

USABILITY AND DEVELOPMENT OF ENGLISH ORAL TOOLKIT WITH
INTELLIGENT VOICE RECOGNITION FOR EARLY AGE CHILDREN

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KEBOLEHGUNAAN DAN PEMBANGUNAN KIT ALAT LISAN INGGERIS DENGAN PENGECEMAN SUARA PINTAR UNTUK KANAK-KANAK BERUSIA AWAL

ABSTRAK

Kajian ini bertujuan untuk menguji kebolehgunaan Kit Alat Lisan Inggeris (EOT) dengan pengecaman suara pintar untuk kanak-kanak berusia 3 hingga 6 tahun. Bahasa Inggeris mungkin bahasa popular untuk dipelajari, tetapi ini tidak bermakna bahasa mudah untuk menguasai. Ketakutan bercakap atau mengucapkan perkataan yang salah menjadi masalah utama untuk menggunakan bahasa tersebut dengan kerap. EOT dengan pengecaman suara pintar dibangunkan sebagai alat pengajaran dan pembelajaran dengan menggunakan model Addie sebagai model pembangunan. Sebanyak 30 prasekolah terpilih di Daerah Seberang Prai telah dipantau untuk menganalisis kaedah pengajaran dan pembelajaran dalam bahasa Inggeris dijalankan. Soal selidik dan temubual telah dijalankan ke atas 30 guru prasekolah dan 15 murid terpilih sebagai sampel dan keputusan digunakan untuk mengumpul data tentang kebolehgunaan kit pembelajaran yang telah dibangunkan. Keputusan analisis dibincangkan menggunakan analisis deskriptif. Secara keseluruhannya, kemudahan penggunaan EOT dan kegunaan EOT berada pada tahap min yang tinggi iaitu 4.27 dan 4.35. Implikasi kajian ini mendapati bahawa kit yang dibangunkan dapat meningkatkan pemahaman kanak-kanak terhadap sebutan perkataan dalam tema terpilih dan ciri pengecaman suara terpilih yang tersedia ada akan membantu kanak-kanak untuk mempelajari sebutan yang betul dan memperbaiki sebutan yang salah pada tema terpilih. Daripada hasilnya, diketahui bahawa EOT mencapai tujuan yang dimaksudkan dan dapat membantu kanak-kanak berusia awal untuk mempelajari sebutan tepat perkataan yang digunakan dalam seharian.



ABSTRACT

This study aims to test the usability of English Oral Toolkit (EOT) with intelligent voice recognition for children 3 to 6 years old. English might be a popular language to learn, but this doesn't necessarily mean it is a simple language to master. The fear of talking or pronouncing words wrongly becomes a major problem for using the language frequently. EOT with intelligent voice recognition developed as a teaching and learning aids using Addie model as a development model. Selected 30 preschools in Seberang Prai District has been monitored to analyse method of teaching and learning process in English language being carried out. Questionnaires and interviews been conducted on selected 30 preschools teachers and 15 preschool students as a sample and the results used to collect data on the usability of learning kit that been developed. Results of analysis are discussed using descriptive analysis. Overall, the ease of use of EOT and EOT usefulness was at a high level of mean which is 4.27 and 4.35 respectively. The implication of this study found that the developed kit can enhance the understanding of children's towards pronunciations of words in selected theme and voice recognition feature available will help early age children to learn proper pronunciations and rectify wrong pronunciations on selected theme. From the results it's known that EOT achieved its intended objectives and able to help early age children to learn proper pronunciations of daily used words.

CONTENT

	Page
DECLARATION OF ORIGINAL WORK	ii
DECLARATION OF THESIS	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	v
ABSTRAK	vi
CONTENT	vii
LIST OF TABLES	xi
LIST OF FIGURES	xii
CHAPTER 1 INTRODUCTION	
1.1 Introduction	1
1.2 Research Background	5
1.3 Problem Statement	8
1.4 Objective	10
1.5 Research Question	10
1.6 Scope	11
1.7 Significance of Research	11
1.8 Research Framework	13
1.9 Terms	15
1.10 Conclusion	16

