Developing Virtual Reality for English Presentation and Negotiation Skills Training Model

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Abstract. This study is based on a previous study conducted by the researcher in 2020 on 478 actors of Small and Medium Enterprises (SMEs) who joined UMKM Juara and UMKM Binaan Rumah BUMN Bandung communities in West Java, Indonesia. The results of the prior study indicate that the awareness of the importance of mastering English is extremely high among SMEs actors (98%) Their desire to learn English is equally strong (98.4%), and this coincides with the significant interest of SMEs actors in becoming exporters (92.8%). During the development of the English skill six-month training in 2021, a new issue arose. It was revealed that the SMEs actors had a strong desire to gain direct experience in practicing English with native speakers in a more realistic setting for conducting global business, which was deemed unlikely due to the Covid-19 epidemic. Yet, using virtual reality technology, this research conducted the training to improve the SMEs actors' English proficiency, focusing on presentation and negotiation skills. The utilization of virtual reality technology in the training of English skill enhancement was anticipated to provide SMEs actors with an experience that was as close as possible to the actual conditions of conducting global business, thereby encouraging them to be more confident in entering the export market and contributing to the national economic recovery. This article is a conceptual paper in which the research's concept and innovation might be expanded.

Keywords: English · virtual reality · presentation · negotiation · SMES Actors

1 Background to Study

Numerous studies have been conducted to find an effective method and model to enhance English skill as a foreign language. The emergence of Information Communication Technology (ICT) has contributed significantly to language education in innovation area. One of the implementations of ICT widely used in language education is the usage of Virtual Reality technology which enables real time graphic interactions with a 3-dimensional model and screen technology that can give immersive (as if in real life) impression to the users [1]. Virtual reality enables users to simulate real world into 3-dimensional simulation system and facilitates users' interactions with the model due

H. Nuriman et al. (Eds.): CODH 2022, ASSEHR 712, pp. 133–148, 2022.
https://doi.org/10.2991/978-2-494069-69-5_13

to motion tracker and ability to act with the product in real time [2]. In today's era of technological developments, there are two technology media that become the newest innovation which are Virtual Reality (VR) and Augmented Reality (AR). Augmented Reality and Virtual Reality as the example of the most advanced technology have an impact towards direct perception because these medias have the power to merge one's perception of real space and virtual reality [3].

There is a significant increase in the interest of virtual reality usage to enhance language skill, escalate cultural awareness, and develop communicative competence since the early of two thousand [4–6]). This kind of platform often focuses on the teaching of diverse cultural point towards the students [7], promotes grammar and vocabulary mastery [8], and supports real time communication to fulfill a quest [9]. [10] described virtual reality as the aiding tools for learning in the 21st century. This is in accordance with the enormous potential of virtual reality technology in securing the cognitive, psychomotor, and effective skills as stated by [11]. Other researchers have also found similar view on the potential of virtual reality technology, particularly in providing students to gain easier access to information and knowledge and to later implement them into real life circumstances [12–14]).

The application of virtual reality technology in language learning is often conducted in formal education in school which aims to increase the student's interest and motivation in language learning and as a form of innovation in learning technology. However, this has yet been implemented in informal learning such as the usage of virtual reality for training English to SMEs actors. There are also only limited studies conducted to increase English skills of those SMEs actors using virtual reality technology. Based on previous research, SMEs in Rumah BUMN Bandung as the respondents of the research show a high interest in following English business training that closely resembles international businesses in real life as well as direct interactions with business actors who are native speakers. Nevertheless, with limitations to face-to-face interactions during the pandemic, this ideal condition has yet to be realized.

Virtual reality is a technology that can make the user interact with cyberspace environment simulated by the computer, thus the user could feel as if they really exist in the simulated situation [10]. Based on that, the request of SMEs actors to be provided English for business training which resembles real life situation can be realized. SMEs actors as participants in the English skill enhancement training will directly engage in the learning process, hence virtual reality fits for use in the classroom. The application of virtual reality technology requires the use of glasses-like tools called Virtual Reality Glass which enables the user to see the virtual environment. Based on the above explanation, a question emerges on how to build English for business learning application for SMEs actors that is currently being encouraged by the Indonesian government to Go Global.

