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THE WORLD OF WORD: EDUGAME IN LEARNING ENGLISH VOCABULARY IN THE 21ST CENTURY

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Abstract

Game play is a means that can be used as an entertainment in spare time for most people. But it is better if the games played are educational games. In this 21st century many people lack knowledge of English vocabulary, which is English is an important language just like other language. This study aims to provide a tool of play especially for children in learning English with the speech recognition system. It is expected that children are able to pronounce English vocabulary correctly and know what objects they have said through a game so that they can understand vocabulary and things like what they would say. Therefore, this edugame application is designed by using a combination of English vocabulary knowledge and training on how to speak English vocabulary. The making of this application uses the rational unified process methodology. This application was created using Unity 3D and Speech Recognition. This application is designed to get good results from users through the distribution of questionnaires with the results of 58% of users strongly agree that the help menu used to help users when experiencing difficulties is very easy to understand, 50% of users strongly agree that this edugame application can deepen vocabulary especially nouns English and 55% of users strongly agree that this edugame application fosters an interest in being able to speak English**.**

Keywords: Edugame, Language, English, Vocabulary, 21st Century.

Educational game is a digital game designed for educational enrichment (supporting teaching and learning), using interactive multimedia technology (Sukamto, Saladin, 2020). In the journal Sugianto, in Sutopo (2019) who believes that the multimedia development methodology consists of 6 stages, namely concept, design, material collecting, assembly, testing and distribution.

The system built in this study aims to provide a tool of play especially for children in learning English with the speech recognition system. It is expected that children are able to pronounce English vocabulary correctly and know what objects they have said through a game so that they can understand vocabulary and things like what they would say. The technology used in this study is speech recognition technique. Speech recognition is an automatic voice recognition that works by converting spoken words into text form. This system is one of the alternative means of interaction between humans and machines through voice/audio signals instead of conventional communication tools. The game that will be created using speech recognition techniques will make easier for children to play while learning with the English vocabulary pronunciation method.

From the description above, the author provides a research proposal in the form of an idea

to create a 3D Unity-based game application with a 3D concept as a blend of English vocabulary knowledge and training on how to speak English vocabulary.

Unity is a system software in game development both 2D and 3D games where this software has a very effective rendering engine that is fully integrated with a set of intuitive tools and fast workflows for creating interactive 3D and 2D content.

The advantage of Unity is its ability to control various objects in the game or application easily. The GUI (Graphic User Interface), Audio, Animation, Effect, and Scripting (Programming) features of Unity 3D are the multi-platform features provided by Unity. Game developers can build a game not only on the desktop platform, but also Unity can be used on web platforms, consoles, and mobile devices. For the web platform the Unity WebPlayer plugin is required which can be obtained free of charge. While the disadvantage of Unity is that it requires rather complex adjustments when wanting to develop 2D games without the help of plugins and also needs to adjust according to component based styles.

The programming languages used in the Unity game engine include C #, Javascript, and Boo scripts. However, in making edugame the writer only uses C # programming and Javascript. C # is a programming language that was designed by Microsoft Corp as a programming language that is very efficient, secure (secure), and easy to use as part of the platform. NET, C # programming language is designed in such a way as to work very well on the framework.NET able to be used to write reliable software for fast service

While JavaScript is the most widely used in web programming on the client side today. With JavaScript, a web will come alive, faster, and appear more attractive with an animation.

METHOD

Literature Study

A. Game Engine

Game engine is a software system designed for the manufacture and development of a video game. Game engine provides convenience in creating the concept of a game that will be created. It is starting from the rendering system, physics, sound architecture scripting, A.I, and even networking systems. Game engine can be said as the soul of all aspects of a game.

B. Client Server

Client-server describes the relationship between two computer programs, where one program, the client program, makes a service request to the other program, the server program. Standard network functions such as e-mail, web access and database access, work based on client-server principles. The client-server principle has become one of the central ideas of network computing. Lots of business applications use this model. Similarly, internet application protocols such as HTTP, SMTP, Telnet, DNS. Each client program can send data requests to one or more connected servers. While the server can accept (accept) the request, process it and return the information requested to the client. This concept can be applied to many applications, but still with the same basic architecture.

