners' attitude. The results of the current study demonstrate that Year Three LINUS learners achieved a significant knowledge increase on the facet of vocabulary development.

The first research question was formulated with the intention of measuring the efficacy of the CrazyTalk software in vocabulary pedagogy among the Year Three LINUS learners. The analyzed data from the paired *t*-test results have established the fact that learners exposed to treatment using the CrazyTalk software have scored significantly higher results. These significantly higher results were also evident during their delayed LINUS reading screening.

With these results, the null hypothesis that the use of the CrazyTalk software has no significant effect on the development of vocabulary of learners has been rejected at 0.05 level of significance after the intervention. The findings of the study have clearly revealed that learners tend to acquire and retain words ~~much~~ better through visually supported materials than words taught through text and printed materials only.

As discussed extensively in the literature review of this study, it has been proven that learners who receive reading instruction through CAVI based environment almost always attain significantly higher marks than their counterparts. The results of this research suggest that CAVI is a helpful learning system in acquiring second language. The CAVI vocabulary software, the CrazyTalk, that was used in this research in the learning and retaining vocabulary learnt among Year Three LINUS learners. The software which was introduced into the teaching of vocabulary did have the desired effect on the targeted participants. The results of the learner' posttest scores are the testament to the efficacy of this software. Besides the elevated scores, it was also

observed that the software used in the research had also increased the level of the learners' involvement in the learning process.

While the learners learn better with the help of the software, it is important to note that the learners do still need instructions and training to help them use the CAVI materials and programmes. There is no point in giving a man a fishing rod without teaching him how to fish. Students may lose all sense of interest and inspiration in CAVI materials without initial training in this software (Melor Md Yunus et al., 2013). Without the proper instruction and training, the proper use of the materials may seem futile for the learners. This will drive them away from using these helpful learning aids.

With that being said, language instructors now have the freedom and opportunity to utilize such technologically accessible CAVI programmes to improve their students' vocabulary (Levy & Stockwell, 2013). Educators need not squander their time discovering useful educational material as computer programme contain all the required language tools. This step in the teaching of vocabulary has been supported by numerous previous researches including the present one.

As discussed in the literature review of this study, it has been sufficiently illustrated that the use of CAVI software in the ESL classroom is influential on the attitudes of learners towards the target language. It has also been discussed that prolonged exposure to CAVI activities maybe influential on the attitudes of learners towards the CAVI integration (Glende, 2015). This implies that maximizing the length of exposure to computer-based activities can be a great contribution to CALL's acceptance. A higher degree of significant value in the posttest compared to the pretest indicates that as learners become more familiar with these software, they show more enthusiasm to them in the ESL classroom. The CrazyTalk software has been shown to

be an innovative tool in this study in identifying the learners' positive attitude in vocabulary development (Melor Md Yunus et al., 2013). This idea agrees with the second research question developed in this study.

Moreover, the results of the delayed post test revealed that a significant difference did exist among the LINUS learners, and the null hypothesis was retained. The findings suggest that learners can benefit from the CAVI environment that renders the meaning clearly and they should be free to select their preferred modes of learning when using a CAVI based lesson. As the exposure of CrazyTalk software increases, learners' achievement towards learning English is observable, though the study revealed no significant differences in their attitude towards the software.

To put it in a nutshell, the results of the study showed that the use of CAVI facilitated the vocabulary development of the LINUS learners by significantly improving their ability to recognize words in a variety of contexts. It is believed that the learning effect can be maximized through appropriate classroom instruction and interaction. The use of this CrazyTalk software can be the essence of focused learning, because it provides a more engaging learning experience with text, audio, and video that convey information (Melor Md Yunus et al., 2013). The results of this study have also practical implications for L2 teaching and software developing. The successful performance of the intervention group warrants wider application of CAVI in our classrooms (Reinders, 2012). According to Sulaiman (2015) computers offer the advantages of giving appropriate instruction individually to each student; schools can use CAVI to help low achievement students in regular classroom and withdraw the reinforce learning.

5.3 Implications of the Study

This study sets out to demonstrate to language teachers the efficacy of the CrazyTalk software in vocabulary development among Year Three LINUS learners. The results have indicated that there is a significant relationship between the use of software and vocabulary development.

The researcher believes that CAVI has a potential to positively effect ESL learning. In the present study, immediate feedbacks and animations of this system might be taken into consideration as essential for the effects of CAVI on the vocabulary of the development of learners. Zulfadlan & Ariffin (2013) stated that learners are able to take control of their learning processes and are able to learn at their own pace. It is important to note that CAVI programmes may be additionally used to enhance learners' pronunciation. In an ESL environment, learners are rarely exposed to English language input outside the classroom. Their immediate exposure to the target language is during the English instructions in the classroom.

CAVI packages offer learners the opportunity to pronounce phrases by eliminating teacher precipitated pronunciation errors (Hirschel and Fritz, 2013). Therefore, this study has provided a viable method in how an explicit learning strategy could be applied in the English classroom. The main focus of the research was in the area of teaching and learning vocabulary. This research has shed the light in how CAVI tools could be utilized to help elevate the level of language skills among the ESL learners in the Malaysian context.