This study has limited its problems in the application making as follows.

1. The usage of audio-visual media in representing product and negotiating in English.
2. Theoretical learning in getting to know the structure of product presentation and negotiating in English.
3. Target users are SMEs actors.

4. A 3D asset is not used in this VR interactive, because the scene would be recorded using 360° camera where all the objects on the scene are real.

Based on the above problems, the goals of this research are that 1) the interactive VR application be able to help SMEs actors in presenting and negotiating their products with potential investors in English and 2) that interactive VR application can help SMEs actors in communicating with their customers in good and proper English.

1.1 Problem Solving Method

In the following are methods used to solve the problem in this research:

Needs Analysis
Need analysis is used to maintain communications with related SMEs institutions using the system that will be needed in the presentation and negotiation skills training in front of potential investors or customers, preparing the materials as well as references in the form of theory to support the training.

Literature Review
Literature review is conducted for gathering references related to the topic of this research such as the condition of SMEs actors during the Covid-19 pandemic, interviewing SMEs institutions to obtain information on problems the SMEs actors face, figuring out how far their experience and knowledge about technology as well as its usage to develop their business. Moreover, learning and comprehending materials related with the topic of this research such as the application of Unity and 360° Camera.

Application Plan and Design
Designing an interactive Virtual Reality application is based on the needs analysis and literature review that have been conducted prior. In this phase, selecting and deciding features to be implemented and designing the application appearance is conducted.

Application Creation
In this phase, the team will prepare audio reference and visual making by using Unity software to support the training and as a companion for the training participant during presentation and negotiation. This training is also supported by 360° Camera as a media to use the Virtual Reality for SMEs actors in representing as well as negotiating with potential investors, customers, or audience. This camera is also used as a visualization to simulate the actors in exercising their presentation and negotiation skill in front of the audience (potential investors or customers).

Application Testing
Testing is conducted in this phase to evaluate the application for its potential flaws, to make sure that this interaction Virtual Reality application can run smoothly and as expected. There are two steps for the testing phase, first is done by the application developer, and second is done by the partner and other users.

1.2 Small and Medium-Sized Enterprises (SMEs)

SMEs stands for small and medium-sized enterprises. SMEs consists of three sizes of business: micro, small, and medium. Below is the definition for each one according to the law.

Micro Business
Micro Business is a productive business owns by individual and/individual business entity which satisfy the criteria of Micro Business arranged in the law. Asset criteria: Maximum of fifty million, Revenue criteria: Maximum of three hundred million Rupiah.

Small Business
Small business is a productive economic business that stands alone and runs by individual or any entity which is not a subsidiary or branch company owned by, managed by, or is a part of both directly and indirectly, the middle-sized or big businesses that satisfy the criteria for Small Business as arranged in the law. Asset criteria: 50 – five hundred million, Revenue criteria: 300 - 2,5 billion rupiah.

Medium-Sized Business
Medium-sized business is an independent productive economic business owns by an individual or any entity that is not a subsidiary or branch company owned by, managed by, or is a part both directly and indirectly, whether with small business or big business which has total net worth or annual sales as arranged in the law. The criteria for the assets: five hundred millions – ten billions, revenue: over 2,5 billions – fifty billions rupiah (UU Number 20 Year 2008) [15].

2 Literature Review

The problem in marketing is not only figuring out how to get a chance, but also how to increase and get a change to market and earn more profit. Business actors also need to have skills in delivering presentation to create opportunity as well as to develop the marketing for their product and service.

2.1 Presentation and Negotiation Skills

Business actors need to be skillful and competent in presenting their product or service to the consumers or potential investors, they are expected to be more active in taking business opportunity that can help them develop their business and become successful. Duarte in [15] explained that the success of any business is hugely supported by business presentation skill, meaning that it is very urgent in doing business [16].