C. Multiplayer Game

Multiplayer game is a game that can be played together by two players or more than two players so that the players compete with each other. Multiplayer games can be divided into two according to its type namely multiplayer games through servers and multiplayer games with peer to peer.

Peer to Peer

Peer to Peer means that every computer connected to the network can act as a user's computer (workstation) or service provider computer (server). In addition, Peer to Peer is a technology of sharing (sharing) resources and services between one computer and another

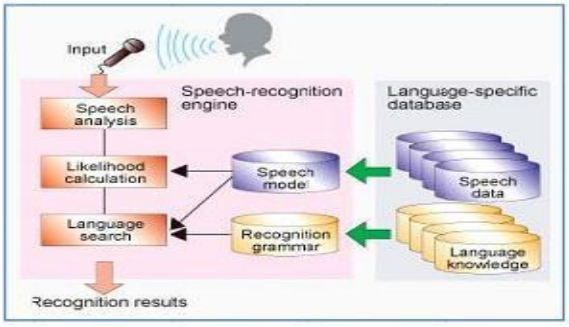
computer. A more precise understanding of peer to peer (p2p) is a client-server computerized system where a computer functions as a client as well as a server, so that it enable for communication and exchange of resources between two computers directly (real time).

Methodology

The methodology that the writer uses in developing edugame is Speech Recognition methodology.

Speech recognition is a process carried out by the computer to identify the voice spoken by someone without regard to the identity of related people. Implementation of speech recognition for example voice commands to run computer applications. The parameter being compared is the level of sound suppression which will then be matched with the available database templates. Speech recognition is one type of biometric recognition, which is a computer process that recognizes what someone is saying through a microphone based on the tone of voice that is converted into digital print. The initial process is to convert sound spectrum data into digital form and convert it in discrete form.

The following are the stages of the Speech recognition methodology:



Source : http://bluewarrior.wordpress.com

Speech Recognition Picture

A. LAN

LAN is a network that is limited by a relatively small area, generally limited by environmental areas such as an office in a building or a school, and it is usually not far from about 1 square km. Local Area Network commonly abbreviated as LAN is a computer network whose network covers only a small area; such as campus, building, office, in-house, school or smaller computer networks. On a LAN, a user can also communicate with other users by using the appropriate application.

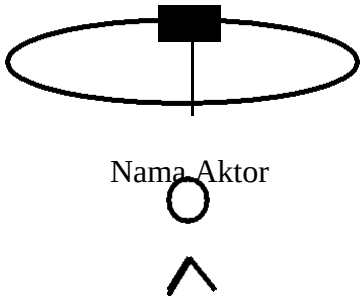
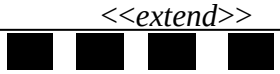
B. UML

UML is a visual language for a model and communication about a system using diagrams and supporting texts. UML aims to specify, describe, build, and documenting the software system.

C. Use Case Diagram (Use Case Diagram)

Use case diagram is a model for the behaviour of the information system that will be created. Use case describes an interaction between one or more actors with the information to be made. The symbols in the use case diagram can be seen in the table below:

Simbols of Use Case Diagram

Syimbol	Description
Use case Nama *Use case*	The functionality provided by the system as units that exchange messages between units or actors, usually stated by using the verb at the beginning phrase use case name.
Aktor / *Actor*  Nama Aktor	Other people, processes, or systems that are interact with information systems that are will be created outside the information system will be made by yourself. Although the symbol of an actor is a picture of a person, but an actor hasn't certainly a person, usually stated use nouns at the beginning of the name phrase actor.
Asosiasi / *Association* 	Communication between actors and use cases participate in use cases or use cases have interactions with actors.
Ekstensi / *Extend* *<<extend>>* 	Relation of additional use cases to a use case where the use case added can be standalone even without use case these additions, similar to the principle inheritance in programming oriented object, usually additional use cases have the same first name as the use case.

Generalisasi / *Generalization*	Relationship of generalization and specialization (general-specific) between two use cases where one function is a function more common than others.
Menggunakan / *include* *<<include>>* 	Relation of additional use cases to a use case where the use case is added need this use case to run function or as a condition to use use this case.

