ENHANCING STUDENTS' ENGLISH SPEAKING ABILITY THROUGH VRCHAT GAME AS LEARNING MEDIA

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Abstract

Era 5.0 or Society 5.0 is a human-centered technology-based era that aims to create convenient and efficient living circumstances and provide further innovation in the life sustainability area. Era 5.0 is visualized as capable of creating a multinational society, whether in business, social, or educational environments. Thus, English should be noted as a crucial matter needed in communicating and taking part in living within era 5.0 in the future. The current research was conducted because of the limited exploration in the previous study that discusses the online game VRChat as a learning medium to enhance students' English speaking ability. Therefore, this paper aims to fill the gap by investigating and exposing the VRChat game's value as a learning medium to improve students' ability to speak English. Mixed method research was applied in the current study to analyze and ensure the VRChat game's advantages for enhancing students' speaking ability. Moreover, interviews and testing were used as the instrument in this research. A random sampling of four students who have done taking the FLSP (Foreign Learning for Specific Purposes) course as the current study's subject. Additionally, the analysis was done using descriptive statistics and hierarchical charts using Nvivo 12 plus. This study showed the use of VRChat games as a learning medium increased students' ability to speak English, specifically their accuracy and fluency. This research implies that the VRChat game can support English teaching as the learning media, especially in speaking subjects.

Keywords: Speaking Ability, VRChat, Learning Media

INTRODUCTION

The rapid growth in technology development has an enormous influence on living aspects. It is portrayed from the people's attachment to their gadgets or other technology to assist their daily necessities. Although the technology has been rapidly developed, its utilization in several fields is still inadequately able to create a convenient and efficient life. The implementation of Industry 4.0 is slowly developed in Indonesia in the past years. It is a form of empowerment to achieve sustainable development goals and build an efficient and convenient life in all living aspects in the future. Thus, the educational sector is one of the living aspects that will be influenced by technology empowerment to reach sustainable development goals.

The empowerment of industry 4.0 in the globally developed world has created a new term in the collaboration of technology on community life called era 5.0 or society 5.0. With a different basis from industry 4.0, which uses the smart industry concept, society 5.0 had a principle of integration between humans and technology. Demir, Döven, and Sezen (2019) explain that society 5.0 possibly creates a human-robot-coworking relationship with humans as the center of achieving the industrial objective and creative fields and robots to assist the work that is impossible to be done by humans. Therefore, the idea of collaboration between humans and technology by society 5.0 can take form in daily robot use, just like how smartphones are used as a necessity nowadays. On the other hand, with the evolution of technology apart from the robot existence, Virtual Reality (VR) and Artificial Intelligence (AI) will continuously be developed and advanced to sustain a more efficient and sustainable life. Therefore, technological advances in era 5.0 are potentially able to create better learning media and learning models to achieve the utmost learning goals and offer an effective learning process.

The technology implementation in Indonesia's English learning is considered insufficient because the teacher majority remains highly dependent on textbooks. That issue occurs to lead the students to have understanding skills but lacking in using the language. Adjusting advanced technology as learning media in English classrooms will improve students' interest in learning the language and enhance their skills in using the language. One example of advanced technology that can be used as learning media is Virtual Reality (VR). The use of VR as learning media can create a new atmosphere in the classroom with its advantage to provide stimulation of real-life resemblance. Chittaro and Ranon in Reitz et al. (2016) describe the feature of a multi-user VR environment that allows the students to feel a different learning experience and offers a convenient and low-risk facility and reduces the budget, time, and distance costs that cannot be obtained in real-life.

From the described problem above, the researchers explain the idea of using the VRChat game as a supporting medium to improve students' English skills. It is expected that this notion would improve students' interest in using English in an academic environment and socially. Thus, the research problems are formulated as follows: (1) Can VRChat games improve students' ability to speak English? (2) How is the VRChat game implemented in English learning at the university level? (3) What are the advantages of using the VRChat game in English learning for students?