5.4 Empirical Implications

The current study has provided an abundance of insights in the teaching and learning of vocabulary in the Malaysian ESL context. The current study reveals that there is a higher rate of success among beginners who have utilized the features of CAVI to comprehend vocabulary development. It is a useful tool for language newcomers whilst CAVI is integrated into the classroom. As mentioned earlier, the targeted participants of the study are LINUS learners. These are learners who need the additional instructions and help in grasping the basic language skills. The use of CAVI in their treatment plan has also shown that CALL could and should be used as a remedial aid to help learners with limited language proficiency (Zhao, 2013).

The analyzed data have indicated what has been chronicled and written in previous studies. The findings verify that the usage of CAVI in the classrooms almost always yield encouraging results. In the case of this study, it has been proven to be true, despite the differences in their effectiveness. The use of CrazyTalk software has shown to be impactful in vocabulary learning among the Year Three LINUS learners. It is a major empirical implication that should be highlighted and acknowledged. CAVI knowledge and the use of CrazyTalk software has a positive effect on Year Three LINUS learners' vocabulary development. It also has significant effects on the attitude of learners towards the English language as well. This contributes to our understanding of how such a software assists the development of basic literacy skills in English.

This current study further confirms the advantages of CAVI and conforms to previous studies and findings that strongly applaud the use of the CAVI software and its utilization in vocabulary learning.

It indicates that technology does play a significant role in aiding learners who are at the end of the proficiency spectrum in their quest to acquire and retain vocabulary.

5.5 Pedagogical Implications

Language mastering is a challenging task that requires a number of cognitive efforts from the learners. New learners of English more often are faced with not only challenges in communicating fluently in the target language, but also struggle to comprehend content material. These are the factors that educators and language teachers should keep in mind when choosing the appropriate CAVI approach to be used in classrooms. For a better success of technology integration, teachers need to choose a suitable tools and utilize methods that meet the expectations of learners and help alleviate their troubles (Morales, 2012).

With the needs of the learners in mind, the software CrazyTalk was utilized in this study. The versatile elements of the software have proven to be beneficial as they can be manipulated to suit the designs of the lesson plan. This study has shed some light onto the usage of this software in the Malaysian classroom and has illustrated how it can be used to help students to learn wordsin a visually changed manner.

According to Naraghizadeh and Barimani (2013) CAVI can be used to promote learner autonomy as it encourages student involvement in self-paced learning with minimal teacher involvement. Whilst the learners were given initial training and instruction, they afforded the freedom to explore and utilize the software at their own pace. Arkan and Taraf (2010) pointed out that learning at the learners own pace allowed them to develop favorable attitudes towards the software and this in return helped them to learn better.

Through this study, it can also be advocated that language instructors should make use of commercially available CAVI software programmes to enhance learners' vocabulary knowledge and basic literacy skills of English in computer-based surroundings. There is an abundance of CAVI programmes that are not only practical but are also cost and time efficient (Pun, 2014). Language teachers no longer need to waste time preparing printed materials for vocabulary training. Therefore, integrating CAVI in language applications is not only crucial but beneficial and effective. The findings of the present study can be looked upon as a general driving force to the educational policy makers to allocate greater budgets on the state-of-the-art programmes and gadgets in schools.

English curriculum, syllabus, lesson plan, and classroom activities should involve affective aims according to the students' needs and their individual differences to maintain a positive attitude towards English and English language learning (Don et al. 2015). For the learners to maintain a positive attitude towards English, it can be handled well as bonus if the teacher can provide more authentic materials (Mansouri, 2015). For that reason, the affective perspective, especially attitude, should be considered in language research. In other words, the teacher should at least design English courses based on academic and occupational settings.

Similarly, path designers can benefit from the outcome of the current study to observe and allocate more computer-based activities in all levels of the academic curriculum. The subsequent important issue of the generation is primarily based on integration; therefore, teachers need to consider a way to combine technology-based activities into the syllabus (Sulaiman, 2015). Moreover, the teacher must be aware of all the complexities of using technology in the learning environment inclusive of cultural, infrastructural or structural difficulties (Pun, 2014). A higher familiarity with

computers can result in an extra frequent use of the computer in ESL instructions via the teachers.

5.6 Theoretical Implications

The findings of this study are useful in predicting the effects of the CrazyTalk software for Year Three LINUS learners' vocabulary development using Mayer's Cognitive Theory and Krashen's Input Hypothesis as a base for the theoretical framework that guided this study. The findings of this present study provide an additional insight and a deeper understanding of the intentions of learners to utilize the CrazyTalk software for vocabulary development.

The findings for the overall model has shown that it has a good predictive power and accuracy. In this study, the strength of the attitude of the learners as the strongest predictor in explaining the correlation is similar to the Mayer's Cognitive Theory and Krashen's Input Hypothesis studies. This further has contributed to the validation of the variable in explaining the models. This proves that the theories used in this study are useful to be applied in a variety of contexts and settings as it allows an in-depth insight in understanding the variables like vocabulary and instructions that are involved in this study.