To apply the flipped classroom, four lecturers were involved as collaborators in dealing with English Teaching Media subject. Of the four collaborators, one collaborator was the lecturer teaching the subject constituting of 24 students in class. To record all the activities of students, a number of data collection techniques are deployed, encompassing observation, interview, and the analysis of students' document. The observation was done based upon learning process of students in the classroom as well as in the online classroom. This was done to get some information about the learning processes, both offline and online, and to record the 4Cs. The interview was specifically administered to elicit detailed information about problems encountered during the implementation of the flipped classroom. As for the document analysis, data vis-à-vis the process as well as the 4C realization were collected and then analyzed.

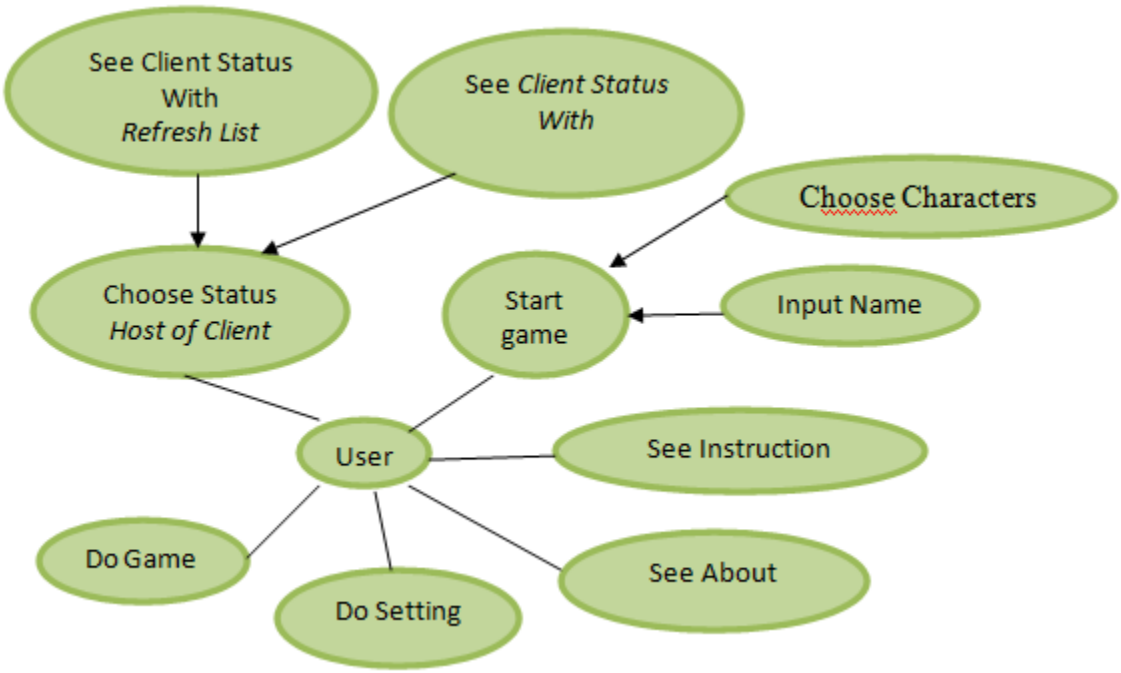
The analysis was done qualitatively by adhering to Interactive Model (Miles, Huberman & Saldaña, 2014). It begins with data condensation, data display and at last conclusion drawing or verification where the data are interpreted. To depict the process of the flipped classroom, the data collected through observation are subject to analyze. The analysis of the data in this study is to result in the depiction of the whole process in each cycle encompassing how materials were prepared for teaching, how students responded to the teaching materials and to the learning activities, how the materials and teaching techniques are altered as the lesson study went on, and how students' learning in the Schoology was. In addition, the analysis of restraints in the initiation of the flipped classroom was in line with the data of interview triangulated with that of the observation so as to provide comprehensive interpretation of the emerging findings. Furthermore, the result of analysis for the data of 4Cs realized by the students is conveyed and presented in relation to students' creativity, critical thinking, communication, and collaboration. The findings are

then interpreted and associated with the existing theories for discussion.

RESULTS AND DISCUSSION

Edugame designed in this research is the world of word, a digital game designed for educational enrichment (supporting teaching and learning), using interactive multimedia technology as explained by (Sukamto, Shalahuddin, 2020). Multimedia development methodology consists of 6 stages, namely concept, design, material collecting, assembly, testing and distribution.

