

## Blending Intelligent Voice Recognition Technology Toolkit into Teaching English Pronunciations for Pre-Schooler

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### ABSTRACT

Information and Communication Technology (ICT) plays a major role in almost every aspect of the modern life and particularly in education. Today's education systems are progressively swinging to asset and bolster teaching and learning environment and integration of ICT into preschool education has become a high priority. The motivation behind this review is to examine the blending intelligent voice recognition technology for pre-schoolers particularly into teaching English pronunciations. English might be a popular language to learn, but this does not necessarily mean it is a simple language to master. Most of the people facing problems using English Language, particularly when English is not a native language or mother tongue that often used in one's everyday conversations. This paper proposed new architecture of an interactive English Oral toolkit (EOT) with intelligent voice recognition for pre-schoolers. Addie models have been used as an instructional design for the development of this toolkit. EOT toolkit will enhance children's understanding of the language and will motivate children to use this language as a medium of conversations.

**KEYWORDS:** Learning Technology Advancement, Intelligent Voice Recognition, Pre-Schoolers, ICT, Pronunciations, Toolkit.

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### INTRODUCTION

In the most recent couple of decades, there has been an expanding integration of learning technologies available into teaching and learning process within our education system [1]. Teaching and learning in the 21st century require new abilities and better approaches for experiencing teaching and learning and in addition requiring inspiration and particular strategic with respect to those involved in education. Decisively, ICT use in education can make new educational environments, give new teaching strategies; change the customary teacher-students relationship lastly enhances the nature of education. Thus, ICT can be considered as "potential tools for change and development in education" [2]. Furthermore, the utilization of ICT at school is a powerful approach to create individuals capable in ICT meeting the demands of modern society. As technology market is quickly growing especially the market of serving early childhood education, the accessibility and use of technology for young children is broadly spread.

There is widespread belief that such technological advances will change, educating and learning process, making them more noteworthy, fascinating and significant to the students, and along these lines fundamentally changing the nature of the learning process. The quick progression of learning technology advancements in education is credited to the acknowledgment that learning technologies can bolster, and develop teaching and learning process. Research also shows that technologies can be used to improve the quality of teaching through the provision of professional development opportunities for teachers [3].

For language learning, voice recognition can be valuable for learning a second language. Most significantly able teach proper pronunciation, in addition to helping a person develop fluency with their speaking skills. Voice recognition can allow students with learning disabilities to become better writers. Voice recognition is the field of computer science that deals with designing computer systems that can recognize spoken words. The motivation behind this review is to analyses integration of intelligent voice recognition technology into teaching English pronunciations for pre-schoolers, a review of English Oral Toolkit (EOT).

Any language is a gift the knowledge of more than one language makes a man more efficient and skillful in many ways. It opens our minds and guides us into a magical world of fancies and dreams. For certain, the proper learning of language helps us to develop ourselves, our minds and our personality. Human language is unique because it is a symbolic communication system that is learned instead of biologically inherited for some people [4]. Essentially language plays a key role when it comes to brushing your communication skills as children have to speak in English most of the time, be it in the class or with their friends or even later in colleges and work place. Hence, to excel with good communication skills, a child needs to improve his spoken English skills.

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Although there are many recent studies stating the negative effects of ICT use for young children, still a good deal of research shows the importance of ICT use for young children at school or at home. Numerous preschoolers, these days called "computerized native" are now acquainted with ICT even at their home utilizing them as educational and entertainment tools. However, preschool teachers' self-confidence and capacities of ICT integration into education are at relatively at low level. Specifically, they possess the elementary competences (retrieval, processing, management information etc.) and could apply some simple teaching software (PowerPoint, flash, Photoshop etc.), yet lacking advanced abilities especially in the integration of ICT and teaching activities.

Although, intelligent voice recognition is one of the quickest developing technologies nowadays but still there many challenge everyone confronting especially when it comes to integrate those technologies in preschool education. The first and foremost challenge is lack of professional development. Key among all challenges is the absence of sufficient, continuous expert advancement for teachers who are required to coordinate new technology into their classrooms, yet who are ill-equipped or not able to understand new technology. Besides that, larger part of teachers unable to make appropriate utilization of technology in their own classrooms while others are unwilling to attempt as a result of uneasiness, absence of interest or absence of inspiration and motivation. The early childhood teachers participating in the workshop reported different challenges experienced during the time process of technology utilize and integration including: absence of personal familiarity with technology, absence of authoritative support, educational modules coordination challenges and absence of specialized support.

English Oral toolkit is an interactive toolkit with high voice recognition technology mainly aims to the early age children age ranges from 3 to 6 years. This toolkit will make children to learn the correct and proper pronunciation of a word and intelligent voice recognition will help the student to correct wrong pronunciations. Voice recognition uses a neural net to recognize the word said by the user. As you speak, the voice recognition software remembers the way you say each word and will check whether the word is pronouns correctly. The toolkit will have its own database collection of fixed vocabulary and the correct way of pronouncing it. Therefore, when user pronouns the words wrongly, the toolkit will detect it and thus correct the word pronunciations.

### EOT PROJECT REVIEW

EOT toolkit will help students to learn the correct and proper pronunciation of a word and intelligent voice recognition will help the student to correct wrong pronunciations. This English Oral Toolkit will be a good companion to early age children with a minimum supervision. Students will actively engage while using this toolkit because of intelligent voice recognition available in this toolkit and it will make student pay more interest using the language. Most significantly fun-filled studying environment can be created indirectly. Addie models being selected as an instructional design for the development of this project. The ADDIE model is basically a generic, systematic, step-by-step framework used by instructional designers, developers and trainers to ensure course development and learning does not occur in a haphazard, unstructured way. This is a design model used by many professional instructional designers for technology-based teaching [5]. ADDIE stands for analyse, design, develop, implement and evaluate. Figure 1 shows Addie model.