CHAPTER 2 LITERATURE REVIEW

2.1	Introduction	17
2.2	Education and Trending Technology	18
2.2.1	Evolution of Technology in Education	19
2.2.2	Effects of Technology in Education	21
2.3	Child Development and Language Acquisition	24
2.3.1	Evolution of Technology in Education	24
2.3.2	First Three Years of Early Childhood	27
2.3.3	Language and Communication Development	29
2.3.4	Milestones of Communication Development	30
2.3.5	Theories of Language Development	32
2.3.6	Suitable Age for Language Acquisition	33
2.4	Speech Recognition	34
2.4.1	Introduction to Speech Recognition	34
2.4.2	Types of Speech Recognition	36
2.4.3	How Does Speech Recognition Works	39
2.4.4	Advantages and Disadvantages	40
2.5	Existing Speech Recognition Software	41
2.6	Android Studio	44
2.6.1	Android Activities	45
2.6.2	Android Intents	47
2.6.3	Android Services	47
2.7	Learning through Experience	48

2.8 Active Learning Strategy 49

2.9 Importance of Teaching Aid Toolkit 50

CHAPTER 3 RESEARCH METHODOLOGY 52

3.1 Introduction 52

3.2 Research Instrument 54

3.2.1 Questionnaires 55

3.2.2 Observations 57

3.2.3 Interviews 57

3.3 Data Collection 58

3.4 Techniques of Data Analysis 59

3.5 Research Procedures 59

3.5.1 Implementation of the Research 59

3.6 Methodology Framework: ADDIE 61

3.7 Expected Result of The Study 64

3.8 Conclusion 64

CHAPTER 4 DESIGN AND DEVELOPMENT 65

4.1 Introduction 65

4.2 Design 66

4.3 Analysis Phase 67

4.3.1 Requirements Analysis 67

4.3.2 Determine the Objective 68

4.3.3 Identifying children background 68

4.3.4 Identify Constraints 69

4.4 Designing Phase 69

4.4.1	Flowcharts of EOT toolkit	69
4.4.2	Use case of EOT toolkit	71
4.4.3	Toolkit Interface Design	76
4.4.4	Mechanism of EOT	81
4.4.5	Software Interface Design	83
4.4.6	Toolkit Content Flowchart	85
4.5	Development Phase	86
4.5.1	EOT Toolkit Interface Development	86
4.5.2	User Guide Manual Development	88
4.5.3	Questionnaires Development	89
4.5.4	Product Evaluation Form By Specialist	90
4.6	Implementation phase	90
4.7	Evaluation Phase	91
4.8	Conclusions	93
CHAPTER 5	RESULTS AND DISCUSSION	94
5.1	Introduction	94
5.2	Questionnaire Analysis	95
5.2.1	Product Usability Findings	96
5.2.2	Functional Testing Result	97
5.3	Benefits of EOT Toolkit	102
5.4	Discussion of Findings	103
5.5	Views, Comments and Suggestions from Experts	104
5.6	Researcher's Reflection	104
5.7	Proposed Improvements In Future	105

5.8	Conclusions	106
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REFERENCE	107
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APPENDICES	
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LIST OF TABLES

Table No.		Page
2.1	Comparison between existing voice recognition software	44
4.1	Interface buttons and functions	87
5.1	Descriptive Statistics Interpretation Instructions	95
5.2	Analysis of Product Usability Data Analysis	96
5.3	Product Analysis Data Findings	97
5.4	Interface Testing Result	98
5.5	Functional Testing On Buttons	99
5.6	Functional Testing On Animations	101

LIST OF FIGURES

Figures No.	Page
1.1 Vygotsky's Zone of Proximal Development software	14
2.1 Mechanism Of Speech Recognition Works	40
2.2 Illustration of how ViewGroup actions	45
2.3 Cycle Kolb Model	49
3.1 Overall Research Methodology	54
3.2 Types of Instruments Used.	55
3.3 Likert Scale	56
3.4 Flowchart Of The Research	60
3.5 Addie Model	61
3.6 Addie Methodology Flow Chart.	63
4.1 Addie Model	67
4.2 Storyboard of EOT	70
4.3 DFD Diagram of EOT	70
4.4 Overall Use Case of EOT	71
4.5 Log in Use case	72
4.6 Main Menu Use Case	72
4.7 Notes Use Case	73
4.8 Game Use case	74
4.9 Video Use Case	75



