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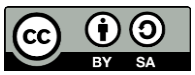

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Integration of Virtual Reality and Digital Game-Based Learning in Education: Accelerating English Language Communication

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Abstract

This study was initiated in response to the challenges faced by students who are not accustomed to practicing English speaking due to a lack of self-confidence and heightened anxiety when communicating with others or with native speakers. To address these issues, the study explores the potential of Virtual Reality (VR) technology to foster the development of students' English communication skills within an autonomous, interactive, and engaging environment. Such an environment is expected to increase students' learning motivation while simultaneously improving the overall quality of instruction. The primary aim of this research is to contribute to the body of knowledge by developing a prototype of a digital platform termed Metaversity, defined as a virtual learning environment that integrates the immersive features of the Metaverse ecosystem with the pedagogical foundations of Digital Game-Based Learning (DGBL). The participants of the study consisted of 30 undergraduate students from Universitas Sembilanbelas November Kolaka. Employing a Research and Development (R&D) approach, the study adopted the ADDIE model, which includes five stages: Analysis, Design, Development, Implementation, and Evaluation. The resulting learning media integrates VR, DGBL, and communication platforms such as VRChat and Discord into a cohesive system. Validation by media experts yielded an average score of 4.35 out of 5, which falls into the "highly feasible" category. Meanwhile, students' responses reached an average of 82.5%, placing the product within the "good–very good" range. The findings provide compelling evidence that the developed medium is effective in enhancing students' motivation, self-confidence, and English-speaking competence. Furthermore, the integration of VR and DGBL fosters active engagement, alleviates language anxiety, and creates an immersive and enjoyable learning experience. These outcomes highlight the potential of Metaversity-based platforms as innovative solutions in higher education language learning contexts.

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Keyword: *Virtual Reality; Digital Game-Based Learning; VRchat; Metaversity; Discord*

Introduction

Society 5.0 is an era founded on technology with a human-centered focus, aiming to create a more practical, efficient, and innovative way of life in various aspects. This era is expected to play a significant role in shaping multinational communities, including in business, social, and educational contexts. Consequently, English will become an essential point of communication and competition in the forthcoming Society 5.0.

Communication is one of the crucial productive skills in English language learning, as it is used in most daily activities such as socializing and working. Among the core communication skills is speaking. Speaking refers to the human ability to produce sounds and express opinions originating from their thoughts (Lingga, L. et.al, 2020). This implies that speaking is the ability to produce meaningful and understandable sounds that enable effective communication (Bailey, K. M., & Nunan, D., 2005; Fulcher, G. 2014; Laksana, A. J., 2016).

For English majors, speaking proficiency is considered the primary goal in English learning, either because it provides a sense of personal achievement or because they regard it as a valuable skill to support their future interests and career goals. Moreover, mastery of a language is often associated with the ability to speak it fluently (Pratiwi, A. 2024). However, achieving proficiency in English speaking is rather challenging. Learners face multiple obstacles in developing their speaking skills. One major factor is the lack of practice outside the classroom due to low self-confidence, which stems from their perceived inability to speak English (Muslichatun, I. 2013).

In addition, unwillingness to communicate in English (self-efficacy and risk-taking) can make speaking skills more difficult to acquire than initially expected (Brown, H. D., 2007). Many students also experience speaking anxiety when required to speak in front of the class. Common symptoms of speaking anxiety include trembling, sweating, rapid heartbeat, and a strained voice. The primary triggers of such anxiety are speaking English in classroom activities, delivering oral presentations, interacting with native speakers, and speaking in testing situations (Woodrow, L., 2006). Therefore, students require supportive tools and environments that encourage them to practice speaking.

VR technology is particularly relevant in this context because immersive environments can reduce speaking anxiety by allowing students to practice in safe, simulated scenarios without the fear of direct negative evaluation. Recent studies also highlight the effectiveness of VR in reducing foreign language anxiety and improving oral proficiency (Zammit, 2023; Castro & Garduño, 2024; Zhang, 2024).

