

Developing E-learning Module by Using Text-To-Speech (TTS) in Telegram Bot for Listening Comprehension

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ABSTRACT

During the pandemic, orientation and interaction learning must continue. Lecturers have a responsibility to set up the materials in learning processes. Consequently, it takes advancement in packaging interested materials by utilizing advancement to discover and understand the materials all the more rapidly and precisely. Furthermore, the utilization of web based (online) learning in the electronic module use Text-to-Speech (TTS) in Telegram bot is one of the advancements to improve the value of learning in the classroom. Blended Learning is used by development Telegram bot as 12 materials listening comprehension. There have single preliminary with 5 students, a little group with 14 students and huge group 40 students from English Department. The results of the finding revealed that is average 85% - 95% for the little group preliminary, and average for all model in huge group is 88%. For additional advancement, further researcher is used online-based electronic module with TTS in the Telegram bot program in another subject of study such as economic or math.

Keywords: *Text To Speech (TTS), Telegram Bot, Listening Comprehension*

1. INTRODUCTION

The teaching and learning process must continue during the pandemic. Challenges are always numerous, but creativity and innovation must go hand in hand in a research and development group. As we know the pandemic situation makes so many students lose a little of the potential for growth in knowledge, that is also have the fear as a teacher that the student's spirit of learning will be lost. Therefore, the government is pushing all the elements that educators have to do in the online learning system. It's like Aisyah et al (2021) that Especially with the government's policy that during the covid-19 pandemic, the teaching and learning process must be carried out online.

E-learning is commonly referred to as the intentional use of networked information and communication technology in teaching and learning. Several other terms are also used to describe this mode of teaching and learning. They include; Online learning, Virtual learning, Distributed learning, Network, and web-based learning, Chitra and Raj (2018)

Today is 21st-century learning that is every component of the education itself have to familiar with the Information communication and technology (ICT). It matches as the expert statement Garba et al (2015) talked the global drive toward building sustainable knowledge-based society has made stakeholders of the education industry recognize the potential need for ICT integration in education. The researcher has many students that come from heterogeneous places. It is not good at this time to make them learning together in one place, but how to make them still learning and push the creativity in

the learning them is the goal. However, the teacher should understand to use of technology as part of the learning process.

The use of innovation in the learning process bears the new ideas in IT-based learning or better known as e-learning. In e-learning, numerous internet learning media sources can be picked up by the lecturer as learning media, one of which is the using robot system in the application called Telegram bot. This bot program is one of the Learning Management System that gives an assortment of highlights that can be utilized by lecturers in learning exercises.

One of the highlights is using a machine program namely text to speech (TTS). According to Dutoit (1996) in Setiawan (2016) TTS is the production of speech by machines, by way of the automatic phonetization of the sentences to utter. By combining the machine program TTS into the Telegram bot, it will be helping the lecture to construct the material of study in the learning process.

Talking about TTS in the learning process there was pay attention for many researchers. One of them was discussed listening and Text to Speech by Oktalia and Drajiati (2018) shows that Several studies related to the use of Text to Speech in EFL classrooms indicate that the program could be used to benefit language learning. TTS provides three conditions that make the output possible to be used as listening materials: the appropriate pronunciation model, the communicative expressions that promote natural dialogue, and the practical benefits. Then, TTS has taken significant attention from many researchers that trigger them to develop expressive and emotive output (Schroder, 2009). The quality of output voice

from TTS is considered an outstanding voice since it uses the real voice from the provided speakers in the program. Moreover, TTS has included emotive and expressive sounds (Harashima, 2006). The study of Handley (2008) showed that the accuracy and naturalness of the voice in TTS applications were positive at the level of phonetic pronunciation. On the other hand, reveals that such a measure does not affect the prosodic aspect, and the quality of the phonetic pronunciation was indeed found to be higher than that of the prosodic.

Elective answers for the learning conditions today are helping in teaching staff or lecturers to work with students who have learning attributes with various learning speeds, and have the disgrace of stating viewpoints in customary classes through electronic media learning (Modules). The use of the learning media can classify learning exercises that are better arranged, autonomous, complete also, the outputs are clear. In addition, through e-learning materials learning media, the lecturer will be simpler to complete learning and student will be more aided and simpler to learn.