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4.10 Quiz Use Case	75
4.11 Main Interface of EOT.	78
4.12 Login Interface	79
4.13 Menu Interface	80
4.14 Notes Interface	80
4.15 Quiz interface	81
4.16 Main Menu to Note Interfaces	82
4.17 Quiz Interfaces with Correct Interface	82
4.18 Quiz Interfaces with Wrong Interface	83
4.19 Audacity software interface	85
4.20 EOT Content Flowcharts	86
4.21 Preschool Teacher Answering Questionnaire	89
4.22 Preschool Teachers And Students Using EOT	92



CHAPTER 1

INTRODUCTION

1.1 Introduction

In our twenty-first century, technology is growing very rapidly and one's must act in line with the technology to prevent from out of date. Our expeditious technology has brought a lot of changes to our education system. With the advancement of technology, educational adequacy are developing and changing every day. Technology has always been at the front line in education. From the times of engrave figures on walls to today, when most children are well equipped with advanced technological gadget at any given time, technology keeps on pushing educational potential to higher level than ever (Braine, G.,2013). In taking a gander at where educational techniques and devices have originated from to where they are



going in future, technology's significance in the classroom is apparent now like never before (Michael, 2014).

Intelligent voice recognition is one of the quick developing technologies as in latterly. Voice recognition can be significant in learning a second language. It can educate appropriate and good pronunciation, besides help a person develop fluency with their speaking aptitudes (Cerf. Vinton & Wrubel, 2014). Voice recognition can allow children with learning incapacities to wind up noticeably better authors. By saying the words resoundingly, they can expand the ease of their composition, and be mitigated of concerns with respect to spelling, punctuation, and different mechanics of writing (Lee.C.H., Soong, F.K., & Paliwal.,2012).



Vangie Beal (2016) states, voice recognition is the field of software engineering that arrangements with designing computer systems that can perceive spoken words. Note that voice recognition implies just that the computer can take dictation, not that it comprehends what is being said. Grasping human languages falls under an alternate field of software engineering called natural language processing. Diversity in voice recognition systems are accessible nowadays in the market. The most capable can perceive a huge number of words. Nonetheless, they generally require an amplified training session during which the computer system becomes accustomed to a specific voice and accent (Jiang, H., Deng, Penn, G., & Yu.,2014).



Classrooms have made considerable progress. There's been an exponential development in educational technology headway in the course of recent years. From overhead projectors to iPads, it's imperative to comprehend what's coming next, as well as where everything began (Hamzah, & Asmiran.S, 2013). Although unquestionably progressed significantly however a few things appeared to be hauntingly like numerous years back. For instance, Thomas Edison said in 1925 that "books will soon be obsolete in schools. Scholars will soon be instructed through the eye" and it's like the utilization of iPad nowadays. An extensive variety of learning and teaching strategies are applied amid the learning process happen and don't rely on upon learning chalk and talk as it were.

As an effort to ensure a high level of implementation and increase the efficiency of teaching process various methods used by each teacher to produce an effective teaching process. Among them is the use of teaching aids in the teaching process. A teaching aid is a tool used by teachers to enable learners enhance reading and different abilities, fact or idea and relieve anxiety, fears or fatigue since many teaching aids helps resemble diversions (Deepty Gupta, 2014). Teaching aid is important that they make a visual and intuitive experience for the children. As the children turn out to be more engaged, they will probably comprehend the point being taught.

An educational toolkit is likewise a form of teachings aid that can be utilized to help children's better understandings in the learning process. Educational toolkits can instil learning and enhance understanding of the concept of learning and application of concepts in real life. According to Prihatiningtyas (2013), learning toolkit is a box containing

equipment utilized as a part of pragmatic preparing or different exercises amid the learning process. Toolkit helps children in learning process. These aides contain video, audio and hands-on tools to help children enhance the learning experience. Children have a tendency to get more included when learning if teaching aids are executed into the curriculum.

Hands-on aids, for examples computers, maps and other tools that require some kind of interaction from the children, have the most elevated amounts of adequacy. The tools are expected to involve the children, promote connection, and advance progress faster learning and better perception (Brandon, D.P, 2010). Having the capacity to see, hear or get involved in a point makes a vastly improved technique for learning (Alexender, 2012).