In addition to anxiety, students also face challenges in pronunciation, fluency, and grammatical accuracy, which further complicate the mastery of English-speaking skills.

To strengthen the context, the English Proficiency Index (EF EPI, 2023) ranks Indonesia at 79th out of 113 countries with a 'low proficiency' level, indicating that many Indonesian learners still struggle to communicate effectively in English.

To address these challenges, a number of mobile applications have been developed to support English language learning (Graeske, C., & Sjöberg, S. A., 2021). The rapid advancement of technology over the past few decades has opened opportunities to enhance various aspects of human life, including education. This has also increased the demand for foreign language education. Among these innovations are Virtual Reality (VR) features, which allow users to engage in virtual conversations in a 360° immersive environment and receive real-time feedback (Nasir, S., 2024), as well as digital game-based learning (GBL) (Widiyatmoko, A., 2023). Hence, it is important to integrate virtual reality and game-based learning into a single platform referred to as Virtual Reality Game-Based Learning (VRGBL).

Based on the above background, the central research problem of this study is (1) What are the English language learning needs of university students, and (2) how can a prototype of a digital Metaversity platform integrating the pillars of the Metaverse ecosystem and Digital Game-Based Learning (DGBL) be developed to help enhance students' English-speaking skills to be fluent, autonomous, and interactive?

Literature Review

Literature Review (revised)

This study is based on the identification of several relevant research findings, as it remains relatively new in the field of education in Indonesia, particularly in English language courses.

Several previous studies related to Virtual Reality (VR) and Game-Based Learning (GBL) include:

1. Exploring the Effectiveness of Virtual Reality in Teaching (Zammit, 2023), which demonstrates the potential of VR to enhance student engagement and learning motivation.
2. Beyond Traditional Classrooms: Comparing Virtual Reality Applications and Their Influence on Students' Motivation (Castro, 2024), which finds that VR applications can provide higher motivation compared to conventional online methods.
3. The Effect of Digital Game-Based Learning on Learning Motivation and Performance Under Social Cognitive Theory and Entrepreneurial Thinking (Chen, 2021), which proves that DGBL can improve learning motivation and performance through mechanisms of self-efficacy and social reinforcement.
4. Implementation of VR Technologies in Language Learning Settings: A Systematic Literature Review (Oya Ozgun & Olgun Sadık, 2023), a systematic

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literature review that evaluates the benefits of VR for language learners, including immersive interaction and improved learning performance. EPASR.

5. VR Language Labs Revolutionize New Paths for Practical Language Teaching and Learning (Xing Zhong, 2023), a study demonstrating that VR-based language laboratories enhance learning interest, student participation, and overall language proficiency. Darcy & Roy Press.
6. VRChat as a Virtual Learning Platform for Enhancing English Listening Skills (Hambalee Jehma & Apirat Akaraphattanawong, 2023), research findings indicate that the use of VRChat is effective in improving university students' English listening skills. IJIT.
7. A Systematic Literature Review of the Impact of Game-Based Learning on English Learners (Zakaria, Addanan, Munira, Khairani, et al., 2023), a synthesis of 15 articles published in 2023 that examines GBL platforms and their impact on English language learners' motivation. HRMars.
8. The Effect of Digital Game-Based Learning on Motivation for EFL (Anqi Huang, 2023), a study highlighting how GBL supports EFL learning strategies and enhances both motivation and learner satisfaction. Journal of Education, Humanities and Social Sciences.
9.

These findings indicate that integrating VR technology and DGBL provides significant pedagogical benefits. VR has been shown to enhance foreign language acquisition in higher education, while DGBL contributes to increasing learning motivation. Both approaches are regarded as valuable for learners in educational contexts.

