Spherical Video-based Immersive Virtual Reality (SV-IVR) Engagement Towards the Foreigners' Behavioral Intention to Learn Indonesian Language

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Abstract - The use of Spherical Video-based Immersive Virtual Reality (SV-IVR) has expanded to elevate learners' ability to learn the target language. This study proposed to investigate the implementation of SV-IVR towards the learners' eagerness to learn the Indonesian language. The performance expectancy (PE), effort expectancy (EE), social influence (SI), facilitating condition (FC), and behavioral intention (BI) were explicitly analyzed. The population of the research was the foreign learners who studied the Indonesian language in Indonesia. A survey was used using a sample of 20 foreign learners who learned Bali. Regression was used to explore learners' opinions and the model fit using SPSS.23 version. The result revealed that foreign learners tended to use SV-IVR during the Indonesian language teaching and learning process. The performance expectancy, effort expectancy, and facilitating conditions have significantly influenced the SV-IVR use in the learning process. In terms of behavioral intention, the data revealed that learners have a high motivation to use SV-IVR in learning the Indonesian language.

Keywords*: SV-IVR, Bahasa Indonesia for Foreign Speakers, Behavioural Intension*

I. INTRODUCTION

Learning the Indonesian language for foreign speakers or *Bahasa Indonesia Bagi Penutur Asing* (BIPA) is important for the growth and promotion of Indonesian culture for the Indonesian people. Foreigners will find it simpler to understand and study Indonesian culture if BIPA is learned [1]. In terms of the learners who want to study new language learning, the four skills including speaking, reading, writing, and listening ought to be taught by the Indonesian language tutors in Bahasa Indonesia for Foreigner Speakers program. The integration of speaking and listening comprehension is frequently applied by the tutor in leaning BIPA [2]. By listening to the words in Bahasa Indonesia, foreign speakers who learn the Indonesian language have a chance to expand their ability to understand how to pronounce and express the words. In terms of reading and writing skills, these skills require proportional ability. However, the skills can be introduced at the beginning level of the BIPA program by providing learners with vocabulary and simple sentences. Immersing media texts, for example, reading texts, practice questions, and word cards have the potential to assist foreign speakers in learning the Indonesian language [3]. Another approach which could be implemented to teach reading and writing is employing visual media. It is utilised in materials concerning direction, describing images, searching for contrasts and similarities between two images, giving colour names based on the colour card given, and using a whiteboard as needed.

The immersion of SVVR towards learners' learning media has developed massively, as it could increase students' ability in learning the target language. Specifically, the use of SVVR has the potential to outperform learners' self-efficacy during the teaching and learning process. The technology can be effectively integrated into the classroom to facilitate students' creative self-efficacy and intrinsic motivation [4]. SVVR not only supported learners in gaining information and improving their higher order thinking, but also in using what they had learned to solve real-world situations [5]. Related to the speaking skill, the SVVR was massively applied to enhance

A. Azizah and E. D. Ariyani (Eds.): iCAST-SS 2022, ASSEHR 719, pp. 109–113, 2022.
https://doi.org/10.2991/978-2-494069-83-1_20

the learners' pronunciation [6]. It was designed to assist learners in improving students' pronunciation skills in the classroom. In the current study, the use of SVVR in the BIPA program leads to a lack of implementation. The introduction of the new technology, SVVR for instance, has the potential to escalate the foreign learners' eagerness to learn BIPA. On the other hand, there are some factors that may reduce learners' urge to use SVVR in learning the BIPA program. The students prefer using images, conventional video, text and audio than sphere technology. Additionally, SVVR is a new technology which should be improved and introduced specifically to foreign learners who study the Indonesian language. From the background of the study, this research aimed to investigate foreign students' opinions about the use of spherical video-based immersion virtual reality towards the learners' eagerness to learn the Indonesian language.

II. THEORETICAL FRAMEWORK

A. Spherical Video-based Immersive Virtual Reality (SV-IVR)

VR has developed from a computer environment with three-dimensional (3D) space, it contributes a context for simulation, vision and other senses [7]. On the other hand, using 3D technology is not only highly technical but also needs more cost to produce. it is hard to promote conventional VR in the education field. From this drawback, the SVVR has been developed by scholars and lecturers. The usage of 360-degree pictures or videos in a VR environment, whether immersive or not, is referred to as SVVR [8]. A spherical camera can capture a 360-degree picture or video, making SVVR content simple to install and inexpensive [9]. SVVR is a new innovative teaching approach with great potential, allowing students to conduct immersive virtual learning in an authentic-like context using photos and videos [10]. This could be known as spherical video-based immersive virtual reality (SV-IVR). By having a new significant approach, the students have the potential to analyze the genuine-like environment.