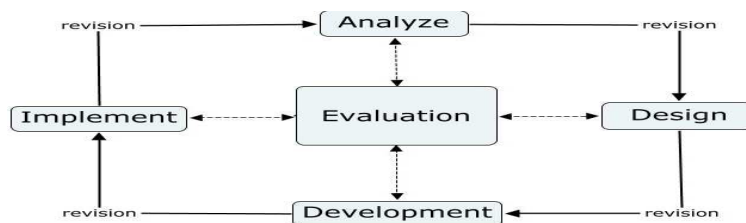


Figure 1: Addie model

Table 1 shows comparison between famous existing voice recognition software Babel, Rosetta stone and Sanako Pronounce. A comparison between this software has been conducted to determine the specific characteristic of those selected software.

**Table 1: Comparison between existing software**

<b>Babbel</b>	<b>Rosetta Stone</b>	<b>Sanako Pronounce</b>
<b>Online language learning</b>	Cloud-based programs allow users to learn online or on-the-go via tablet or smartphone	Online
<b>Let's hear how languages truly sound and ensures speak the same</b>	Helping millions of students build fundamental reading skills	Improve the pronunciation skills
<b>Test pronunciation to make sure sound like a native and communicate with confidence</b>	More to reading skills	The voice that will read the model sentences. Listen to the model sentence and record yourself repeating it

Table 2 shows results of comparison that been conducted between existing voice recognition software and proposed architecture EOT. The comparison has been done based on selected criteria.

**Table 2: A comparison between existing software and EOT with selected criteria**

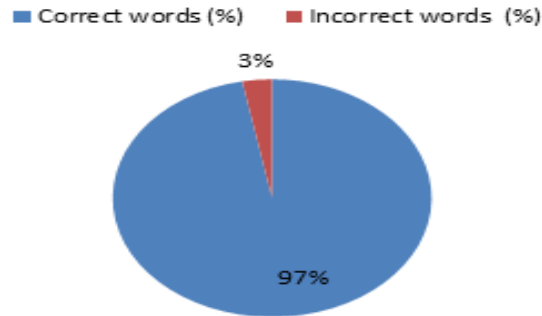
<b>Criteria</b>	<b>Babbel</b>	<b>Rosetta Stone</b>	<b>Sanako</b>	<b>EOT</b>
<b>Offline</b>	X	X	X	√
<b>Availability</b>	X	X	X	√
<b>Open source</b>	X	√	X	√
<b>3-6 age range level</b>	X	X	X	√
<b>Free</b>	X	X	X	√

**RESULTS AND DISCUSSION**

Functional testing has been conducted to ensure interactive English Oral toolkit with intelligent voice recognition conforms to all requirements, and to make sure that it has all the required functionality that is specified within its functional requirements. The developed toolkit has been tested for 25 students with examples of 10 words have been given for the testing. The toolkit gave 97% exact result and gave a correct feedback. EOT toolkit functionality has been also checked to verify, whether all the buttons and icons available are functions properly. EOT toolkit gave 97% correct answers when the functionality of the toolkit been tested. While, remaining 3% shows the inability of the buttons to functions as intended. When the toolkit been used for few hours, the buttons of toolkit unable to functions and this lead the toolkit to give wrong options of answers. Nevertheless, very noisy surrounding environments also will lead the toolkit to give wrong results as the toolkit not able to capture the feedback given by users.

**Table 3: Functional testing result**

<b>NO</b>	<b>FUNCTIONS</b>	<b>FEEDBACK</b>	<b>RESULTS</b>
<b>1</b>	<b>Main interface design</b>	<b>Interesting, good working condition</b>	<b>Good</b>
<b>2</b>	<b>Animation and sounds</b>	<b>Very catchy and good selection of sounds</b>	<b>Good</b>
<b>3</b>	<b>Toolkit overall interfaces</b>	<b>User friendly and interactive</b>	<b>Good</b>
<b>4</b>	<b>Voice recognition system and word feedback mechanism</b>	<b>In good working condition and accurate response</b>	<b>Good</b>
<b>5</b>	<b>Icons and buttons functionality</b>	<b>Interesting and user friendly, easily understands by childrens</b>	<b>Good</b>



**Figure 2: Percentage of correct words detect by EOT toolkit**

An experimental test been done to ensure the effectiveness of EOT toolkit. Developer personally test 20 words and found that 97% of the words tested give accurate results. EOT is able to detect the correctness of words, pronounce and are able to give a proper feedback for the wrong pronunciations. While, 3% gives incorrect words because of some technical errors. This analysis has been done to determine the level of effectiveness of EOT toolkit.

### CONCLUSION

Primarily, technology integration is a complex phenomenon that includes comprehension teachers' inspirations, recognitions, and convictions about learning and technology [6]. There is likewise need to motivate, prepare and equip teachers with the skills necessary important to enhance appropriate use and integration of technology tools in instruction [7]. Intelligent voice recognition undergoing a speedy development in recent times. Teaching early age children with the aid of this kind of new technology advancements will help to enhance better understanding of the subject learned. As a consequence, early age children will pay more attention while using this kind of various technology advancement tools as they find it very interesting and able to involve in an active learning environment. However, using a technology advanced learning toolkit alone without the active participation of students will not be able to provide an effective impact on learning performance.

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