Literature review
Virtual Reality Definition
Virtual Reality or VR is a technology that creates a virtual environment from the real world with technology support to merge the user's reality into the virtual world (Călin, 2018). "Virtual reality can be described as a multi-sensory, highly interactive computer environment that makes the user believe they are experiencing a situation, although, in reality, they are looking at an artificial environment" (Gigan, 1993 in Daghestani, 2013), asserts, the experience in the virtual itself is a semi-real exposure that the users can feel. This technology already gives evidence of advantages of its use, where doctors could practice their ability in surgery which improves their skills and accuracy in their work. This technology is also widely used in various existing fields. The concept of VR itself was realized even before Jaron Lanier described it as Virtual Reality in 1987 (Alfadil, 2017). Virtual Reality in an education environment provides interactive learning that offers the stimulus of an environment that resembles the shape and circumstances of real life, allowing the students to learn something through working in a virtual environment. VR technology allows users to explore various places without leaving their homes freely (Thilagavany, Veeramani & Ramakrishna, 2019) as well as experience to find new abilities and improvement from learning through harmless mistakes (Jensen dan Konradsen, 2017; Cheng, Yang & Andersen, 2017). VR development is also carried out to facilitate users with disabilities and special to expose them to an equivalent experience to people in general (Chuah et al., 2018).

Virtual Reality in the Education field
The implementation of Virtual Reality as learning media has opened the gap in providing authentic learning progress to make the students achieve effective and efficient learning. The development of learning media using VR has been applied not only in health education (Jense & Konradsen, 2017) but is also used in language learning (Xie et al., 2018; Cheng et al., 2017; Chuah et al., 2018; Nersesian et al., 2018). Huang et al. (2018) state that virtual reality provides an authentic representation of an abstract concept and facilitates teachers to attract students' attention to focus on learning easily. Thus, VR technology as a learning medium contributes to increasing students' interest in learning and makes the students more enthusiastic in the classroom.

One instance of virtual reality development that is used as an entertainment means is VRChat. VRChat is a multiplayer online virtual reality game that is released in February 2017 by Vrchat inc. This game provides visual characters and a virtual environment for the users to create or explore the surroundings to allow the worldwide player to interact and communicate verbally (Nugroho, 2018). The user can play the VRChat game with or without equipment that requires the player to use a VR headset so the aim for the game creation can be achieved, which is a venue to communicate for the player across the nation.

RESEARCH METHOD
Research Design
This study applies mixed quantitative and qualitative research to gather the data from two sides to answer the problem in this study. The quantitative approach is used to find the first problem that discusses the improvement of students' ability to speak English by gathering the result of CAF (Complexity, Accuracy, Fluency) from the collected data. Furthermore, a qualitative approach is used to find the answer regarding the game implementation and the advantages for students through an interview.
Research Participant

The data collected for the current study involve University of Muhammadiyah students with different majors who had taken FLSP (Foreign Language for Specific Purposes) courses as the participant. Four people were taken as the study participants consisted of two men and two women with an age range of 18 to 21 years.

Data Collection
Testing

The data were collected by giving assignments to the participants using the VRChat game with instructions from the researcher regarding their tasks while using the game. The data is gathered within three consecutive days of the test and carried out for 10 minutes in each meeting in a day. The participants were given different activities using the VRChat game, and they would be recorded while they are using the game. The activity began to adjust and let the participant communicate with the users on the VRChat game on the first day and then communicate with the game users intensely on the second and third days. Henceforth, this study took the recording result from the first and third day of testing to analyze and find fluctuation of CAF aspects when the students speak English through the VRChat game. The participants' CAF aspects were investigated and analyzed to discover its change by applying the CAF rubric score as the testing instrument.

Interview

An interview was used as the second technique for data collecting in this study. The interview was carried out to investigate the implementation and advantages of the VRChat game that could enhance students' English skills. Data collection for the interview is conducted after the result of the CAF for the testing recording was obtained.