The utilization of learning toolkit can help the learning process, yet its utilization is less effective if the toolkit does not have a guide. The use of tools and educational resources in a planned and precise will make education more significant and give a positive impact on teaching and learning process (JC Richards, 2002). As a consequence, the use of appropriate learning toolkit is essential to enhance better understanding of the topic learned. Subsequently, utilization of teaching aids facilitates this objective by helping teachers in differentiating instruction. Utilizing aids such as graphs, charts, flashcards, and videos furnishes learners with visual incitement and the chance to get access the content from an alternate viewpoint. This gives each learner the opportunity to associate with content in a way which allows to understand all the more effortlessly (Warren-Forward, & Lapkin, 2016).



However, an educational toolkit with intelligent voice recognition is still very less utilized in teaching and learning process (Baskerville, & Wood-Harper., 2016). Educational toolkit with intelligent voice recognition is able to bolster the learning process.

1.2 Research Background

The present educational system is playing a significant role in forming the eventual fate of our youth. Education is an imperative instrument that is connected in the contemporary world to succeed, as it mitigates the difficulties which are confronted in life. The knowledge gained through education empowers individuals' capabilities to be ideally used owing to the training of the human personality (Buabeng-Andoh,2012). This opens entryways of opportunities empowers the person to accomplish better prospects in profession development. The current advancement in technology has been upgraded to a great extent by education, as individuals can apply the aptitudes obtained in real life prompting developments (R.Christensen, 2012).

Today's time being, the importance of English cannot be denied. It is the most common language spoken internationally. The importance of English in education and children's life is more crucial thing. According to David Crystal (2007), a world-renowned linguist who had directed broad research in the development of the English Language, the English Language gained significant prominence in multitudes of human knowledge in recent years particularly in the field of science and mathematics. It is imperative for



children to procure high language proficiency as early as possible particularly in the English Language. It is also one of the most widely and extensively taught foreign languages in many schools in the world (Alexander.R, 2012). Therefore, it is quite imperative for the younger generation to acquire a sound mastery of the Shakespeare's tongue to provide them with the essential equipment for procuring the innumerable amount of knowledge presented through this language (G.Beattie., 2014).

According to Critical Period Hypothesis, early age is the Critical Period for a child. This theory supports the importance of learning language at the early age. Accordance to Critical Period Hypothesis, there is an ideal window of time during the age of human beings to procure a language in a linguistically opulent ambience. Even though this theory is quite controversial, it was nevertheless widely accepted by linguists to explicate language acquisition (Hakuta,K.E.,2003). According to Espinosa, L. M. (2007) the first few years of human life after his or her birth are the most crucial time for language acquisition. Hence, this is the time wherein sufficient amount of stimuli should be made available to a child. If a child is unable to experience a linguistically rich environment during these critical periods, he or she might not be able to gain full command of a particular language especially the grammatical system (M.Gamon, Chodorow, Leacock. & J.Tetreault., 2013).

Momentarily, the development of children' thinking is limited where children need to see things learned in front during the process learning occurring (Bouguelia., 2016). Such educational toolkit gives children the opportunity to learn and experience by own to provide a deeper understanding of subjects studied. With ease of this kind of educational

toolkits, children can easily understand the basic concepts involved in learning. Besides that, learning English at the early age using educational toolkit with intelligent voice recognition will be very effective and appropriate while will attract children towards learning.

30 out of 40 preschools in Seberang Prai District has been monitored to analyse how teaching and learning process language is being carried out especially in English. Selected preschools still using calk and talk method and some preschools use teaching aids like book, videos, and flash cards in their teaching process. In addition, selected preschools at Seberang Prai district confirms that there is no oral toolkit available for pre-schoolers.

The questionnaires have been attached in the appendix section. Through interviews conducted on selected 30 preschools teachers and 15 children related to the proposed EOT few problems faced by the children, teacher and parents have been identified:

- i) 50 % children less keen to continue learning which more too rigid method.
- ii) 80% children become bored easily learning through calk and talk method because there is no any entertainment and fun while learning.
- iii) 80% parents less exposure to such technology advanced teaching aids that available nowadays.