Business presentation needs to be done with thorough preparation to achieve the goal of doing it. There are preparation stages prior to performing business presentations, as follows.

a. Mastering the material for the topic or the material that will be presented. One of the most important aspect of a presentation in mastering the material. If the presenter does not master the material that will be presented, it will surely obstruct the delivery of the message towards the audience and will give a bad image for the presenter.

b. Mastering any helping devices that will be used during the presentation. Helping device used in the presentation will also determine the success of it. By using several helping devices, the presenter will gain easier way to achieve the expected goal of doing the presentation.
c. Analyzing the Audience. A presenter needs to know who the audiences are. To get to know them, a presenter needs to do an analysis related to whom they will be speaking. Knowing the audience will make it easier to deliver the presentation.
d. Analyzing several environment and locations for a place to deliver the presentation. Knowledge of a certain environment or location for business presentation will make it easier for the presenter in setting the supporting devices appropriate with the tone of the location.

Other elements need to be prepared for a good delivery of business presentations that can support business doers to achieve their expected goal as follow.

a. Audience Identification. It is important to note that identifying audience is urgent in doing business presentation. The audience can come from those who are managers, head of the department, supervisors, or even company staff. A presenter needs to anticipate what is being expected by the audience and what the solution is. Delivering business presentation will become easier for the presenter if they understand the audience properly.
b. Prepare main ideas. A presenter needs to prepare important and key points as to what they are going to deliver in the presentation.
c. Write the full text. Preparing a full and complete text will boost a presenter's confidence, but the way they will deliver the text is what needs to be paid attention to.
d. Make a summary into sub-topics. A summary must include important points that needs to be delivered and can be developed into several sub-topics.
e. Write notes in a small piece of paper. One of the way to prepare a business presentation is by writing down key points into a postcard-sized paper [15].

Negotiation is an art of speaking than can be learned. There are books about how to negotiate properly in bookstores. Those books can be used as a reference to learn how to negotiate effectively. Business negotiation skill is an important skill to master, especially as an attempt to win all the proposal in business project. Whenever a person is face to face with a client to talk about business, one needs to have a negotiating skill. There are a lot of things that might be discussed concerning project specification that the client wants, including the price of the project. As mentioned earlier, a proposal has to offer a solution where everyone benefits, and so does the negotiation.

One of the goals of negotiators is to decide or an agreement that would benefit both sides of the parties justly. To achieve this, below are several aspects to consider:

a. A thorough preparation.
b. A clear presentation and evaluation on the position of both sides of the parties.
c. Skills, experience, motivation, and an open mind.
d. A logical approach to create and maintain good, mutual, and respectful relationship.

e. The willingness to make a concession to achieve agreement through a compromise if facing a dead end.

There are important aspects needed in the negotiation skill, which are.

1. Preparation. A good preparation is one of the key to a successful negotiation. Without it, the result gained through the negotiation process would not satisfy both sides of the parties or even fails and ends up disappointing both parties.
2. Starting the Negotiation. There are a few important things that needs to be taken into consideration while starting a negotiation, some of which are: choosing a proper timing, setting the proper seating position, creating a positive and comfortable environment, setting the agenda, formulating offering/opening position, facing conflict, effective speaking skill, enhancing listening skill, warning, making a decision faster.
3. Technique and Strategy. According to Webster dictionary, strategy can be defined as a thorough plan or method or clever trick. While tactic refers more to every method used to achieve the goal, which is to meet an agreement in a negotiation. Both strategy and tactic require a certain skill in negotiation. A successful negotiation is not only the product of a good planning and preparation, but also a good implementation of a strategy and tactic.
4. Compromise. As explained before, that negotiation process involves two sides of the parties. Compromise is one of the ways to achieve mutual agreement for both sides in a negotiation. To compromise, a negotiator will first provide with a basic framework or the outline, then move forward to differences between two parties more specifically, and at last serve statement which contains appraisal to support each position.
5. Tactical Mistake Avoidance. To have a successful negotiation, there are several things that need to be avoided in the process, some of which are: proposing illogical initial request (high demand for seller and low demand for buyer), making a free concession, starting without making an offer list, negotiating too fast, negotiating while being surprised, putting a nonsense price to an offer, afraid to keep quiet, getting angry, not taking notes of the negotiation result, negotiating while feeling tired, disappointing your boss, and forcing a negotiation [17].