The following is how the edugame system works. The first time you run the application, the user will enter the splash screen. After the splash screen appears, the application will enter the main menu section of the application. After the user selects the Play menu, in the Play menu there is a Join or Host menu option, then displays the Join view or only joins another player's room if he chooses to join and displays the Host menu or creates a room so other players can enter if he chooses the host menu. The next display then the player will be taken to the play area. At the end of the game the application will display the scores or scores from both players. In the analysis of information and meeting the objectives of the game, an image sketch of the needs made in a use case diagram is needed which describes what features the player is able to do in the picture:



Picture of Diagram *Use Case* from game *The World of Word*

In the following figure is the application display that appears when the splash screen display ends.

Figure 3 Main Menu Application The World Of Word

Following this there is Figure 4 which is a display of the playground between the player who makes the room host and the player who joins.

Image of the Game Area in the World of Word Application

Here, there is a picture which is the final display of the game where in this view there is a score between players so that players can see each other's scores between players

Image Value Or Score Of Each Player

The main menu display user can access the options menu that contains sound, graphic, and system settings. In addition, the main menu display users can access the help menu which contains information about how to play The World Of Word Game. The user main menu display can access the about selection menu which contains information about the makers of the game The World Of Word and can access the quit selection menu which contains a choice whether the

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user wants to exit the application or not. The results of making this application are shown in the questionnaire graph in Figure 6, Figure 7 and Figure 8.

Figure 6 is the results of a questionnaire about the question about "what is the help menu used to help users when they encounter difficulties is very easy to understand?" Then the following questionnaire graph explains that the help menu used to help users when encountering difficulties is very easily understood by users.

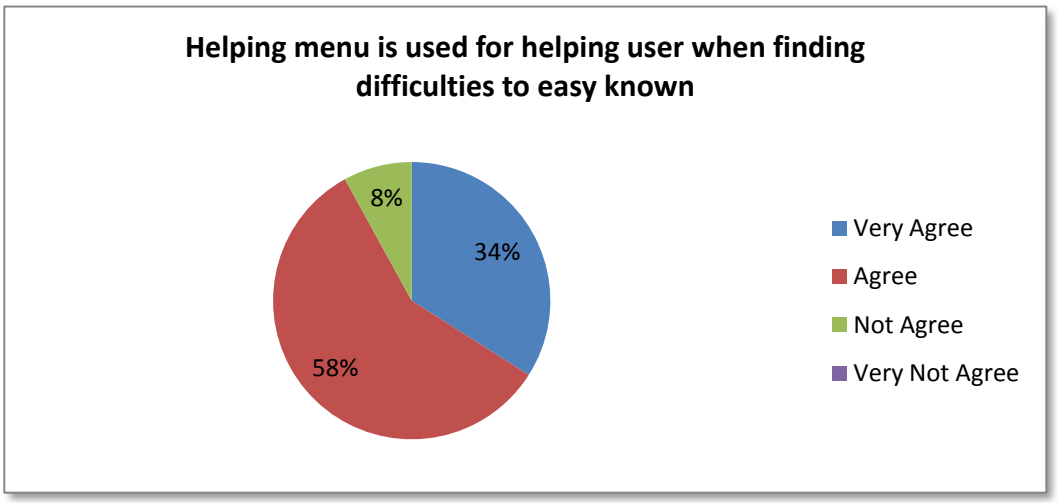

Figure 6. Questionnaire Graph Help Menu Very Easy to Understand

Figure 7 is the result of a questionnaire from the question of can this edugame application deepen vocabulary especially English nouns? Then the following questionnaire chart explains that the application of this edugame is able to deepen vocabulary especially English nouns.