Data Collection Procedure

Several steps were carried out to arrange the set of research data and facilitate the process of gathering the data for this study. The procedures are listed as follows.
1. Preparing the scoring rubric and interview guide, then consulting to supervisor before collecting the data.
2. Giving the test using VRChat to the participant
3. Transcribing the video recording result when participants use the VRChat game.
4. Conducting an Interview
5. Transcribing the result from the interview recording

By conducting the research according to arranged procedures, the data collection will be organized appropriately. Furthermore, to discover the research result, the data found will be carefully calculated and analyzed with suitable data analysis techniques.

Data Analysis
Testing Records

The transcription result from testing records using the game was used as the first technique for the research. Eight transcriptions were taken from four participants and only two video recordings from three meetings were chosen to be analyzed. Furthermore, the recordings in the study then explore the students' CAF aspects quality using the CAF formula in speaking from experts as follows.

1. *Complexity*: Calculating the number of dependent clauses per utterance or the number of dependent clauses that are related to the independent clause (Foster & Skehan, 1996).

2. *Accuracy*: Calculating the percentage of error-free clauses (in terms of syntax, morphology, and structure) with total clauses (Foster & Skehan, 1996).

$$\frac{Total\ error-free\ clause}{total\ clause}\ x\ 100$$

3. *Fluency*: Calculating the number of syllables per minute without word repetitions and hesitation in pronunciation (Ortega, 1999).

The calculation for the transcription in this study was applying a manual calculation using the principle above. The table of analysis results can be seen in the table below.

Table 1. Manual Calculation from the CAF video recording results

NO	NAME	C		A		F		INCREASE/DECREASE		
		T1	T3	T1	T3	T1	T3	C	A	F
1	A									
2	B									
3	C									
4	D									
	Mean									

Henceforth, the mean results of CAF data manually calculated will be analyzed statistically descriptive to cope with the shortage of participants. The results were then analyzed to discover the increase and decrease of the first and third test outcomes after the mean results were found.

Interview Transcription
This study also applies an interview as another technique for the research. Data obtained from the interview will then be recorded and transcribed to facilitate analyzing the data. Moreover, the analyzed results from the transcription are then divided into categories that specify the benefit and challenges for the students.

FINDINGS AND DISCUSSION
This study aims to discover the use of the VRChat game as a learning medium that could enhance students' ability in speaking English.

Analysis of the result from testing students' English ability
Statistical analysis was employed through three testing sessions; the first session, second session, and third session to find the aspects that happen to increase or decrease in using VRChat games as English learning media and answer the first problem in this study.

Table 2. summary of the result from the test of students' speaking ability

NO	NAME	C		A		F		INCREASE/DECREASE		
		T1	T3	T1	T3	T1	T3	C	A	F
1	Z	3	4	84.6 %	85.7%	4	0	1	1.1	4
2	F	0	0	73.6%	75%	4	0	0	1.4	0
3	R	0	0	87.5%	100%	0	0	0	12.5	0
4	L	1	0	85%	93.7%	0	0	1	8.7	2
	Mean	1	1	81.9%	88.6%	2	0	0.5	1.6	1.5

According to the results of the data above, it was found that the average of each student's CAF aspect in the first attempt shows the result of a total of 1 in the complexity aspect, 81,9% for accuracy, and 2 for fluency. The result of the third testing has given growth and reduction on the mean of the three aspects, especially on accuracy aspects have increased by 88,6%, and fluency which shows a decrease in results from 2 to 0 following the complexity aspects that did not leads to any changes between the first the third test that had been carried out. Thus, the result shows an alleviation peak for the fluency aspects, representing an improvement in students' English skills.

The fluency aspects of this test concern students' word repetitions and hesitation when speaking English on interacting with another player in the VRChat game. The outcome showed from the result of Participants Z and F, who scored 4 for coping with hesitation and word repetition in the first test for speaking through the VRChat game and appear to reduce the score to 0 in the third test, which indicates an enhancement in participants' English ability. According to the result found, it happens because the participants are still adapting to the environment on the VRChat game, which leads them to hesitate to start a conversation. Therefore, the average summary of the aspects that influence students' fluency outcome at the first meeting is about self-confidence in talking to people they do not know for the first time. Furthermore, the test also measures their grammar level to test the students' accuracy when speaking English. This aspect promotes development for the students when they communicate with VRChat players. It is shown from the increasing number of result between the first test with a total of 81.9% and the third test with 88.6%.