In addition, several studies involving VRChat and Discord have also shown positive results. For instance:

1. Rizal (2022) examined the use of Discord in improving interpersonal communication, while Juliansyah (2024) highlighted users' positive perceptions of Discord as an alternative communication medium.
2. Yuanyuan (2024) developed a VR-based English-speaking instructional model that improved student engagement and confidence, whereas Castro (2024) found that integrating VRChat into online learning enhanced learners' attention, satisfaction, and self-confidence.
3. Evaluating the Efficacy of Discord-Based Blended Learning on English Speaking Skills and Student Engagement (Munibi, 2024) — this research implemented Discord in a blended learning setting with junior high school students, finding that voice channels and instant messaging features fostered interactivity, collaboration, and higher engagement.
4. The Efficacy of Discord Application in Enhancing the Proficiency of English Language Teaching Students' Listening Skill (Yuniar, 2024) — a quasi-experimental study with 60 students comparing experimental and control

groups, showing that learners using Discord demonstrated significantly greater listening proficiency.

5. The Use of Discord Application in Virtual English Learning: An Investigation on Students' Perceptions (Jannah & Hentasmaka, 2023) — a case study investigating students' perceptions of virtual English learning via Discord, emphasizing ease of use, comfort, and enhanced interaction on the platform.

These studies suggest that the use of VRChat and Discord is generally well-received as a medium for English language learning. Through VRChat, students can practice in problem-based scenarios, while Discord functions as a collaborative space that facilitates communication. This interaction strengthens student participation and interest in independent practice.

Theoretical Foundations

Zone of Proximal Development (ZPD) – Vygotsky: VR and DGBL are capable of creating learning environments that support scaffolding, enabling students to perform language tasks beyond their independent abilities with assistance from peers, instructors, or digital features. Social Presence Theory: The use of avatars, immersive interaction, and synchronous communication increases the sense of "being together" in virtual spaces. Such social presence reduces anxiety, enhances comfort, and fosters students' willingness to communicate in English.

Critical Evaluation of Previous Studies

Although the existing literature provides positive evidence, several methodological limitations should be noted. Many studies still employ small sample sizes, often with fewer than 30 participants, which restricts generalizability. In addition, the interventions are generally short in duration, measuring only short-term effects without long-term follow-up. The evaluation instruments used are also varied; some studies rely solely on perception-based questionnaires, while standardized oral performance assessments are rarely applied. Moreover, the observed increase in motivation is often influenced by the novelty effect of using VR for the first time, rather than by its sustained pedagogical value. Finally, technical constraints such as limited access to devices and unstable internet connectivity remain significant barriers, particularly in resource-limited educational contexts.

Contribution of This Study

Taking into account both the strengths and limitations of prior research, the novelty of this study lies in the development of a Metaversity prototype that integrates VR, DGBL, and communication platforms such as VRChat and Discord. This integration is intended to establish an English learning system that is more effective, efficient, and feasible, while supporting students to become fluent, independent, and interactive English speakers.

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Comparative Studies: Traditional vs. VR-Based Language Learning

A growing body of comparative research has examined the differences between traditional language learning approaches and VR-based methods. Traditional classroom instruction remains more cost-effective and scalable, offering structured grammar-focused and text-based activities. However, it often provides limited opportunities for authentic, real-time speaking practice, which is essential for developing fluency. In contrast, VR-based environments create immersive and interactive contexts that allow learners to engage in simulated real-world conversations. For example, Zhang (2024) demonstrated that a VR-based English-speaking instructional model enhanced students' engagement and confidence compared to conventional methods. Similarly, Park et al. (2025) reported that repeated exposure to a customizable VR public speaking application reduced foreign language anxiety and improved speech clarity and fluency compared to traditional conditions.

Nevertheless, evidence regarding long-term improvements in linguistic accuracy and complexity remains inconsistent; some studies have shown moderate gains, while others found no significant differences once novelty effects and task alignment were controlled. This indicates that VR-based language learning is particularly effective in affective domains (e.g., motivation, confidence, engagement), while traditional approaches may still provide stronger foundations in explicit grammar instruction. Therefore, combining both approaches may represent the most comprehensive pathway to achieving communicative competence.