Teaching and learning process using this kind of teaching aids will be more focused on children. The criteria for development of the learning toolkit is based on results collected from monitoring and interviews that been conducted. This research proposed a new



architecture named EOT for early age's children age range from 4 to 6 years old along with intelligent voice recognition feature to be used as a learning tool. Preschool teachers and parents can use this tool to educate and to motivate their children to use better English in their daily life conversation. Lack of this kind of English toolkit along with voice recognition feature to rectify wrong pronunciations will be the main reason behind the development of this EOT. This toolkit able to enhance children's understanding on language and able to motivate children use the language as a medium of conversations. Therefore, the development of this learning toolkit has the potential to assist in learning English especially among early age children (W.Cheung., 2016).



05 1.3 Problem Statement

A large portion of people having issues utilizing English in daily communication since it is not a native language that often used as a part of one's regular discussions (Love, Nigel, & Umberto Ansaldo, 2010). The fear of talking wrongly becomes a major problem for using English frequently. Although English might be a mainstream language to learn however, this doesn't really mean it is a simple language to master; there are many difficulties people confront when learning English especially at young age (Gass.S.M, M.,2015). There are many educational toolkit available for learning grammar and vocabulary but toolkit with intelligent voice recognition to learn proper pronunciations and to rectify wrong pronunciations is less available especially for preschool children.





Through the observations and survey which has been carried out on 30 out of 40 preschools in Seberang Prai District found that selected preschool still using chalk and talk method and they found this kind of teaching and learning method used especially in our smart environment is less effective. 30 preschool selected as sample because in general, the minimum number of samples for correlational research to acquire good results is 30, whereas in the experimental study minimum 15 samples respondents from each group is good. Roscoe (1975), quoted by Uma Sekaran (2006) provide a general reference for determining the sample size. Sample size more than or equal to 30 respondents and less than 500 respondents is appropriate for most of the research. In addition, for the simple experimental study with rigorous experimental control, research success is possible with small sample sizes ranging from 10 to 30 respondents.



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Without this kind of interactive educational toolkit, children unable to involve actively in the learning process and found learning English is difficult. This issue should be solved so that all the people especially young generation utilised fully this language because English is a medium to present their ideas and to relate the contents of their minds to one another. Furthermore, active learning application will encourage children engagement with the support of learning tools provide a more beneficial effect on learning (B.Settles, 2012). As there are a lot of applications and toolkit available in the market for teaching grammar and vocabulary. But this kind of oral toolkit especially toolkits that emphasize speaking English correctly with intelligent voice recognition that able to rectify errors is not available in our country will be major factor and main reason behind the development of this toolkit.





1.4 Objective

A learning kit prototype developed with specific objectives:

- i) To develop an interactive EOT with intelligent voice recognition for early age children to improve their communication skills particularly in pronunciations.
- ii) To analysis current educations methods and learning practices implemented especially in preschool educations.
- iii) To test the functionality of developed EOT with intelligent voice recognition for early age children.



- (i) How the developed EOT will serve as a teaching aid tool for learning English particularly in speaking using correct pronunciations?
- (ii) How will be the extent of children's' ability to use this EOT learning toolkit?
- (iii) How EOT develop will work in accordance to current preschool educations system?





1.6 Scope

EOT focussed on Greetings theme in English. Greetings are crucial to establish that first great connection, set up great associations with your friends and family and set a positive tone for any discussion. On the off chance if want to be a successful person, one ought not to overlook the significance of greetings. Conveying right impression and appropriate greetings helps to have a great effect on others and climb the stepping stool of achievement sooner (A.Turner, 2017). There are a few applications available to improve the quality of grammar and vocabulary but for speaking English correctly especially with the intelligent voice recognition seems to be very less and hard to find. Early age preschool children (3 to 6 years) will be the targeted group.



1.7 Significance of Research

EOT will be a teaching and learning tool for early age's children age range 4 to 6 years. Preschool teachers and parents can use this tool to educate and to motivate their children to use better English in their daily life conversation. Language plays a noteworthy part when it comes to brushing communication abilities and the most vital component that can definitely have a big impact on your child's communication aptitude, need to talk in English more often than not, be it in the class, or with their friends or even later in universities and work place (Brinton, Laurel J,2010). Thus to exceed expectations with great communication abilities, a child needs to enhance his spoken English aptitudes.



