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# DEVELOPING A UNITY-BASED EDUCATIONAL GAME: NEEDS ANALYSIS FOR EFFECTIVE ENGLISH LEARNING AT SMP NEGERI 2 SUNGAI LILIN

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## ABSTRACT

*This study aims to analyze the needs for developing a Unity-based educational game on the topic Favourite Food and Drinks in English language learning at SMP Negeri 2 Sungai Lilin. A descriptive qualitative approach was employed, involving two English teachers and 60 seventh-grade students as research subjects. Data were collected through interviews, observations, and needs analysis questionnaires, and analyzed using descriptive qualitative and simple quantitative methods. The findings reveal that the learning process is still dominated by conventional media such as textbooks and PowerPoint presentations, which have not effectively enhanced students' motivation and active participation. Both teachers and students showed a high level of enthusiasm toward the use of interactive educational game-based learning media. The questionnaire results indicated an average needs score of 83.96%, categorized as very high, with the aesthetic aspect receiving the highest score (89.2%). These findings confirm that educational game-based media are highly relevant to improve students' vocabulary mastery and communicative abilities. Therefore, the development of a Unity-based educational game is recommended as an innovative solution to create interactive, engaging, and meaningful English learning in the digital era.*

***Keywords:*** *needs analysis, educational game, Unity, English learning, Favourite Food and Drinks*

## ABSTRAK

Penelitian ini bertujuan untuk menganalisis kebutuhan pengembangan permainan edukatif berbasis *Unity* pada materi *Favourite Food and Drinks* dalam pembelajaran Bahasa Inggris di SMP Negeri 2 Sungai Lilin. Pendekatan yang digunakan adalah deskriptif kualitatif dengan subjek penelitian terdiri dari dua guru Bahasa Inggris dan 60 peserta didik kelas VII. Data dikumpulkan melalui wawancara, observasi, dan angket kebutuhan, kemudian dianalisis secara deskriptif kualitatif dan kuantitatif sederhana. Hasil penelitian menunjukkan bahwa proses pembelajaran masih didominasi oleh media konvensional seperti buku teks dan *PowerPoint*, yang belum mampu meningkatkan motivasi serta partisipasi aktif siswa. Siswa dan guru menunjukkan antusiasme tinggi terhadap penggunaan media pembelajaran interaktif berbasis permainan edukatif. Hasil angket menunjukkan rata-rata kebutuhan sebesar 83,96% dengan kategori sangat tinggi, di mana aspek estetika memperoleh nilai tertinggi (89,2%). Temuan ini menegaskan bahwa media pembelajaran berbasis *game* edukatif sangat relevan dikembangkan untuk meningkatkan pemahaman kosakata dan kemampuan komunikasi siswa. Oleh karena itu, pengembangan permainan edukatif berbasis *Unity* direkomendasikan sebagai solusi inovatif untuk menciptakan pembelajaran Bahasa Inggris yang interaktif, menarik, dan bermakna di era digital.

**Kata Kunci:** analisis kebutuhan, permainan edukatif, Bahasa Inggris,

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## INTRODUCTION

The rapid development of information and communication technology in today's digital era has had a significant impact on various aspects of life, including the field of education (Haleem et al., 2022). Digital transformation encourages the education sector to adapt to technology-based innovations that can improve the quality of learning (D. Safitri et al., 2024). One of the innovations increasingly utilized in education is the use of educational game-based learning media (Yosimayasari, 2021; Li et al., 2024). This type of media not only enhances student engagement in the learning process but also creates an interactive, enjoyable, and meaningful learning atmosphere (Ivgin & Akcay, 2024).

In the context of 21st-century learning, students are required to develop critical thinking, creativity, communication, and collaboration skills (S. M. Putri & Ilahiyah, 2025). Conventional, teacher-centered learning methods often fail to meet these demands, as they tend to make students passive (Kristyaningdih et al., 2023). Therefore, the use of technology, such as game-based learning, has become an effective strategy to increase students' motivation and participation (Camacho-Sánchez et al., 2022). Game-based learning enables the integration of entertainment and education through play activities that remain focused on achieving learning competencies (Putri et al., 2025).