2.2 Unity Engine

Unity engine in a game engine that has been growing since its first developed in 2004. This engine is one of source proprietary licensed game engines, however there are two parts of developer license, which are free and paid in accordance with the device aimed in developing the application. Unity does not limit the publication of the application; users of free licensed Unity can publish application built without have to pay for the license to Unity. But using the free version is limited to certain features that is deducted or the omission of certain prefabricated which only available for paid users [18, 19].

2.2.1 Similar Application

Below are some of applications that are similar to the one being used for this research.

Virtual Speech
Virtual Speech is a virtual reality (VR) based application that is used to hold or even train the user in public speaking. There are several kind of programs offered such as interview, meeting room, conference room, and so on.

- Link to the application: https://virtualspeech.com/
- Link to watch the demo video:
- https://www.youtube.com/watch?v=D0idx8Ou1YA&t=256s

The advantages of the application are as follows.

a. Has several features and choices to creating virtual speech.
b. Owns users' performance analysis that shows the result after the user is done presenting.
c. Able to add PowerPoint or slides during presentation using the application.
d. Has notes to help the user to deliver the presentation.
e. Possesses audio distraction (if the user activates the feature), in which the user will be able to hear how the reaction or situation of the audience for ten minutes.
f. Has custom questions and branched questions to train and figure out questions that will be asked by the audience or the other party even when the questions are branched.

The shortcoming of the application is that it does not include features for audience's reactions during the presentation and questions being asked by the audience to the presenter.

Ovation
This virtual reality (VR) based application is an app to train its user's skill and ability to present a project, work report, etc. using virtual reality which intends to help the user in training and building their confidence to deliver a presentation.

The advantages of the application Ovation include the following.

a. It can show PowerPoint or slide to support the presentation.
b. Presenting the situation as if it were real, for instance being in a meeting room by showing several animations of audience characters listening to the presentation delivered by the user.
c. Has a feature in which the user can choose from several options of places and circumstances to deliver the presentation (auditorium, meeting room, conference hall, etc.)
d. Owns a 'Real-time Feedback' feature to remind the user about their action, gestures, attitude, and words that are not needed during the presentation that are seen as not proper and will give impact to the assessment or response from the audience.

The shortcoming of the application comprises the user cannot receive response as well as question which usually asked by the audience of potential investor.

Table 1. Comparison of Similar Application

No.	Application Feature	Application A	Application B
1	Dashboard	✓	✓
2	Visual appearance of room and audience	✓	✓
3	Audio Recognition	✓	
4	Audience questions		✓
5	Assessment result and analysis	✓	✓
6	Real-time feedback		✓

2.3 Comparison of Application Features

After conducting a review, the features provided by the applications above are shown in Table 1.

3 Needs Analysis and Planning

This analysis is started by observing the user's needs, understanding their characteristic and transform the needs into application features.

3.1 Users' Needs Analysis

The information of the user's needs and characteristic are dug by conducting interview. The interview was conducted on the 23rd of November 2021 in the Rectorate Building, fifth floor, Telkom University. The interviewee was Dr. IKN, an English lecturer from the faculty of Business Communication Telkom University, as an expert in Language and was accompanied by the researcher's supervisor, Mr. Fathah Noor Prawita. The interview was conducted to gain a clearer information on the arranged research project, because Dr. Iis has the data of SMEs actors, the problems they face during the Covid-19 pandemic, the lack of confidence of business actors in branding their products especially intended for international export. Dr. Iis also held English skill enhancement training for SMEs actors. The documentation of the interview session is shown in appendix A.

The questions asked in the interview are arranged based on the theories reviewed above and similar applications reviewed for its advantages and shortages, as well as other relevant sources. Below is the list of questions on Table 2.

3.2 Characteristics of Target Users

This application is created for business actors, especially in the SMEs field that still face trouble in developing their product in international market. According to the information gathered from the interview, there are 98% of SMEs actors who are still lacking in English skill, yet their products are not only known locally but in fact, they also attract international market.