Method

This study aims to develop an artificial intelligence–based English learning medium designed for students of USN Kolaka enrolled in English courses. Based on its type, this research is categorized as Research and Development (R&D) (Yani, A., 2013), which employed the ADDIE model to produce an English learning medium for students. The ultimate goal of this study is to create an interactive, independent, and enjoyable English learning product for students. Research and Development (R&D) is a research method used to produce a specific product and to test its effectiveness (Sugiyono, 2013; Koryati, S., 2016). To develop the product, a needs analysis is conducted, while the product's effectiveness is examined to ensure its applicability in real educational contexts (Haryati, S., 2012; Putri, F. M., 2016).

Participants

The participants in this study were undergraduate students of Universitas Sembilanbelas November Kolaka aged 18–19 years. Their English proficiency ranged from beginner to intermediate, as determined by institutional placement tests and classroom performance. Importantly, none of the participants had prior experience with Virtual Reality technologies, which provided a neutral baseline for evaluating the effectiveness of VR and DGBL integration without bias from previous

exposure. The sample consisted of 30 participants, selected to ensure sufficient representation and meaningful analysis.

The decision to adopt this sample size was based on comparative reference to prior research. For instance, Cahyadi (2020) employed only four participants in his study exploring the use of VRChat as a medium for English learning. By involving a larger sample size, this study enhances both the reliability and generalizability of findings, while still aligning with the methodological precedent established by earlier VR-related language learning research.

Instrument Reliability and Validity

The research instruments included questionnaires and performance-based speaking assessments. The reliability of the questionnaire was evaluated using Cronbach's alpha, which yielded a coefficient of 0.87, indicating high internal consistency. Evidence of validity was established through expert judgment from two senior lecturers in English education and one instructional technology specialist, ensuring both content and construct validity.

The VR intervention was conducted over four weeks, with two sessions per week, each lasting approximately 60 minutes. Each session involved three key activities: (1) warm-up interaction (simple greetings and short conversations in VR), (2) task-based activities (role-playing, problem-solving tasks, and guided discussions within the VR environment), and (3) reflection and feedback (peer and instructor evaluation). The design of these protocols was intended to scaffold speaking practice gradually, moving from structured to semi-structured interaction. The study received ethical clearance from the Research Ethics Committee of Universitas Sembilanbelas November Kolaka. Prior to participation, students were informed about the study's objectives, procedures, and potential risks. They provided written informed consent, and confidentiality of data was strictly maintained throughout the research.

A pilot study was conducted with five undergraduate students to examine the clarity of instructions, functionality of VR tools, and appropriateness of tasks. Feedback from the pilot testing was used to refine the instruments, adjust the task difficulty, and optimize the technical setup before implementing the full-scale study. The VR sessions were implemented using Oculus Quest 2 headsets connected to personal computers with a minimum specification of Intel i5 processor, 8 GB RAM, and NVIDIA GTX 1050Ti graphics card. Stable internet connectivity (minimum 20 Mbps) was required to ensure smooth interaction within the VR environment. Technical support staff were present during each session to troubleshoot potential hardware or connectivity issues, ensuring uninterrupted learning activities.
The research flow can be seen in the following figure:

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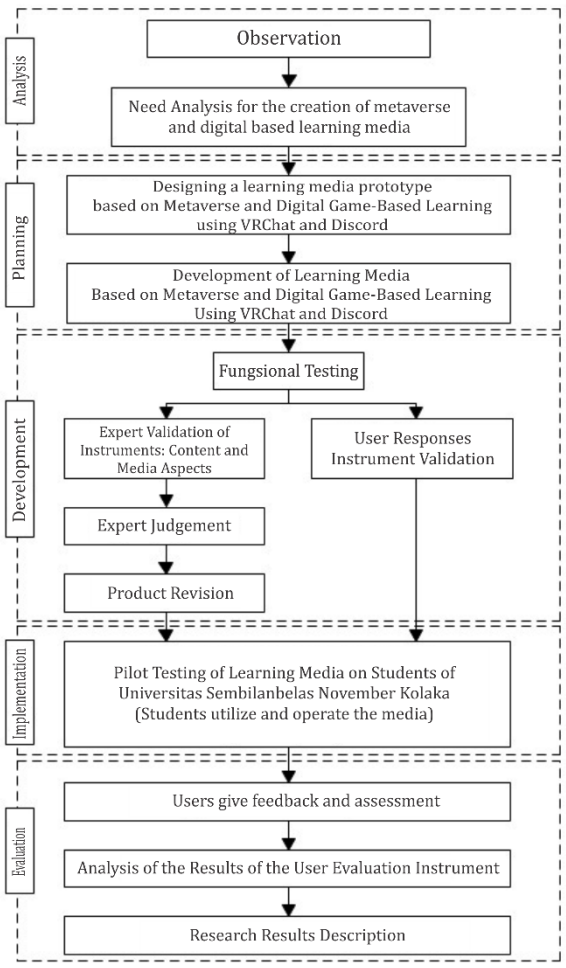

Figure 1. Research Flowchart/Steps

The development process based on Figure 1 can be described as follows:

1. Analysis

The analysis stage is the initial step in developing the Virtual Reality–Digital Game-Based Learning (VRDGBL) medium, carried out prior to conducting the research. At this stage, a needs analysis is conducted to obtain information related to the problems and requirements of product development. This involves observing and analyzing the needs of students in English courses, as well as conducting a literature review from various relevant sources.

2. Design

In this stage, the researcher prepares a flowchart and storyboard as a blueprint for developing the learning medium, thereby simplifying the development process. The researcher also selects the learning materials based on the English course syllabus to be included in the medium, and prepares assessment instruments in the form of questionnaires for media experts, content experts, and

students.

3. Development

The development stage involves the actual creation of the interactive Virtual Reality Digital Game-Based Learning medium by combining VRChat, , and Discord software to produce immersive virtual designs, voice features, and collaborative platforms. The product is then validated by media and content experts, whose feedback, suggestions, and recommendations are used to revise and improve the medium before testing it with end users.

4. Implementation

The implementation stage involves making the interactive learning medium accessible and operable using VR headsets. Once the product is developed, it is tested with users to gather responses regarding its functionality and effectiveness.

5. Evaluation

The evaluation stage is conducted by collecting user feedback from the product implementation through assessment instruments. The resulting data are analyzed to determine whether the developed interactive learning medium is feasible for supporting the learning process.

Data Collection

The primary instrument used for data collection in this study is a questionnaire. The questionnaire was designed to evaluate both the feasibility of the medium and user responses. The subjects of the survey were students of Universitas Sembilanbelas November Kolaka (USN Kolaka), located at both the Kolaka and Buton Tengah campuses, which are geographically situated on different islands.

The sampling technique employed was simple random sampling, a method in which each member of the population has an equal probability of being selected as a sample (Bryman, A., 2016, Huang, C., 2010).

The questionnaire used a four-point Likert scale with response options: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). Scoring was determined a priori. The indicators used to evaluate the product being developed are presented in Tables 1 and 2 (Aljneibi, R., 2024, Yeung, K., 2021).

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Table 1. Media Expert Validation Instrument

No	Aspect	Indicator
1	Media Display	Accuracy in theme usage
		Appropriateness of background color
		Quality of images and avatars
		Accuracy in the layout of navigation buttons
2	Media Operation	Ease of operating the program
		Clarity of media instructions
		Accuracy of navigation button functions
		Clarity of menus and buttons
3	Usefulness	Facilitates the learning process
		Attracts learning interest

Table 2. User Questionnaire Instrument

Indicator	**Number of Items**
User satisfaction	2
Ease of use	2
Graphic design display	3
Navigation system	2
Content	3
Impact on individuals	3

Data Analysis

Data analysis was conducted to evaluate the results of the study. Since this research does not focus on an in-depth statistical approach, the data were analyzed using a descriptive percentage system (Castro, M., 2024, Junining, E., 2020).