B. Bahasa Indonesia for Foreign Speakers

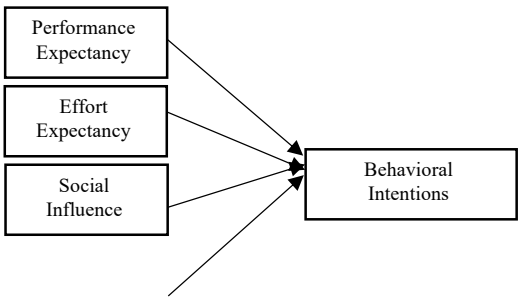
The Indonesian language has a significant role to encompass the entire country in order for Indonesian folks to unite [11]. Bahasa Indonesia has lately gained popularity among foreigners due to a variety of circumstances. Just a few examples include tourism, business, investment, and employment [12]. There are numerous natural resources, and the Indonesian government encourages international enterprises to establish themselves here. Another factor is because Indonesia become a member of the Asian Economic Community (MEA), workers from Asian nations can apply for positions in Indonesian enterprises [13]. *Bahasa Indonesia Bagi Penutur Asing* (BIPA) or Indonesian Language for Foreign Speakers was built to meet the demand for the Indonesian language utilised by foreign speakers. The Ministry of Education, Culture, Research, and Technology now runs the BIPA program to assist teachers in improving their ability to teach Indonesian to foreign speakers. One of the goals of forming this organisation is to encourage collaboration and collaborations in the professionalisation of BIPA teaching. The Language Agency's goal is to "implement BIPA education capable of boosting Indonesia's positive image in the world community in order to make Indonesian the language of wide international communication." The BIPA program's goals include internationalising Indonesian society and culture in order to improve Indonesia's image abroad, increasing collaboration and network expansion with BIPA academic institutions both at home and abroad, assisting and facilitating BIPA teaching institutes both at home and abroad, improving BIPA teaching quality both at home and abroad, and improving the quality of BIPA teaching resources both at home and abroad.

C. Behavioural Intension

Venkatesh et al. (2003) believe that technology has a significant impact on user behaviour. There are various factors that affect students' behavioural intention, for instance, the lecturer's competence, the lecturer's attitude towards learning, and the nature of the subject are the factors that hinder the adoption of e-learning [14]. The technology's positive effect and usefulness and the potential of technology in assisting learners or users in the learning process are also the factors users use the technology. In addition, another significant factor that could influence users' behavioural intention to use technology is the ease of use, stress-free engagement, importance of utilisation, social influence, and the system's availability.

III. METHODOLOGY

The purpose of this study is to investigate the foreign speakers' argument about the use of SVVR in the BIPA learning media. The population of this study was foreign speakers who learned the Indonesian language in Indonesia. The foreign learners who study the Indonesian language in Bali were chosen as the sample in this research. There were 20 foreign speakers involved to provide the argument about the use of SVVR towards the learners' behavioural intentions. The scales ranging from 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree from Likert were chosen in gaining the data collection. To compute the data collection, a quantitative descriptive approach was employed, which was then described to elaborate the outcome. SPSS.23 version was applied to measure the data from the respondence.



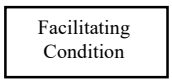


Figure 1. Researcher Specified Model

The elements of UTAUT were employed which include expectancy (PE), effort expectancy (EE), social influence (SI), facilitating conditions (FC), behavioural intension (BI) and use behavior (UB) [15]. The device's performance expectancy (PE) relates to its positive effect and usefulness. This also relates to a person's perception that technology would assist learners or users in the learning process, whereas effort expectancy (EE) denotes the ease of use, stress-free engagement, and importance of utilisation. The term social influence (SI) relates to the usefulness for users while enabling circumstances, whereas (FC) refers to the system's availability and skill to administer the system [16]. This study focused on the measurement of performance expectancy (PE) on the positive impact, the usefulness of the device and effort expectancy (EE) on the ease and importance of technology, social influence (SI) on the environment support in using the technology, and facilitating condition towards the Indonesian language learners' behavioral intentions (BI) in Bali.