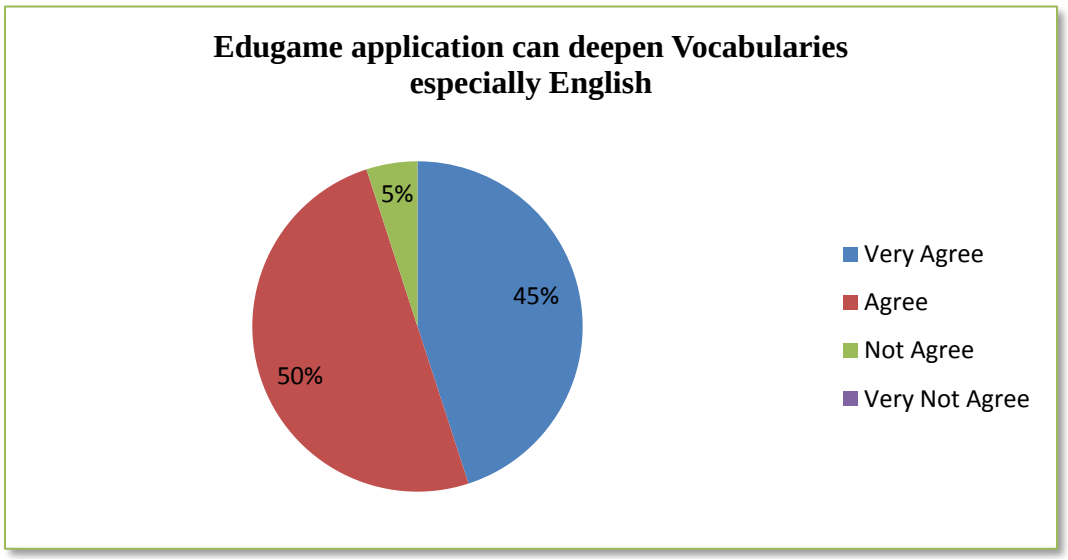

Figure 7 Edugame Application Questionnaire Graph Can Deepen English Vocabulary Objects.

Figure 8 is the results of the questionnaire from the question: does this edugame application foster interest in players to be able to speak English? Then the following questionnaire chart explains that this edugame application can foster the interest of players to be able to speak English well.

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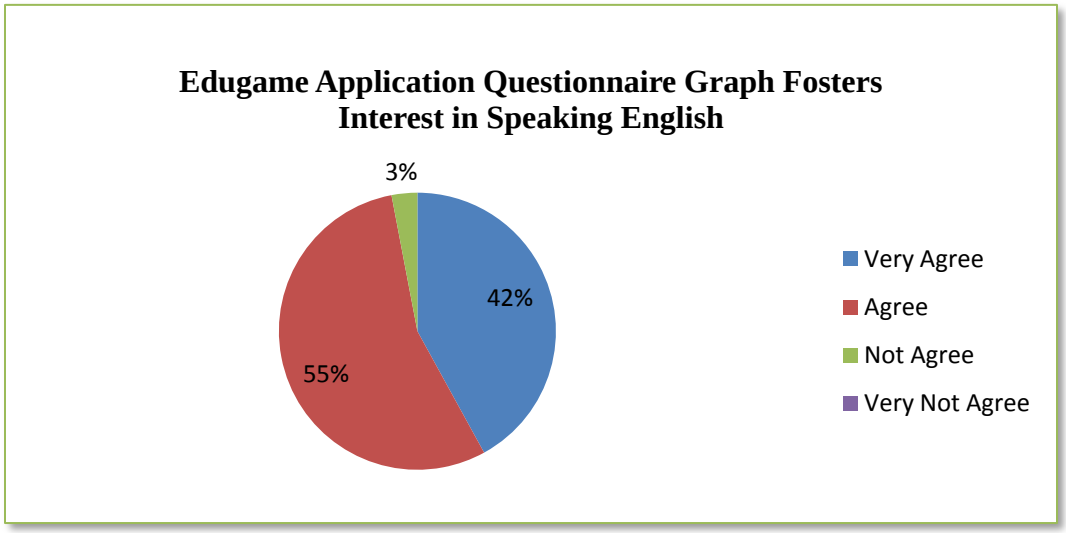

Figure 8 Edugame Application Questionnaire Graph Fosters Interest in Speaking English.

CONCLUSION

Conclusions can be drawn from the work of this research based on the results of the process of development and implementation, namely from the results of tests that have been carried out both with the white box method and with the questionnaire, the conclusion of making this application is to provide a place for positive play facilities especially children in deepening learning Interesting English vocabulary and interesting sound features and shapes in edugame make this application more mature for children to use. This application is designed to get good results from users through the distribution of questionnaires with the results of 58% of users strongly agree that the help menu used to help users when experiencing difficulties is very easy to understand, 50% of users strongly agree that this edugame application can deepen vocabulary especially nouns English and 55% of users strongly agree that this edugame application fosters an interest in being able to speak English.

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