The data presentation for the Media Feasibility Test was explained in percentage form using the following formula:

$$P=\frac{\text{Score Obtained}}{\text{Total Score}} \times 100$$

P= The percentage for each item (Azzahra, D. B., 2020).

Table 2. Percentage Range and Qualitative Criteria

No.	Percentage Score	Qualification	Description
1	4.21 – 5.00	Very Good	Highly feasible, no revision required
2	3.41 – 4.20	Good	Feasible, no revision required
3	2.61 – 3.40	Fair	Not fully appropriate, revision required
4	1.81 – 2.60	Poor	Not feasible, revision required
5	1.00 – 1.80	Very Poor	Highly unfeasible, revision required

User Response Data Analysis

For the presentation of user response data, the analysis was expressed in percentage form using the following formula:

$$P = \frac{n}{N} \times 100$$

Explanation:

P = Percentage of sub-variable

n = Total score of each sub-variable

N = Maximum possible score

The next step, after obtaining the percentage for each sub-variable indicator, is to analyze the results by referring to the percentage range and qualitative criteria table in order to determine the classification (Table 2).

Table 3. Percentage Range and Qualitative Criteria

No.	Interval (%)	Criteria
1	76% < score ≤ 100%	Good
2	51% < score ≤ 75%	Fair
3	26% < score ≤ 50%	Poor
4	0% < score ≤ 25%	Very Poor

Results

This study employed the ADDIE development model (Analysis, Design, Development, Implementation, Evaluation). The research resulted in the development of a Met aversity-based learning medium integrating Virtual Reality to produce a Digital Game-Based Learning (DGBL) environment. The validation results from media experts showed an average score of 4.35 (classified as *highly feasible*), while student responses yielded an average of 82.5% (categorized as *good to very good*).

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The findings are presented according to each development stage as follows:

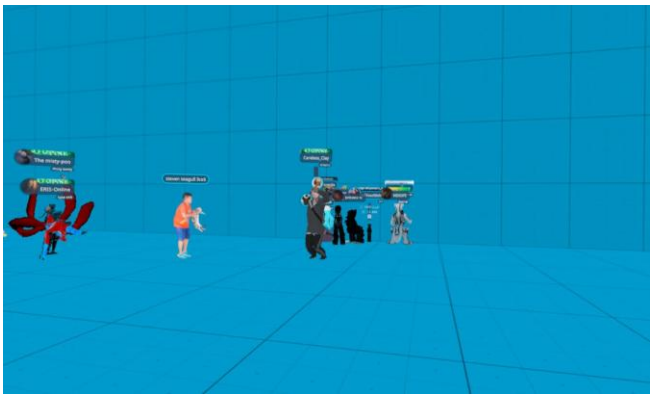
Analysis Stage

This stage revealed that students at Universitas Sembilanbelas November Kolaka still experienced anxiety in speaking English, lacked self-confidence, and feared making mistakes. The learning media used were predominantly text-based and lecture-oriented, which did not adequately facilitate interactive and intensive speaking practice. Therefore, there is a need for innovative learning media that are interactive, immersive, and engaging, particularly those based on Virtual Reality (VR) and Digital Game-Based Learning (DGBL).

Design Stage

Based on the analysis results, a Metaversity-based platform was designed, equipped with avatars, private rooms, world space visualization, interaction typology, and speech recognition. Research instruments included a media expert validation questionnaire (using a 5-point Likert scale) and a student response questionnaire (using a 4-point Likert scale converted into percentages), which were developed to measure the feasibility and effectiveness of the medium.

picture 2. Choosing the avatar



Picture 3. Entering discord stage

Development Stage

The learning medium was developed by integrating VRChat and Discord. The resulting prototype consisted of an authentication module, an avatar module, a private room module, and interactive content modules featuring conversation-based learning and quizzes. The validation test conducted by media experts produced an average score of 4.35, which falls into the highly feasible category.