Language shapes the way individuals see the world and it likewise characterizes the way of life of any society (Sigleton, D., 2004). Any language is a blessing the knowledge of more than one language makes a man more productive and dexterous from multiple points of view. It opens our minds and guides us into a supernatural universe of fancies and dreams. To certain, the best possible learning of language encourages us to develop ourselves, our minds, and also our personality. Human language is unique because it is a typical communication system that is found out rather than organically acquired for a few people (Labov.W, 2012).

This kind of EOT is essential in today's education system. Some people can easily write and read in English but talking fluently using the language still a big issue for many. Spoken English is altogether different from written, as in written English you at least have the chances of rectifying an error, but when it comes to spoken English what you speak is final and there is no possibility for rectification. Spoken English has dependably been viewed as a key component of achievement. So it is very important to use this kind of toolkit to emphasize and improve children communication skills this is because today's children tomorrow's leader. Childrens should be trained since young to use this language correctly. If a child does not be able to impart well in school, with educators, with parents, in social functions or get-together and even in various aspects of his life; then it might get troublesome for the child to succeed (Crystal, David, 2015). This sort of educational toolkit can be utilized as a teaching and learning tool for early age children's to enhance their



communication abilities as known enhanced spoken English in children an unquestionable requirement for the improvement of every single part of their life.

1.8 Research Framework

Theoretical framework of this study is rely on Social Development Theory (Lev Vygotsky). Learning is a process of gathering knowledge or expertise by contemplating, practicing, being instructed, or experiencing the knowledge gained from learning (B, L. D., 2014). The major theme of Vygotsky's theoretical framework is that social interaction plays a fundamental role in the development of cognition (Silver, D., 2011). Vygotsky (1978) states



05 *"Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals".* Figure 1.0 shows Vygotsky's Zone of Proximal Development with three elements of 'what I can do', 'what I can do with help' and lastly 'what I can't do'.



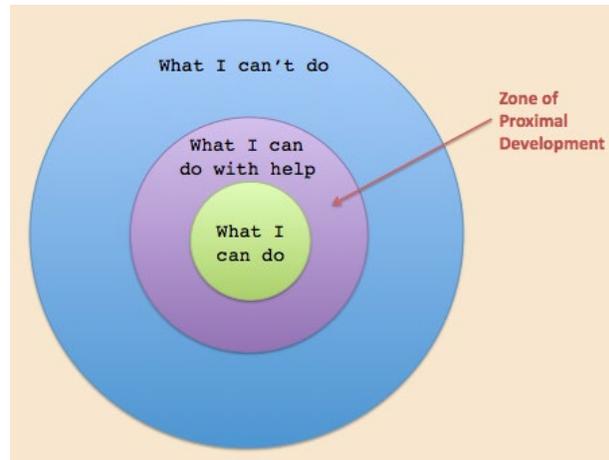


Figure 1.0. Vygotsky's Zone of Proximal Development

A second aspect of Vygotsky's hypothesis is the possibility that the potential for subjective improvement relies on the "zone of proximal advancement" (ZPD): a level of improvement accomplished when children engage in social behaviour. Vygotsky's theory was an endeavour to clarify cognizance as the final result of socialization. For examples, in the learning of language, our first expressions with peers or adults are with the end goal of communication however once mastered they progress toward becoming disguised and permit "inner speech". Vygotsky introduced the term zone of proximal development to depict tasks that are excessively troublesome for the child to master alone (McDowall Clark, R., 2013).

1.9 Terms

i) Toolkit

Toolkit kit is a box containing equipment used in practical training or other activities during the learning process.

ii) Teaching aid

An object (such as a book, picture, or map) or device (such as a DVD or computer) used by a teacher to enhance or enliven classroom instruction.

iii) Voice recognition

 05 Voice recognition is the field of computer science that deals with designing computer systems that can recognize spoken words.

iv) Early age

Children age range 4 to 6 years are under this early age group.

v) Theoretical framework

Structure that hold or support a theory of a research study. The theoretical framework introduces and describes the theory that explains why the research problem under study exists.



1.10 Conclusion

This chapter discusses about the introduction to the research, research background, problem statement, research objectives, research questions, scope, research framework and the term used in this research. EOT will be a teaching and learning tool for early age's children. Preschool teachers and parents can use this tool to educate and to motivate their children to use better English in their daily life conversation. Be that as it may, utilizing learning toolkit alone without the active participation of children will not be able to provide an effective impact on learning performance.