The improvement in students' accuracy possibly occurs from the VRChat surroundings influence. The environment provided by VRChat supplies the students with implicit spaces which build their awareness to understand their mistakes in the grammar and make a correction because VRChat possesses various players from different countries such as English-speaking countries like America or Australia or even players from non-English speaking countries like Japan or Korea which unconsciously make the student acquire the knowledge to build correct grammar by learning from what they hear when they are speaking with other players on VRChat. Additionally, complexity is the last aspect to be analyzed in this research. The analysis was carried out to measure complex language levels in students' speech when they speak English. This aspect shows that the first and third testing results remain unaltered with a total amount of 1. The conversation flow influenced the absence of the value change on the complexity aspect results when using VRChat. In the interaction progress with VRChat players, the participants were not focused on certain rules to avoid the resemblance to classroom conditions but rather open to let the participants talk to the VRChat player, so the conversation done in the testing arranged a short talk such as introducing themselves and looking for friends who share the same interest.

Considering the result of the CAF aspects analyzed, it shows that the VRChat game highly influences the students in terms of accuracy with a total value of 1.6 and fluency of 1.5. From these results, VRChat provides the students with an experience to learn language structure directly when interacting with players who have various nationality backgrounds. The students were able to learn and be aware of their mistakes by observing and listening to someone who speaks English fluently to achieve direct exposure to learning English. Moreover, the increase in students' fluency aspects occurs because the VRChat players were communicative and interactive also, the avatar preferences that the users can choose depending on their taste, whether it is a cartoon character, animals, or famous actors, so the students do not have to worry about their appearance but focus on communicating using English with VRChat players (Figure 1).

Figure 1. One of the players interacts and waves at the participant

The results of this study have shown that VRChat is effective in improving participants' accuracy. This finding is congruent to Saputro, Tafsirudin, and Farah (2020) who found that the use of technology in this case Vlog has improved students' accuracy rather than fluency and complexity. In contrast, this finding is different from Hsu (2015) who reveals that research participants' oral production is increased in terms of complexity as there is a greater mean length of AS-unit and clause compared to the other two aspects of accuracy and fluency. In a similar vein, Sun (2012) found that voice blogging is also effective in encouraging students to focus on meaning expression instead of accuracy. In addition, Hsu (2015) said that complexity reaches its highest aspect as it is predicted that speaking practice through voice blog weekly has created more opportunities for learners to exercise their L2 linguistic competencies. All in all, the use of technology and project-based work are effective to improve students' oral production. As Hashemifardnia et al (2021) have confirmed that the use of flipped classrooms is effective in improving EFL learners' speaking complexity, accuracy, and fluency (CAF). Also, the use of Massive Online (MOOC) instruction is found to highly develop Iranian EFL learners' speaking CAF. Furthermore, Spring's (2020) finding has explained to us how video-project work can affect students' oral proficiency, mainly improving EFL learners' accuracy and complexity.