5.7 Limitations of the Study

The findings of this study have provided crucial statistical data in the area of computer assisted language learning, namely in the facet of vocabulary development. Though, this method has been successful, there are a few limitations that have breached the

parameters of this study. The study compared the effectiveness of the CrazyTalk software for vocabulary development among Year Three LINUS learners by including an experimental group. The study also included the same group as the control group to explore the effects of the CrazyTalk software. The current research was carried out over a period of 16 weeks. The targeted participants were given an intensive round of the treatment which was done after an initial pretest. Once the treatment period was over, the learners were given a posttest. In hindsight, a delayed posttest should have been carried out. This longitudinal test could have provided a comprehensive view on the efficacy of the treatment.

The targeted participants of the study were learners from the end of the proficiency spectrum. They were selected from a particular school in the district of Kota Tinggi. These learners are unique in the sense of the setting, socio-economic backgrounds and experiences. They are learners in an ESL context in Malaysia. Therefore, the findings and conclusions of this research could not and should not be considered as comprehensive and general.

Finally, it is prudent to assume that involving learners from different types of family background in any study can possibly result in specific effects. Additionally, problems could also stem from the participants within the comparison group in which they can incidentally be exposed to the experimental group which include the experimental organization contributors being more prompted than the individuals in the manipulate organization (Lei, 2012). Therefore, the results may have been affected as the outcomes may have resulted from the extra effort of the participants and not by the underlying programmed being studied.

5.8 Suggestions for Future Research

This study was done on a small scale. It used a small number of targeted participants. It did however provide the needed empirical evidence to supplement and solidify the importance of CAVI as a tool to develop vocabulary among Year Three LINUS learners. The research also elucidates that there is an apparent need for studies to be carried out in the near future to establish and acknowledge CAVI as a crucial learning tool in the ESL context. It should be utilized as an aid in an effort to broaden the learning and acquisition of vocabulary among ESL learners in the beginning stage.

Future studies should focus on different language skills over an extended period to determine its effectiveness on vocabulary improvement. An alternative option of implementing this research is with a larger and more diverse target participants. The methodology could be mirrored and the results of using this approach with other learners of the ESL context should be established and recorded. Once a larger sample size has been assessed a reliability analysis should be completed (Proctor et al., 2011).

As far as remedial action is concerned, the current study could have been improved in several ways. The CrazyTalk software should have included the element of pronunciation of words to provide students with another piece of information about word. Not only the correct pronunciation of the word had triggered knowledge of the word; it may also have enabled students to make corrections between new words and familiar ones. The pronunciation of a word could have been a vital part of learning a word, particularly for auditory learners (Pun, 2014).

In addition to this train of thought, in this research gender variations among the individuals are not taken into account. However, future research can also have a look

at the effectiveness of CAVI with regards to gender variations. The present research tested learners' vocabulary development once they had acquired 16 weeks of instruction. A future research that examines learners' vocabulary in a longer time frame may additionally offer reliable results.

It would be desirable to conduct a research on vocabulary learning where other aspects of vocabulary, such as productive knowledge, inflectional and derivation forms or semantic knowledge. Furthermore, to further investigate students' evaluation of CAVI, surveys concerning specific functions of CAVI could be examined to get a better understanding how students preferences of strategies and methods. Additionally, combining surveys with interviews would give a deeper understanding of students' reasoning to the questionnaires. Moreover, in reference to whether collaborative learning has an impact on vocabulary retention, it would be interesting to investigate the outcome of students with CAVI collaboratively and independently.

Regarding the observed positive attitude towards English language through CAVI learning, the ESL teachers are recommended to create an encouraging atmosphere in the English language classes to promote learners' positive attitude towards English language (Reinders, 2012). This will be carried out by means of enforcing the best methods and activities of teaching English efficaciously. Furthermore, they have to combine up-to-date teaching materials and supplementary resources in addition to the English textbooks. Moreover, Shafaei (2012) states that ESL teachers should consider the role of gender perspective in language mastering, exposing diverse techniques to enhance the learners' attitude, motivation and overall language performance.

5.9 Summary

The findings of this study are very encouraging. The students in this study have indicated positively that their learning process has been enhanced by the software, influencing them to be positive towards the learning of the English language. This study offers new insights into the effect of the Crazy Talk software on vocabulary development among Year Three low proficiency LINUS learners. The effects of the CrazyTalk software has appeared to be a success and effective when the individual differences of students are taken into account by using animation in order to illustrate the intended vocabulary. The results indicate that the use of CAVI is an effective mode of learning. Integrating CAVI in the English classroom enables language learners to gain basic word recognition through multimedia.

This technique can be a realistic way among the non-English talking environment and to get students fully involved in language learning. Practically, this study proves that the process of mastering English should be student centered and language teachers should create a favorable learning environment to cater to the desires of the language learners. Moreover, CAVI programme minimizes language learning anxiety and boosts self-confidence among learners.

Clearly, CAVI remains a suitable area for research and analysis. This research has contributed a few useful pieces to the big puzzle of CAVI. It is hoped that the future accumulation of research studies will ultimately enable us to provide a more individualized CAVI learning environment that is most conducive for second language learning environment.

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