Table 2. List of Questions

No.	Questions asked	Interviewee
1	What is your position regarding the topic of this research?	Lecturer
2	What does this presentation and negotiation training look like?	Lecturer
3	How to train English skill for business actors?	Lecturer
4	What are the obstacles faced by the SMEs actors?	Lecturer
5	What kind of view do you want to bring to this research topic?	Lecturer

Table 3. Target Device Specifications

Type	Minimum Specification
Hardware	- Smartphone Android with OS 4.1 (Jellybean) or more recent with gyroscope - Smartphone with OS iOS 8 or more recent with gyroscope - Any device compatible with a Cardboard
Software	- Integrasi Unity Cardboard integration needs OS Android 5.0 (Lollipop) or higher - iOS device with Google Cardboard attached.

If only these SMEs actors has good English skill, plus they can try to negotiate while presenting the product to attract business partner, their business would grow rapidly and might be able to export and will indeed help boost Indonesian Economic condition. The specification of target device in Table 3 has been confirmed available and can be used by SMEs actors to apply the Virtual Reality application that will be built.

3.3 Features Needed

Based on the information of users' needs that have been collected, application features that needs to be created to fulfill the needs are as follow:

1. Environment for virtual presentation and negotiation

    a. Before the pandemic, SMEs actors deliver their presentation in an exhibition, like standing on a stage and deliver the presentation. But since the pandemic, presentation is being delivered online through video call platform. Therefore, SMEs actors have lack of appropriate experience such as the ones before the pandemic.
    b. Before the pandemic, SMEs actors negotiate directly, such as in the meeting room. But since the pandemic, negotiation process is done online through video call platform. Therefore, SMEs actors have lack of appropriate experience such as the ones before the pandemic.

c. Virtual environment that will be shown in the Virtual Reality application is an auditorium filled with NPC avatars as audience for the presentation, and a meeting room for negotiation.
d. By providing these features, it is expected that SMEs actors can have an immersive experience while exercising to deliver a presentation and do negotiation.

2. NPC (Non-Playable Character) Avatar

a. The audience and speaking partner for when SMEs actors exercising their presentation and negotiation are NPC avatar.
b. NPC avatar is in the form of native speaker from abroad because the environment in this application will be designed like in international exhibition, such as Dubai Expo.
c. NPC avatar will play as audience and will ask question to the presenter about the product being presented.
d. For negotiation, NPC avatar will be the partner to negotiate with SMEs actors.

3. Voice Recognition

a. According to the information gathered from the interview, SMEs actors will deliver a presentation and showing slides in front of the audience.
b. When the presenter is speaking, there will be voice recognition (speech recognition) from the system that will read the use words, grammar as well as the way the presenter speaks.
c. Voice recognition is a system used to identify a person by recognizing the person's voice. Voice recognition or speech recognition is a technique which enable computer system to receive input in the form of words uttered.

3.4 Designing the Application

After understanding target characteristic and the features needed by the user, the application is designed as in the following:

3.4.1 Application Overview

The Virtual Reality – based application designed for this research is called ConfiYou, consists of two part of training, which are Presentation and Negotiation using English as shown in Fig. 1. This application is connected to a VR Google Cardboard device integrated using Unity that whenever the SMEs actors use this VR, and whenever the user talks, will be detected and stored in the Voice Recognition using IBM Watson (Speech to Text), which will become the result as a form of evaluation after the SMEs actors are done with the Presentation and Negotiation training.

Training module for presentation and negotiation which has been given by the expert to help SMEs actors beforehand can indeed be implemented during the simulation by using VR. With this architecture, features provided in the application can help SMEs actors to train their confidence, convenience and be ready to deliver presentation and negotiation in English.

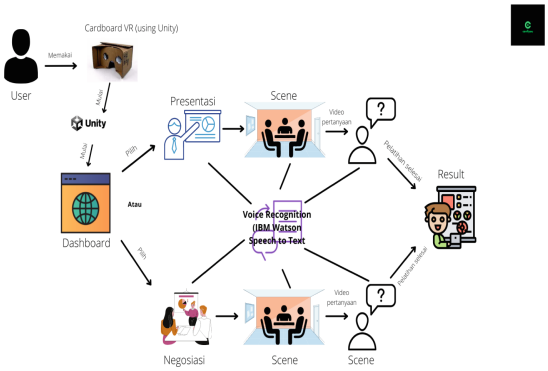


Fig. 1 .