One of the subjects that requires innovative learning approaches is English, as foreign language proficiency has become an essential skill in the era of globalization (Kurniawan, 2024). However, in reality, many junior high school students still struggle to understand vocabulary and simple sentence structures (Putri et al., 2024). This issue is particularly evident in topics related to daily life, such as *Favourite Food and Drinks*, where students need to master vocabulary about food and beverages as well as express likes and dislikes correctly in English (Karunianingsih et al., 2022).

Based on preliminary observations and interviews with English teachers at SMP Negeri 2 Sungai Lilin, it was found that the learning process is still dominated by the use of conventional media, such as textbooks, whiteboards, and student worksheets. Technology-based media, especially digital educational games, have not been widely utilized in the teaching and learning process. This has resulted in low student interest and limited active engagement during lessons. Teachers also noted that students show greater enthusiasm when learning activities include engaging visual and interactive elements. To address this issue, it is necessary to develop innovative learning media that can capture students' attention while helping them understand the material in an enjoyable way. One alternative solution is to develop an educational game using

Unity — a game engine development platform that enables the creation of interactive games with appealing visuals and easy operation (Prayudha & Chotijah, 2024). Unity-based media can be used to integrate English learning content into interactive and challenging educational games (Khaerudin et al., 2023).

Therefore, it is essential to conduct a needs analysis as the initial step in developing such educational games. The needs analysis aims to gather information about actual conditions in the classroom, identify learning challenges, and explore teachers' and students' expectations of the media to be developed. The results of this analysis will serve as a strong foundation for designing a Unity-based educational game that is relevant, engaging, and effective in improving students' understanding of the *Favourite Food and Drinks* topic at SMP Negeri 2 Sungai Lilin.

## LITERATURE REVIEW

### *1. Learning Media in the Context of 21st-Century Education*

Learning media is one of the essential components in the teaching and learning process, serving as a bridge between teachers and students in delivering lesson materials (Jannah & Atmojo, 2022). In the context of 21st-century education, learning media not only functions as a supporting tool but also as a means to develop critical thinking, creativity, communication, and collaboration skills (Wicaksono et al., 2022). The utilization of technology-based digital media represents an effort to align the learning process with the characteristics of the digital generation, who are more responsive to visual displays, interactivity, and game-based challenges (Shemy, 2022).

### *2.* Game-Based Learning (GBL)

Game-Based Learning (GBL) is a learning approach that integrates elements of games with educational objectives to enhance students' motivation, engagement, and learning outcomes (Sugianto, 2023). Meta-analysis studies have shown that the use of GBL has a positive effect on students' cognitive development and learning motivation compared to conventional methods (Hu et al., 2022). In the context of English language learning, educational games have been proven to strengthen vocabulary mastery and understanding of simple sentence structures through interactive media relevant to everyday life (Putri & Akhiriyah, 2024).

### *3.* Unity as a Platform for Educational Game Development

Unity is one of the most popular game engines for developing interactive educational games. This platform supports the creation of both 2D and 3D applications that can be run on various devices such as computers, smartphones, and tablets. Unity offers advantages in design flexibility, ease of integrating visual elements, and the ability to combine animation, sound, and interactivity dynamically (Aji et al., 2023). In the field of education, research by Nurdiyanto, (2023) shows that the trend of using Unity 3D as a learning software tool continues to increase due to its ability to create engaging and interactive learning experiences. Moreover, Unity allows developers to customize games according to curriculum needs and students' characteristics, making the learning process more contextual and enjoyable (Rofi'i et al., 2023).

### *4.* English Language Learning on the Topic of Favourite Food and Drinks

English is one of the key subjects that plays an important role in equipping students with global communication skills (Zannah et al., 2023). At the junior high school level, English learning focuses on developing basic skills in listening, speaking, reading, and writing (Andriani et al., 2024). One of the topics taught is *Favourite Food and Drinks*, which aims to introduce vocabulary related to food and beverages and to train students to express likes and dislikes using simple sentence structures (Ikhsan, 2025). However, observations and previous studies indicate that students often face difficulties in remembering new vocabulary and understanding its use in everyday communication (Bakti, 2017). This situation calls for the development of innovative learning media that can meet students' needs through a more visual, interactive, and contextual approach.