Furthermore, the utilization of web-based (online) learning in the electronic module is one of the advancements to improve the value of learning in the classroom. This progression is utilized to give a work to encounter learning in the 21st century, where learning in this climate should take place with regards to creating communications and correspondence that empowers formal and informal learning. Considering the issue over, the author has problem research are how to develop listening module by using TTS in Telegram Bot and how to measure the useful values the product that expected to offer decisions to convey electronic modules that are furnished with online TTS into Telegram bot programs so they can be used by teachers to additionally foster understudy capacities, similarly as to be additional choices as media and learning resources for students beside measure the useful values such as the attractiveness, form of materials, simplicity, and the advantages of the learning module. This paper is the following research by the researcher with the teammate that before talking about Telegram bot in English Language Teaching class, and over here still develop the material and have little improved with text to speech for listening comprehension class, Aisyah et al (2020)

1.1 Learning Module

The module is a complete and independent unit and consists of any learning activities organized to help students to they can get their goals that are formulated specifically and clearly, Nasution (2011). According to Anggraini and Sukardi (2016) this module was chosen because it was able to anticipate the limitations of available learning time, space, the power of senses, either students or teachers. Besides that, the module can be used with students to learn independently. The advantages of the module are designed to be used by students learning because it comes on its own, so with the module students should not rely on the teacher to be able to achieve the expected competencies by learning activities (Hamid et al, 2017). Another expert talked that the learning module is one

of the printed and digital learning media. Learning modules can be used as a learning resource to accommodate students' higher-order thinking skills, Mulhayatiah et al (2019).

1.2 E-Learning

Electronic learning is also referred to as learning that uses electronic devices, mainly through online communication. E-learning does not only accesses information (for example, laying out web pages) but also helps learners with specific results (eg achieving goals). In addition to delivering teaching, e-learning can monitor learners' performance and report on learning progress, Wardhono and Stephen (2018).

They said also that the benefit of e-learning for students such as; online learning accommodates everyone's needs, lectures can be taken any number of times, offers access to updated content, quick delivery of lessons, scalability, consistency, reduced costs, effectiveness, and the last is less impact on the environment.

1.3 Telegram bot in Learning

Telegram is a messenger application that has many advantages (besides chatting or messaging). Telegram provides speed and security and is also free and easy to use. Telegram bot is a program that exists on Telegram created or developed by using the API on the Telegram bot. Telegram bot as a learning medium, telegram bot can help students in learning, and the materials can be distributed easily and can be accessed anytime, anywhere. Learning activities and evaluations can be conducted by utilizing the sophistication of the features in this application, Ismawati and Prasetyo (2020)

Telegram bot is a global education network that helps connect all students with the people and learning resources needed to reach their full potential, Sastrawangsa (2017). Telegram bot is an online network application for teachers and students. Telegram bot is a social network platform that created educational studies, Xodabande (2017).

1.4 TTS for Listening

One of the advantages of using the text-to-speech application to produce synthetic speech audio material is schools do not need to hire any readers to record students' listening materials. Teachers or people in the school just need to scan students' book and change it into type text and the text can easily be converted to speech. There is no human speaker who should peruse and record the content, it implies the instructor or individuals in the school can save time, energy, and cash. Another advantage of using synthetic speech is teachers also can manipulate the sound effect, speaker, language, pause, pronunciation correction, volume, pitch, and the speed through the application. So, the teacher can adjust the listening material that has been created with the ability of the students, Indriani et al.

A study about listening and text to speech done by Sha (2010) shows that several studies related to the use of text to speech in English Foreign Language (EFL) classrooms

indicate that the program could be used to benefit language learning. TTS provides three conditions that make the output possible to be used as listening materials: the appropriate pronunciation model, the communicative expressions that promote natural dialogue, and the practical benefits, Mulyono and Verbriyanti (2016). A study done by an expert showed that 72% of English words can be pronounced correctly by TTS, but unfortunately when good pronunciation criteria are applied, the accuracy becomes lower 25,7% of words are pronounced correctly.