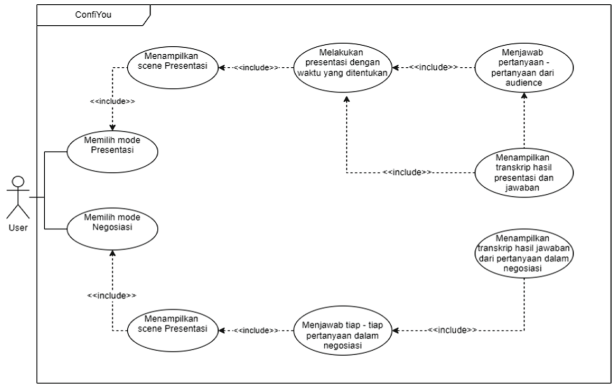


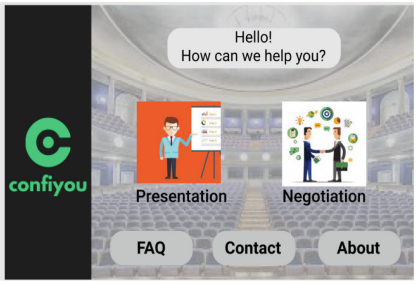
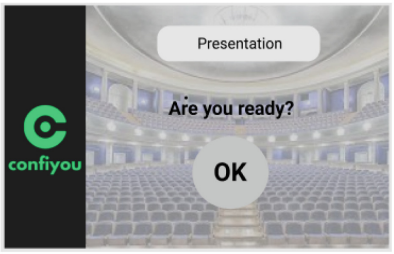
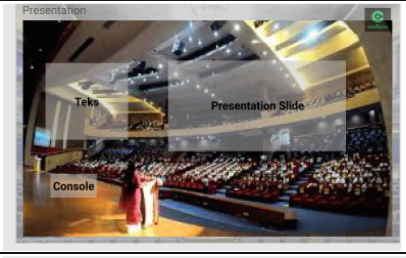
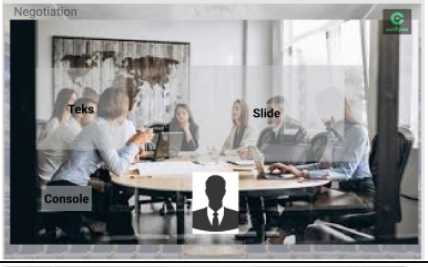
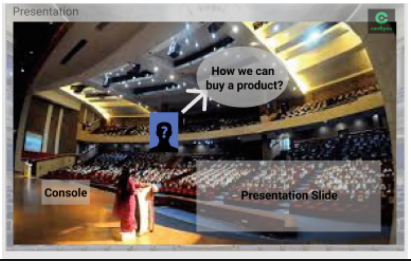
Fig. 2. Use Case Diagram

3.4.2 Use Case Diagram

Based on the user's needs analysis, the features in the application can be shown using the use case diagram as seen in Fig. 2. There are two factors: user and system. The system will show a scene for presentation and negotiation, ask question during the presentation and negotiation through NPC avatar, record every words uttered by the user during the presentation and negotiation and will present them in a transcript form.

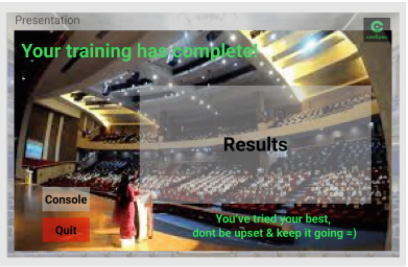
The user can choose either presentation or negotiation mode, then do the selected mode. If the user chooses presentation, the system will show an auditorium scene, and the user position is on the stage. The user delivers the presentation according to the time duration. Then the user will answer some questions asked by the NPC avatar. After finishing the segment, the user can see the transcript containing everything they say during the presentation and question and answer session with the NPC avatar. If the user chooses negotiation, the system will show a meeting room scene. The user will answer every questions asked by the NPC avatar. After finishing the segment, the user can see the transcript containing everything they say during the negotiation process with NPC avatar.