### *5. Needs Analysis in Learning Media Development*

Needs analysis is an essential initial stage in the process of developing learning media (Harlinda & Suratmi, 2024). It is conducted to identify the gap between current learning conditions and the ideal expectations, encompassing aspects such as student characteristics, learning conditions, available resources, and media requirements (Safitri et al., 2023). In the context of educational game development, needs analysis ensures that the media being developed truly aligns with students' characteristics, teachers' needs, and curriculum demands. The results of the needs analysis also form the foundation for designing the game, determining learning content, and developing interactive features that support learning objectives (Aprilia et al., 2024).

### Synthesis of the Literature Review

Based on the literature review above, it can be concluded that the development of educational game-based learning media—particularly using Unity—has great potential to enhance students' motivation and learning outcomes. In the context of English language learning, educational games can help students understand vocabulary and language structures through active and enjoyable learning experiences. However, before the development process begins, a comprehensive needs analysis must be conducted to ensure that the resulting media aligns with the actual learning needs in the field, especially at SMP Negeri 2 Sungai Lilin for the *Favourite Food and Drinks* topic.

## RESEARCH METHOD

### Type and Approach of the Research

This study employs a descriptive qualitative approach, aiming to systematically and factually describe the needs for developing a Unity-based educational game on the Favourite Food and Drinks topic at SMP Negeri 2 Sungai Lilin. This approach was chosen because the study does not focus on hypothesis testing, but rather on gaining an in-depth understanding of the actual conditions, needs, and potential for developing interactive learning media within the school environment. According to Furidha (2024), descriptive qualitative research enables researchers to analyze phenomena, experiences, and social conditions occurring naturally in the field through

interviews, observations, and documentation without manipulating variables. Furthermore, descriptive qualitative research is used when researchers aim to obtain contextual and in-depth insights into participants' behaviors, perceptions, and needs (Saul, 2024). This approach is highly relevant in educational contexts, as it helps researchers identify gaps between the actual learning conditions and the ideal expectations, which serve as an important foundation for designing learning media that align with the needs of students and teachers.

Research Subjects and Location

The research subjects consist of:

1. Seventh-grade English teacher
2. Seventh-grade students from class VII.1 (31 respondents) and VII.2 (29 respondents)
   This study was conducted at SMP Negeri 2 Sungai Lilin, Musi Banyuasin Regency, South Sumatra, during the odd semester of the 2025/2026 academic year. The location was selected using purposive sampling, considering that the school has implemented the Merdeka Curriculum and possesses adequate information technology facilities to support digital learning.

**Data Collection Techniques**

The data collection techniques used in this study consist of three main methods:

1. Semi-structured interviews were conducted with the English teacher to obtain in-depth information regarding teaching strategies, students' difficulties in understanding vocabulary, and expectations toward educational game-based learning media. The following table presents the interview guideline:

Table 1. Interview Instrument Blueprint

| No. | Aspect Examined | Indicators of Information Explored | Example Interview Questions |
|---|---|---|---|
| **1** | Learning media needs | Types of media used by teachers and students in English learning. | What types of media are usually used in your English teaching and learning process? |
| **2** | Learning problems | Obstacles or challenges faced in teaching the *Favourite Food and Drinks* topic. | What challenges do you face when teaching the *Favourite Food and Drinks* topic? |
| **3** | Students' interest and motivation | Level of enthusiasm and engagement of students toward the current learning media. | How enthusiastic are the students about the learning media currently used? |
| **4** | Expectations for new media | Teacher's expectations of new learning media that are more effective and engaging. | What are your expectations for new learning media? |
| **5** | Curriculum alignment | The integration of learning media with learning outcomes and competencies in the *Merdeka Curriculum*. | How is the learning media aligned with the *Merdeka Curriculum*? |
| **6** | Ease of media use | Accessibility and ease of use of the media for both teachers and students. | Is the current learning media easy to access and use by students? |

| | | | |
|---|---|---|---|
| **7** | Effectiveness of learning media | The potential of game-based educational media in improving students' learning outcomes. | Do you think game-based educational media can improve students' learning outcomes? |

2. The student needs questionnaire was used to identify students' preferences, interests, and needs regarding interactive learning media. The questionnaire was constructed using a Likert scale of 1–5, with the following categories:
1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. The following table presents the blueprint of the student needs analysis questionnaire instrument.