Table 1. Item of Questionnaire

Number of items	UTAUT	Statement
X1	PE (Performance Expectancy)	Using E-learning, audio, video, text, image, or virtual reality (360 video) would help me in learning a new language.
X 2	EE (Effort Expectancy)	E-learning, audio, video, text, image, or virtual reality (360 video) are easy for me to use in learning a new language.
X 3	SI (Social Influence)	My friends are keen to use E-learning, audio, video, text, image, or virtual reality (360 video) in learning a new language.
X 4	FC (Facilitating Conditions)	I have media for example smartphone and internet access to run the E-learning, audio, video, text, image, or virtual reality (360 video) during the learning activities.
Y	BI (Behavioural Intentions)	I want to learn a new language or Bahasa Indonesia using image, text, audio, video, and immersion virtual reality (360 Video degree).

IV. RESULT

From the descriptive statistics, the result revealed those foreign speakers tended to agree using E-learning, audio, video, text, image, or virtual reality (360-video) would help in learning a new language. Additionally, students believe that E-learning, audio, video, text, image, or virtual reality (360-video) are easy to use in learning a new language. In terms of the facilitating conditions, students have media for example smartphones and internet access to run the E-learning, audio, video, text, image, or virtual reality (360-video) during the learning activities. On the other hand, the data on social influence presented less significance.

Table 2. PE (Performance Expectancy)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3.00	4	20.0	20.0	20.0
	4.00	10	50.0	50.0	70.0
	5.00	6	30.0	30.0	100.0
	Total	20	100.0	100.0	

According to table 2, the frequency of learners who agree that using E-learning, audio, video, text, image, or virtual reality (360-video) would help in learning a new language was half of the total respondence. There were 10 out of 20 learners who agreed with the use of SV-IVR to assist them in learning the Indonesian language. It means the students believed that SV-IVR met the performance expectancy.

Table 3. EE (Effort Expectancy)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3.00	4	20.0	20.0	20.0
	4.00	11	55.0	55.0	75.0
	5.00	5	25.0	25.0	100.0
	Total	20	100.0	100.0	

Similar to the performance expectancy data, the result of effort expectancy data revealed that the SV-IVR is easy to use. Of the total number of learners, there were 55% of respondents argued the easiness of employing SV-IVR in the learning Indonesian language. On the other hand, there were only 20% of the students assumed that the learning materials did not bring any effort expectancy for the users.

Table 4. SI (Social Influence)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	2	10.0	10.0	10.0
	3.00	9	45.0	45.0	55.0
	4.00	8	40.0	40.0	95.0
	5.00	1	5.0	5.0	100.0
	Total	20	100.0	100.0	

Concerning table 4, the data indicated that there was less significant social influence compared to performance expectancy and effort expectancy. There was 45% of learners argued that the social environment feels unfamiliar with the SV-IVR. In line with that, 10% of the total number of respondents disagree with the environmental influence of the use of SV-IVR.

Table 5. FC (Facilitating Conditions)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4.00	10	50.0	50.0	50.0
	5.00	10	50.0	50.0	100.0
	Total	20	100.0	100.0	

In terms of facilitating condition data, it showed a pivotal result. All of the respondents argued that they have facilitations to run the SV-IVR technology. According to the data, there were 50% of respondents assume that they have access to operate the SV-IVR in the Indonesian language program. Plethora learning equipment could be utilized by the learners during the teaching and learning of the Indonesian language. Internet access, smartphone, laptop or computer could be used to run the SV-IVR.

Table 6. BI (Behavioral Intentions)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3.00	3	15.0	15.0	15.0
	4.00	12	60.0	60.0	75.0
	5.00	5	25.0	25.0	100.0
	Total	20	100.0	100.0	

Regarding the behavioral intention, there were 60% of learners assumed that they were keen to learn the Indonesian language using SV-IVR. Subsequently, 25% of students believe that SV-IVR has a significant increase in their urge to learn the Indonesian language. Although it seems a positive trend, there was 15% of respondents considered that this learning tool did not bring a significant effect on their eagerness in learning the Indonesian language.