Table 4. Face-to-Face Application Design

No.	View	Explanation
1		Application Dashboard This view appears when the user first starts the VR application using Google Cardboard VR.
2		Preparation If the user chooses one of the training mode, there will be preparation step first.
3		Scene: Presentation During presentation scene, there will be a text appears in front of the user, presentation slides, as well as console button to click 'next' to move on to the next slide.
4		Scene: Negotiation During negotiation scene, there will be a text appears in front of the user, as well as console button to click 'next' to move on to the next slide.
5		Scene: question and answer session (Presentation mode) After the user is done delivering the presentation, there will be a video from the audience which is a recording of native speakers. The user is expected to be able to answer the question asked.

(*continued*)

Table 4. (*continued*)

6		Scene: question and answer session (Negotiation mode) After the user is done negotiating, there will be a video from the audience which is a recording of native speakers. The user is expected to be able to answer the question asked.
7		Scene: Training Result (Presentation Mode) After finishing all the steps above, the user will be given result summarizing all the session which are recorded by the Voice Recognition and can be used as evaluation material by the user.
8		Scene: Training Result (Negotiation Mode) After finishing all the steps above, the user will be given result summarizing all the session which are recorded by the Voice Recognition and can be used as evaluation material by the user.

3.4.3 Designing Face-to-Face Application

Face-to-face application that has been designed can be seen in Table 4. This design is crated using a Figma web-based prototyping tool. Every design has been checked its compatibility with the user's needs in sub-chapter 3.1.1 and in the use case diagram shown in sub-chapter 3.2.2.

3.4.4 Application Development Needs

To implement the application according to the design that has been planned, below are list of hardware and software needed:

Hardware needed for implementing the application design is listed in Table 5. In the following. There is unavailable device that needs to be purchased with total estimated cost of RP. 350.000, -

Table 5. Hardware Needs

No.	Device Specification	Availability
1	Asus VivoBook A409FJ: Intel Core™ i5 and 12 GB RAM Laptop	Available, Personal Possession
2	Asus X441UA: Intel Core™ i3 and 4GB RAM Laptop	Available, Personal Possession
3	Smartphone Xiaomi Redmi Note 9: 6.53″ screen and RAM 4GB	Available, Personal Possession
4	Google VR Cardboard	To be Purchased, Price Rp 100.000
5	Bluetooth Wireless Gamepad	To be Purchased, Price Rp 250.000
6	Camera RICOH THETA V	To be Borrowed from the lab

Table 6. Software Needs

No.	Device Specification	License
1	Unity 2019.4	Personal License
2	IBM Watson Speech to Text	Lite (free)

Software needed for implementing the application design are listed in Table 6. All the software that will be used are licensed and original. There is no expense needed to be paid to get the software needed.

4 Conclusion

This study has investigated the strong drive to learn English of small and medium enterprise (SMEs) actors in Bandung, West Java, Indonesia. This is motivated by their significant interest in becoming exporters, as indicated by a significant percentage of 92.8% in a prior survey. A problem emerged within six-months of English skill training that was performed in the year 2021.

The study has confirmed that the SMEs actors have a strong desire to gain direct experiences in practicing English with native speakers in a more realistic setting for the purpose of conducting global business. This was, however, regarded as highly improbable due to the virus Covid-19 pandemic. Nevertheless, using virtual reality technology, this research was able to conduct training to increase the SMEs actors' English proficiency, with a particular emphasis on their abilities in the areas of presentation and negotiation.

The Virtual Reality-based program built for this study includes two training modules, i.e., presentation and negotiation using English. This application is connected to a VR Google Card-board device integrated with Unity so that whenever SMEs actors use this VR, and whenever the user speaks. It will be detected and stored in the Voice Recognition using IBM Watson (Speech to Text), which will serve as a form of evaluation after the SMEs actors have completed the presentation and negotiation training.

The utilization of the virtual reality technology built for the training of English skill enhancement is deemed effective for providing SMEs actors an experience that was as close as possible to the actual conditions of conducting global business.

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