Table 2. student needs analysis questionnaire instrument.

| No. | Aspect | Indicators of Information Explored | Item Numbers |
|---|---|---|---|
| **A** | Pedagogical | 1. The level of ease with which students understand English material through visual media (images, videos, animations). 2. The level of students' learning motivation through interactive media such as games or digital exercises. | 1–2 |
| **B** | Technical | Availability of access to devices and internet networks that support the use of digital media. | 3 |
| **C** | Cognitive | 1. Students' ability to quickly understand information when presented in engaging digital formats. 2. Students' difficulty in understanding material without the help of learning media. | 4–5 |
| **D** | Aesthetic | 1. The influence of color, images, and visual appearance on students' understanding. 2. Students' attraction to visually designed and appealing learning media. | 6–7 |
| **E** | Evaluation | 1. Students' ability to restate the material in their own words. 2. Students' confidence level in answering questions or quizzes. 3. Students' perception of the effectiveness of | 8-10 |

**Research Instruments**

***The research instruments consisted of:***

• Interview guidelines for teachers,
• Learning observation sheets, and
• Student needs questionnaires.

The instruments were validated by two experts in instructional media and one English teacher to ensure clarity, relevance, and content consistency. The content validity was calculated using the percentage formula (Widoyoko, 2018):

$$v = \frac{\Sigma x}{\Sigma xmax} \times 100\%$$

Description

*V = Validity Percentage*

$\Sigma x$ = *Total score obtained*
$\Sigma x$ = *Maximal total score*

Tabel 3. Validity Criteria

| Percentage | Validity Category |
|---|---|
| **85–100%** | Very Valid |
| **70–84%** | Valid |
| **55–69%** | Fairly Valid |
| **< 55%** | Less Valid |

**Data Analysis Technique**

***The data were analyzed using descriptive qualitative and simple quantitative methods to obtain a comprehensive overview of the needs for developing learning media.***

1. Qualitative Data (from interviews and observations) were analyzed following the stages proposed by Miles, Huberman, & Saldaña (2014), namely:
    - Data reduction: selecting and focusing on relevant data,
    - Data display: organizing data in narrative or tabular form, and
    - Conclusion drawing/verification: interpreting findings and confirming conclusions.
2. Quantitative Data (from questionnaires) were analyzed using the needs percentage formula:

$$P = \frac{f}{N} \times 100\%$$

Description
*P = Need Percentage*
*f = frequency of Respondent in certain category*
*N = Total Respondent*

The resulting percentages were then interpreted using the following criteria (Riduwan, 2012):

Table 4 Assesment Criteria

| Percentage | Needs Category |
|---|---|
| **81–100%** | Very High |
| **61–80%** | High |
| **41–60%** | Moderate |
| **21–40%** | Low |
| **0–20%** | Very Low |

**FINDING**

**Teacher Interview Results**

Interviews were conducted with two English teachers from SMP Negeri 2 Sungai Lilin, namely Mrs. Nur Isnaini, S.Pd., Gr. and Mr. Zulhaidir, S.Pd., Gr., on October 28, 2025. The purpose of the interview was to obtain in-depth information about the current conditions of English

learning, particularly in the topic Favourite Food and Drinks, as well as the teachers' needs for game-based educational media.

Based on the interviews, it was found that both teachers still rely on conventional media such as textbooks, student worksheets (LKPD), and PowerPoint presentations in their teaching process. Occasionally, they use educational videos from YouTube to support material delivery. However, the use of interactive digital media, especially educational games, has never been implemented. The teachers acknowledged that the current media are not fully effective in engaging students' attention and promoting active participation during learning.