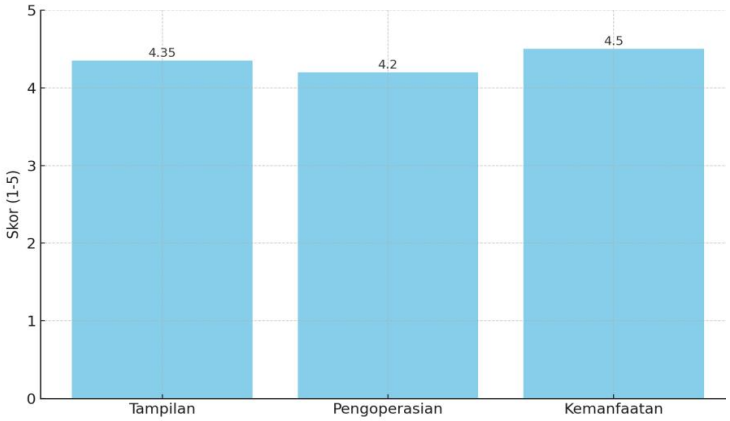


Figure 4.1. Media Expert Validation Results

The product was tested on 30 students from both campuses within the same university namely Kolaka and Buton Tengah. The results of the student response questionnaire showed an average score of 82.5%, which falls into the good to very good category. The highest indicator was individual impact (86%), indicating that the medium successfully enhanced students' motivation, self-confidence, and willingness to speak.

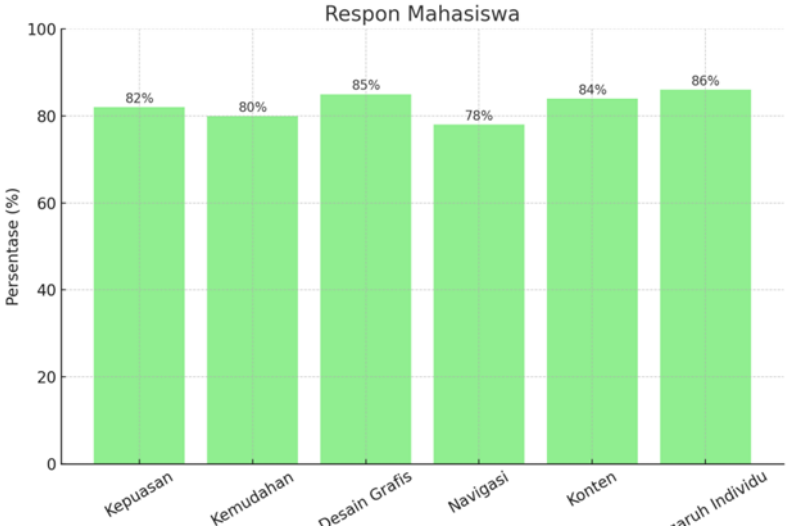


Figure 4.2. Student Responses

Evaluation Stage

The evaluation was conducted based on feedback from media experts and student responses. The medium was declared highly feasible for use; however, refinements are still required in terms of navigation features and technical support,

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particularly related to VR devices and stable internet connectivity.
In addition to the quantitative results, students provided qualitative feedback that highlighted both the strengths and areas for improvement of the VR-based learning medium.
Several students emphasized about they became more confident in speaking English
"Learning with VR made me more confident in speaking English because it felt like playing a game rather than taking a test".

Others appreciated the engaging design
"The graphic design is attractive and creates a more enjoyable learning atmosphere, although the navigation was somewhat confusing at the beginning".

Some of them said that
"I found the content relevant to my needs and immediately applicable in everyday conversations".

Despite these positive aspects, some students pointed out technical challenges, stating that
"The unstable internet connection sometimes disrupted interactions, so I hope there will be better technical support".

Overall, the experience was considered beneficial, as reflected in the statement.
"This experience made me more willing to speak English, especially during discussions with peers in the virtual space".