Interview Result Analysis

The interview with 4 participants was conducted after the speaking activities in the three testing sessions had been carried out to collect the benefits and challenges of using VRChat as a medium for learning English. Henceforth, the participants describe their experience when using the VRChat game. The interview recordings were then transcribed and analyzed using NVivo 12 software with a hierarchical chart feature to determine the data distribution about the benefits and difficulties felt when using the game. The data results explain that four participants experience the benefits more than the difficulties when using the VRChat game. The advantages that students obtained are social benefits, fun learning, self-confidence, real-life practice, fluency, and listening skills. On the other hand, the participant also experiences several difficulties concerning technical issues, language use, time, price, and finding players. The details of the data are distributed as follows.
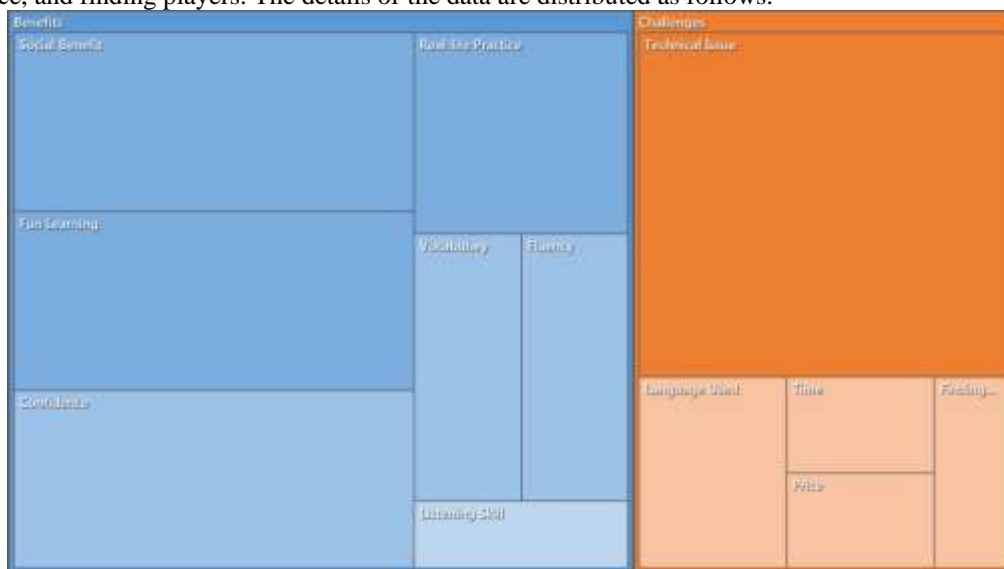

Figure 2. Hierarchy chart of the Benefits and Difficulties of Using VRChat

Perceived Benefits
The perceived benefits are described in the following excerpt:

"Other than practicing my speaking skill, I can know players from other countries, mainly the language they used. I reckon that they used different variety of English. So, it is interesting one". (Participant 1)

"I feel relaxed as I can speak English in virtual space so that I am willing to speak English freely without having any burden. I have more fluency as I can express anything comes up to my mind." (Participant 2)

"In the game, I can have real practice with other players so there is no more excuse for me to find no partner in speaking that normally I do is speaking to the mirror. The game can be an alternative way to communicate with people". (Participant 3)

"It is interesting to use the game in speaking, no more boredome in learning. It is really fun". (Participant 4)

Perceived Challenges
The challenges of playing the game are described as follows.

"It was problematic at first when I operated the laptop and cursor. Importantly, I was not that familiar on how to play the game at the beginning. I think it was more about technical issue." (Participant 1)

"When I started the game, it was time-consuming to find players who speak good English. Some of players were speaking their own languages which are not English". (Participant 3)

"Using this game is fun, but if it is implemented in the learning, it can be pricey as the tool itself is expensive". (Participant 2)

"The players are sometimes too expressive, so that the language they used are informal. If it is used in the learning, I think teachers should take this issue into a real concern". (Participant 4)

CONCLUSION
The use of the VRChat game encourages the students to speak English. Using the game as a learning medium in English learning can build students' interest in speaking English. On the other hand, students' abilities in fluency and grammar understanding also improved since the game offers actual exposure to communities that communicate using English, encouraging students to try interacting with other players in the virtual environment. This game also builds awareness of cultural diversity so the students can learn not only the language but also the cultural aspects of each player on VRChat. With numerous advantages that had been known as a medium that could enhance English language skills, VRChat also inevitably had several things that made the students perceive

difficulties while using the game. They asserted that technical issues, time, cost, and looking for a player to communicate were the problem that hinders the game implementation in the classroom. Therefore, it is suggested that the employment of the VRChat game as a medium for English learning is still considered imperfect. Further research on the use of VRChat needs to be done with a different concept so that studies in the implementation of this game could achieve its peak outcome.

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