In teaching the topic Favourite Food and Drinks, both teachers stated that the main challenge faced by students lies in limited vocabulary. Many students struggle to understand and use new vocabulary to express likes and dislikes toward foods and drinks. This difficulty is further exacerbated by boredom caused by monotonous and teacher-centered learning patterns. Regarding students' interest and motivation, both teachers agreed that students' enthusiasm increases when learning includes visual and interactive elements, such as the use of pictures, videos, or simple games. In learning environments that incorporate game-like activities, students become more enthusiastic, actively ask questions, and are more confident in trying to speak English. Both teachers also expressed similar expectations for the development of new media, believing that game-based learning has great potential to improve students' understanding of vocabulary and sentence structures. They expect the media to provide a fun, interactive learning experience that fosters student engagement while maintaining academic depth. The teachers also emphasized the importance of including quizzes or vocabulary games that offer instant feedback, allowing students to learn independently and reflectively.

In relation to the Merdeka Curriculum, the teachers explained that the learning media should support the English Learning Outcomes (Capaian Pembelajaran / CP), particularly in fostering students' ability to communicate in simple and contextual ways. Interactive digital media are considered in line with the Merdeka Curriculum's philosophy, as they encourage students to be active, creative, and learn based on their interests and real-life experiences. From the perspective of accessibility and usability, both teachers reported that most students already own devices such as smartphones or personal laptops that can be used to access digital media. However, they also noted internet connectivity limitations in certain areas; therefore, the developed media should ideally be designed for offline use. Finally, both teachers expressed confidence that game-based educational media are effective in improving students' learning outcomes. Such games not only capture students' attention but also create a challenging and enjoyable learning environment. Through a "learning by playing" approach, students can more easily acquire vocabulary, improve pronunciation, and build self-confidence in using English.

Overall, the interview results indicate that the teachers have a strong need and positive attitude toward the development of Unity-based learning media. They believe that integrating educational game technology can serve as an innovative solution to enhance motivation and learning effectiveness in English instruction, especially for the Favourite Food and Drinks topic at SMP Negeri 2 Sungai Lilin.

**Analysis Results of Student Needs Questionnaire**

To obtain a more comprehensive understanding of students' needs regarding interactive learning media based on educational games, the researcher distributed a needs analysis questionnaire to 60 students from classes VII.1 and VII.2 at SMP Negeri 2 Sungai Lilin. The questionnaire consisted of 10 statements representing five main aspects: pedagogical, technical, cognitive, aesthetic, and evaluative. Each statement was rated using a 5-point Likert scale, where a score of 1 indicates strongly disagree and a score of 5 indicates strongly agree. The collected data were then processed quantitatively to calculate the average score per aspect, which was subsequently converted into percentage form.

This analysis aimed to identify the extent to which students need learning media that are more engaging, easy to use, and capable of helping them understand the Favourite Food and Drinks topic in an enjoyable and meaningful way. The processed data are presented in Figure 1, which shows the average percentage of student needs across the five analyzed aspects.