Discussion

The findings of this study indicate that the Metaversity-based learning medium integrating Virtual Reality (VR) and Digital Game-Based Learning (DGBL) is highly feasible and effective for use in English language learning. The validation results from media experts (mean score of 4.35) and student responses (82.5%) demonstrate strong acceptance of the product. These findings are consistent with existing theories and previous research.

First, in terms of student engagement, the use of avatars and virtual worlds was found to boost self-confidence and reduce speaking anxiety. Nasir et al. (2024) reported that avatars enhance emotional engagement, while Castro and Garduño (2024) demonstrated that VR provides higher motivation compared to traditional learning methods.

Second, the effectiveness of VR in language learning is evident in the improvement of students' motivation and self-confidence. Zhang (2024) emphasized that VR creates a safe, simulated environment for practicing speaking, thereby reducing foreign language anxiety. Similarly, Zammit (2023) identified VR

as an effective medium for foreign language education.

Third, the integration of DGBL fosters students' intrinsic motivation through interactive quizzes and game-based challenges. Chen and Tu (2021) noted that DGBL enhances self-efficacy and learning outcomes, while Widiyatmoko et al. (2023) further highlighted that VR-based games not only improve STEM literacy but also strengthen digital literacy.

Fourth, the use of Discord strengthens student interaction. Rizal and Aesthetika (2022) found that Discord improves interpersonal communication, while Juliansyah and Febryanti (2024) reported positive gamer perceptions of Discord as an alternative communication medium. Thus, the integration of VR, DGBL, and Discord has been proven to create learning environments that are immersive, interactive, enjoyable, and aligned with the needs of the Society 5.0 era.

Despite the promising findings, this study has several limitations. First, the sample size was relatively small and drawn from a single institution, which may affect the generalizability of the results. Second, the duration of the study was short, limiting the ability to observe long-term impacts on student learning outcomes and engagement. Future research should involve a larger and more diverse sample, as well as a longitudinal design to better understand the sustained effects of Metaversity-based learning.

Theoretically, this study contributes to the growing body of knowledge in both language learning and educational technology. It supports socio-constructivist theories by demonstrating how virtual environments and game-based elements can foster social interaction, collaboration, and learner autonomy. Furthermore, it reinforces the affective filter hypothesis in second language acquisition (Krashen, 1982), highlighting how reducing anxiety through immersive VR environments facilitates better speaking performance.

Compared to other innovative approaches such as Augmented Reality (AR) and mobile applications, the Metaversity-based platform offers a more immersive and socially engaging learning experience. While AR has shown promise in contextual vocabulary learning (Chen & Hsu, 2020) and improving pronunciation through visual cues (Ibáñez & Delgado-Kloos, 2018), it lacks the depth of interaction and emotional presence that VR provides. Similarly, mobile applications like Duolingo or HelloTalk enhance language input and vocabulary recall, but often fall short in supporting real-time speaking practice and peer collaboration (Godwin-Jones, 2017). Thus, the Metaversity approach offers a more comprehensive, immersive, and socially interactive environment for language development.

In conclusion, this study demonstrates that Metaversity-based media can reduce student anxiety, increase motivation, and enrich learning experiences. The implication is that such media can serve as an innovative solution for English language learning in higher education, particularly in supporting speaking skills, while simultaneously promoting students' digital literacy in the era of Society 5.0.

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Conclusion

This study confirms that the developed medium is effective in enhancing students' motivation, self-confidence, and English-speaking skills. The integration of VR and DGBL promotes active engagement, reduces anxiety, and creates an immersive and enjoyable learning experience. Furthermore, the inclusion of Discord strengthens communication and collaboration among students. In conclusion, the Metaversity-based medium integrating VR and DGBL is highly feasible and relevant as an innovative approach to English language learning in higher education. It supports independent and interactive learning while fostering students' digital literacy, aligning with the demands of the Society 5.0 era.

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