2. METHOD

2.1 Research and Development Model

Research and Development (R&D) is defined as any systematic and creative work undertaken to increase the stock of knowledge, including knowledge of man, culture, and society, and the use of this knowledge to devise new applications, Cororoton (1999). The experts Rayanto and Rusmawan (2020) talked that development research is the research in the form of developing certain products by the needs of today's society. In developing the Module, research and development refer to the Blended Learning-Based Design Model for problem-solving learning process outcomes. The grand steps of research are as follows: (1) Analysis of problem-solving needs, (2) Identification of learning resources and problems in applying to learn based on blended learning, and (3) Identification of student characteristics, (4) Establishing learning objectives, (5) Choosing and, (6) Establishing learning strategies, (7) Trials, (8) Revisions, (9) Learning Prototype Based on Blended Learning.

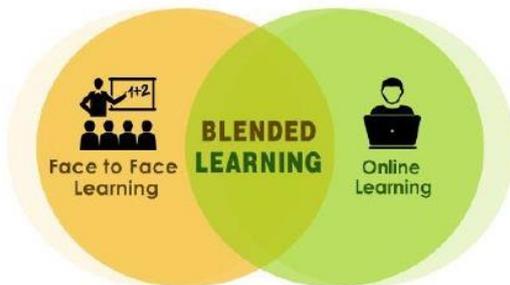


Figure 1. Illustrated of Blended Learning

Source: <http://www.swiftelearningservices.com/blended-learning-solutions/>

Steps 1 until 3 are the analysis stages. Steps 4 to 6 are the design phase. The final steps are 7 through 9 are the evaluation stages. The system above is unquestionably not a standard system that should be done overall. Development research execution systems are not standard advances that should be trailed by norms.

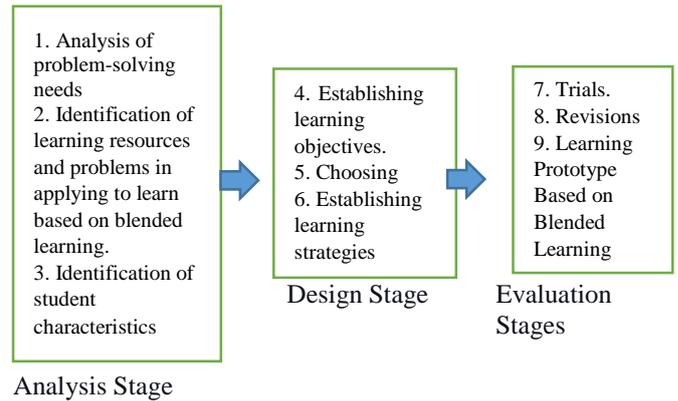


Figure 2. Stage of Research

2.2 Teaching Model

Chinese proverb, “a thousand teachers, a thousand methods”. The teaching method is a systematic way of doing something. It implies an orderly logical arrangement of steps. It is more procedural, Hoque (2017). In another word, the teaching method is all that can be utilized to convey messages or data in the educating and learning measure with the goal that it can invigorate the consideration and interest of students.

As indicated by Creswell (2009), Creswell and Poth (2018) states that the media are all things that can be used to share messages from the sender to the recipient to stimulate the thoughts, feelings, concerns and interests, and attention of students in such a way that the learning process occurs. However, in the development of online-based electronic modules using text to speech (TTS) in the Telegram bot program, there has 9 stages are utilized until developmental assessment.

2.3 Research and Development Steps

In creating the online tools electronic learning media using Telegram bot program. The researcher utilized an applied model in particular a planning model dependent on blended learning for problem-solving learning results. Due to time imperatives so later it doesn't take a huge subject and doesn't arrive at the summative assessment stage.

Such as described above, that this research and development have 9 steps details which consisted as follows; First step about analyzing problem-solving needs that activities such as; (a) dissecting the current conditions, specifically searching for the root issues the should be addressed by students who is the objective of problem-solving learning results; (b) recognize what should be dominated (knowledge, mentalities, and abilities) to take care of issues and follow up to conceivable new issues that should be addressed; (c) recognize the distinction between the goal objective condition expected and the current condition; (d) understanding and identifying the real fact abilities and sources and (e) figure out what are the needs to beat (priority scale) the current issues. The necessities analysis is done by observation, face to face meetings, and surveys. The second step is the analysis of learning resources includes activities analyzing the sources of people and media. The activities include; (a) Identifying of learning assets incorporates the capacity to show staff, other school personnel, tool engineering specialists to foster online learning media, more