V. DISCUSSION

The trend of using virtual reality has been expanded frequently, scientists and experts developed virtual reality for education in the classroom. One of the developments for classroom activities is SV-IVR. The use of SV-IVR technology is not merely for specific purposes in industry, but also in the classroom which leads learners to improve their language skills through virtual. The teachers could sharpen the learners' skills by using virtual reality technology. This study leads the experts or developers to the need for SV-IVR for language learning. The result proved that the SV-IVR has the potential to escalate foreign students' eagerness to learn the Indonesian language. The frequency of each element proved that the learners have a massive motivation to learn the Indonesian language through SV-IVR. According to the performance expectancy, respondents believed that using E-learning, audio, video, text, image, or virtual reality (360-video) would assist users in learning a new language. Learners presume the SV-IVR is easy to operate during the teaching and learning process. The accessibility to operate SV-IVR through the device provides a positive impact on the use of this technology in learning the Indonesian language. Similarly, learners were keen to learn the Indonesian language through SV-IVR. Although this current technology provides a positive trend, learners argued that the lack of social influence could potentially reduce learners' eagerness to employ the SV-IVR in the Indonesian learning material.

The students understand and agree on the need of modern equipment for English language acquisition in the ESP classroom. This circumstance is supported by the fact that the young students are comfortable with technology. The screenagers were born during the development of technology, which means they have been utilizing it since a young age and have been able to use it meaningfully [17]. The benefit of this occurrence is that millennials are not subjected to technological rigidity. This may also be impacted by the users' age; digital technology has advanced dramatically in the last decade; as a result, young generations are not surprised by technological advancements because they use it regularly. Similarly, education should include technology into the teaching and learning process in the classroom, although this point has to be supported by more research.

Similarly, the use of SVVR as a tool creates an intriguing impression when learning English. Students are motivated to learn English by using a multimodal idea that encompasses video, image, text, and audio as learning materials. This language learning tool improved language learning by delivering immersive learning, increasing motivation, encouraging engagement, and decreasing learning anxiety [18]. The availability of visual, spatial, and gestural cues increases learners' motivation to participate in the teaching and learning process.

CONCLUSION

It is a promising development for the experts who teach the Indonesian language to foreign students to expand and implement the SV-IVR in the teaching media. The utilization of SV-IVR could be fruitful for the learners in obtaining and expanding their Indonesian language skills. This technology would potentially contribute to the learners' comprehension and motivation in learning the Indonesian language. The easiness of the SV-IVR leads the technology usage in the classroom intensively. Although SV-IVR contributes to the positive motivation to learn a new language, learners still believe that the social influence provide less significant to this technology utilization.

Using Spherical Video-Based Virtual Reality (SVVR) in the classroom can increase the learners' behavioral intentions to learn the Indonesian language, which includes the positive influence and utility of the gadget. The SVVR's utility motivates students to study English more effectively. Using multimodal learning tools such as (Spherical Video-Based Virtual Reality 360o-video, text, audio, and picture) as learning aids may inspire learners to study more in order to assimilate the content. This learning kit also contributes to the learners' motivation to study the target language. The SVVR is a considerable learning tool for professors who want to increase their students' willingness and capacity to engage with the English language. The mix of internet,

video, audio, and text, known as multimodal, may be used to create learning kits. The possibility to create learning materials based on the multimodal idea can be a source of nourishment and supplementation for students acquiring Indonesian language learning. This indicates that in the digital era, digital technology and multimodality are the key ideas for developing learning media for asynchronous, synchronous, face-to-face, and distant learning. Immersive Spherical Video-based Virtual Reality is the emerging trend for classroom teaching and learning activities that should be used regularly.

The action began outside the Business Department building, according to the SVVR footage given by the researcher. The learners may examine and analyze the surroundings from this region by moving the smartphone or sweeping the gadget screen. Similarly, the learners might explicitly observe the item and setting in the audio-visual room, meeting room, office lab, and computer. In addition, viewers are permitted to communicate with other classmates in order to improve their English language skills. On the other hand, in order to enjoy the 360-video with higher performance, the screen resolution should be increased; the requirement to adjust the smartphone screen resolution to high quality sometimes confuses the learners. The great quality of the 360-video necessitates decent internet connectivity.

However, this deficiency should be addressed in order to maximize the use of this medium in the classroom. Allowing learners to pick the average video quality during online or remote learning is one of the techniques. Students who do not have access to high-resolution videos are advised to use medium-resolution videos, which can greatly increase the barrier to watching the video during the session.

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