offline, and portable both claimed by schools and outside the school, (b) distinguishing proof of learning assets accessible incorporate print, sound, varying media, computer, web, and smartphone to learning as an assets school, (c) distinguishing proof of learning assets at school. There are printed learning assets, sound, varying media, computers, the web, and cell phones that are outside the school. The third stage is talking about the identification of student characteristics, there is also the important thing for understanding or make a reminder to the researcher expected that should be accepted or rejected by the student at the time. The fourth step is the identification of student characteristics that have been distinguished dependent on the past steps, then, at that point organized arranged by the main things. The learning destinations incorporate intellectual, emotional, and psychomotor or incorporate verbal data, scholarly abilities, psychological methodologies, attitudes, and psychomotor. The fifth step is about choosing the learning strategies. It's also about; (a) Content organization; Arranging learning content specifically to depict the means in accomplishing learning goals or all in all portray learning goals into sub-capacities and ability to be accomplished. To portray general learning targets to explicit learning goals, an examination of learning is done. (b) Delivery learning; The conveyance of learning content is a variable segment of the strategy for executing the learning program, at least there are 2 elements of this procedure, specifically: (1) conveying content figuring out how to student, and (2) gives data/materials required by the student to show the performance. The conveyance system incorporates the actual climate, instructors, learning materials, and exercises identified with learning. On the other hand, media is a significant part of learning conveyance procedures. That is the reason learning media is the principal space of investigation of this methodology, (c) The executives' Procedure. This procedure is identified with dynamic about getting sorted out procedures and conveyance methodologies which are utilized during the learning cycle, (1) booking, (2) gaining learning headway notes, (3) overseeing inspiration, and (4) learning control. The sixth step is about establishing learning strategies, that is learning assets to work with learning for understudies on learning in light of mixed learning comprises of face to face disconnected, and on the web (connected). The seventh step is to trial the tools. Assessment is needed as a goal to developmental assessment that plans to improve. In this exploration, developmental, little, and field assessments will be led. The number of subjects in the preliminary stage adjusting the organization of individual tests (at least 5 subjects), little group preliminaries (10-14 Subjects), and huge (field) preliminary 40subjects. The eighth step is about revision after the trials. In light of preliminaries led both master tests furthermore, singular, little gathering, and field tests, the data will be gotten on what parts at each stage of the learning configuration actually should be improved, learning advancement then, at that point improves and is reconfirmed to those who prompt improvement. The last or the ninth step is learning the prototype tools in this case TTS into Telegram bot based on blended learning in the class listening comprehension. After the improvement measure is done and reconfirmed, the consequences of the configuration are models

that can be executed to serve to learn dependent on mixed learning for problem-solving learning results.

2.3.1 Product Preliminary

Product preliminaries are planned to gather the information that is utilized as a reason for deciding the possibility and appeal of the item. In this stage, the proposed ones are the plan of the preliminaries, test subjects, types of information, information assortment instruments, and information examination strategies.

2.3.2 Preliminary Plan

The preliminary plan is to get and close information that can be utilized as a reason for further developing the item more completely. This plan is done in 4 phases, specifically master assessment or evaluation, singular group test, little group test, field test.

The individual preliminary was led on 5 English Department program students. Taking the subject of this examination was driven by the random sampling method. A little group preliminary was led on 14 students from the English Department program. Taking the subject of this investigation was led by random sampling. A huge group preliminary was led on 40 students from English Department. Taking the subject of this investigation was directed by a random sampling method also.

The consequences of preliminary in the individual and little group tests were investigated and afterward utilized as a kind of perspective to reexamine the item improvement of electronic modules for online-based subjects with the TTS in Telegram bot program previously being tried for enormous groups (field). An enormous group preliminary was directed on 40 students from the English department.

The kind of information acquired is comprised of qualitative and quantitative information. Qualitative information was acquired from master/experts audits as exhortation, input, and evaluation assessment. Quantitative information is acquired from the underlying research to decide the necessities of the item or learning media to be created just as from singular test information, little group preliminaries, and huge preliminaries (field test).

The information assortment instruments utilized in the research and development of electronic modules were based online with the TTS in Telegram bot program utilizing a qualitative and quantitative methodology as a survey use questionnaire. This survey is utilized to gather quantitative information from introductory research (need analysis). While to gather information from master/expert assessments in the type such advised, info, suggestion, and reactions about item plans utilizing instruments as surveys for two validators as content specialist and one media learning master. The information examination procedure utilized in the turn of events of online-based electronic modules with the TTS in Telegram bot program and the assessment of specialists for item testing was the rate by the analysis descriptive method.

3. RESULT AND DISCUSSION

3.1 Individual Preliminary

This plan utilized 5 students of English program as a participant by the random sampling method. Over here researcher measures the attractiveness of the product itself, and the result is 5 students give more appreciation for this innovation in learning, and the other had commonly respond.

3.2 Little Group Preliminary Data

Little group preliminary data comprised of 14 students as the subjects, getting information from the parts of attractiveness, the show of material, accommodation, and advantages. Average everything being equal (perspectives) acquired. In this way, the order results were remembered for the legitimate item quality measures with a level of 85.00-95.00%.

3.3 Huge Group Preliminary

The preliminary test comprised of 40 students as the subjects, acquired information from the parts of the attractiveness of the show, form of material, simplicity, and advantages. To discover the attractiveness quality of the showcase 90% outcomes were gotten, parts of the show of the material form got 87.5% outcomes, parts of simplicity acquired 85% outcomes, parts of the advantages got 92.5% outcomes. The average for all models was 88%. In this way, the order results remembered for the item quality measures are exceptionally legitimate with a rate of 87.00-100.00%. It can be clearly by show up the table below.

Table 1. Huge Preliminary results

Attractiveness	Form	Simplicity	Advanteges	Av.
90%	87.5%	85%	92.5%	88%

4. PRODUCT

The results of the developing items are in the type of electronic modules by using text to speech (TTS) in Telegram bot for listening comprehension is 12 module materials. The electronic module is bundled in the structure of intuitive media outfitted with online-based learning with the Telegram bot program. To utilize the Telegram bot program, it very well may be gotten to by installing Telegram application. Then find the name utilized in the Telegram bot is @UnderstandingTalk_UNIWARAbot.



Figure 3. Product result

The bot menus consist of two grands designs. Those are Profile and List of Materials. Profile tab talking about the profile of the learning subject that is listening comprehension. The details of the material itself had written in the explanation menu tab. The second grand menu is a List of Materials. This is the important thing about this module. Over here students will find the 12 materials in the whole semester. Each material consists of the TTS sound as a product of listening and also has the exercise, that the student should work with the sheet togetherness listening to the material. In the submenu of List of Material, there is clear about what is the topic talking about.

The advantages of this module produced are; (1) This turn of events item is handily controlled or worked by the client's desires, (2) Student can control the material sound for delay or fast by themselves in 12 materials. (3) The material of this item can be opened on Android includes by downloading the Telegram program from Play store. (4) This item can be utilized as a learning asset for students who need to learn without time limits and for the overall population who are as yet new to electronic modules based on the online with the program Telegram bot. (5) This product can be utilized in a study hall or outside learning as learning media.

The researcher understands that a quality product needs many factors to build a great product. Many things arose in the field when the researcher was done, this has further upgraded that the product being created. From this way, the researcher expects that this development can be valuable and can be grown further.

5. CONCLUSION

In the wake of executing the development of online-based electronic modules with the TTS in Telegram bot program, it can be concluded that the development can answer the issues brought about by the absence of showing materials utilized, the inventiveness of utilizing on the online innovation with the TTS in Telegram bot program, as advancements in classroom learning as learning media in the 21st century, and help the teacher to work with students who have unique learning attributes and learning speeds, and have the disgrace of stating viewpoints in customary classes. So the teaching personnel can use the learning media as an option in contrast to building blended learning by the qualities and requirements of the learning climate that can be utilized anyplace and whenever.

Electronic Module item with TTS in Telegram bot program is required to be a wellspring of learning. It is conceivable that this item can be utilized by the more extensive local area as an advancement or extra reference in giving media and learning assets. For additional advancement, the further researcher is used an online-based electronic module with TTS in the Telegram bot program in another subject of study such as economic or math.

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