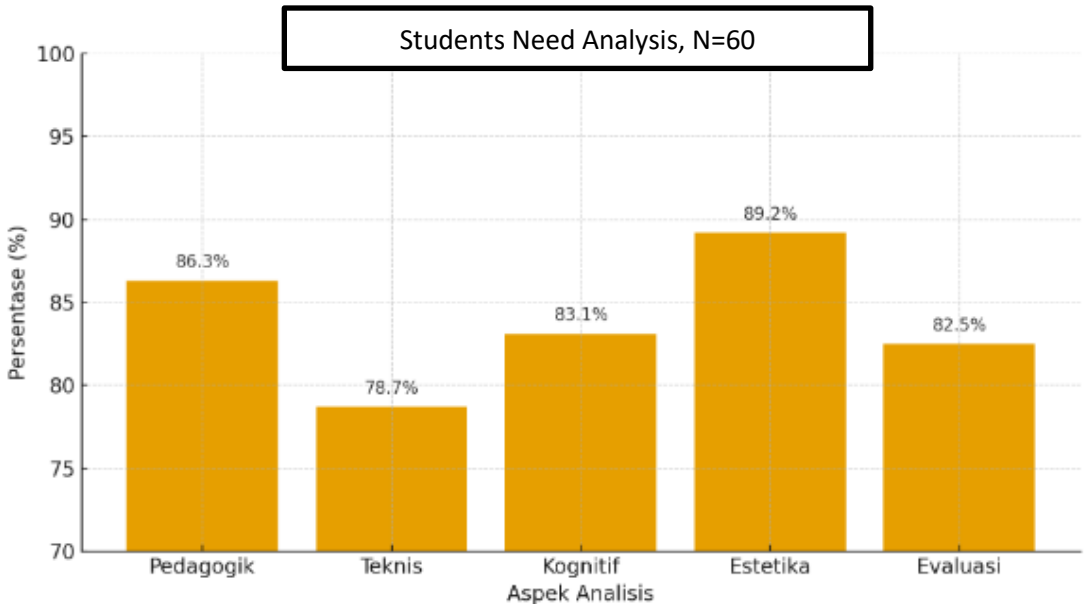



**Figure 1. Students Need Analysis**

The analysis results show that, overall, the level of students' needs for the development of game-based learning media falls into the very high category, with an average percentage of 83.96%. This indicates that the majority of students have a strong interest in and readiness for learning through interactive digital media.

A closer examination reveals that the aesthetic aspect obtained the highest score at 89.2%, suggesting that students place great importance on the visual appearance, color, and design of learning media. This highlights the significance of visually appealing elements in enhancing students' focus and engagement during the learning process. Furthermore, the pedagogical aspect

scored 86.3% (very high category), showing that students find it easier to understand English materials when presented in visual formats such as images, videos, or animations. The cognitive aspect reached 83.1%, indicating that students comprehend information more effectively when it is delivered through engaging digital media rather than conventional methods. Meanwhile, the evaluative aspect scored 82.5%, reflecting students' high level of confidence when interacting with exercises or interactive quizzes. They reported that receiving immediate feedback from the media helped them better understand their learning progress. The technical aspect achieved 78.7% (high category), suggesting that while most students already own personal devices for accessing digital media, a small number still experience internet connectivity issues.

In general, these findings demonstrate that all five aspects—pedagogical, technical, cognitive, aesthetic, and evaluative show a very high level of validity and urgency for developing Unity-based educational games. In other words, game-based learning media are considered highly feasible and relevant as an innovative solution for teaching the *Favourite Food and Drinks* topic at SMP Negeri 2 Sungai Lilin.

## DISCUSSION

The findings obtained through interviews, observations, and questionnaires distributed to English teachers and seventh-grade students at SMP Negeri 2 Sungai Lilin indicate that the need for innovative, game-based learning media falls into the very high category. This condition highlights a significant gap between the currently used conventional media and the students' actual need for interactive, engaging, and user-friendly learning tools.

Teachers reported that English instruction—particularly for the topic *Favourite Food and Drinks*—is still dominated by the use of textbooks and simple PowerPoint presentations, which fail to fully engage students. Conversely, students displayed a high level of enthusiasm for learning activities that include visuals, animations, and game elements. This finding aligns with previous studies showing that game-based learning effectively enhances students' motivation and learning outcomes by integrating entertainment with educational activities (Rabbani et al, 2016; Yu, 2023). Similarly, Maryani et al., (2025) emphasized that visual media such as images and animations significantly improve students' vocabulary comprehension more quickly and effectively. These findings are consistent with the results of this study's questionnaire, which showed that all five need aspects—pedagogical, technical, cognitive, aesthetic, and evaluative—achieved very high percentages, with an average of 83.96%, indicating strong student interest and readiness for interactive, game-based learning media.

Based on these results, Unity-based educational games are highly potential for development, as they meet students' learning needs in the digital era. The game-based learning approach promotes a fun yet meaningful learning experience. Through interaction and challenge within the game, students not only learn to recognize vocabulary related to food and drinks but also practice expressing preferences (*likes and dislikes*) communicatively. The analysis also shows that English learning at the junior high school level requires visual and interactive approaches. The *Favourite Food and Drinks* topic is particularly well-suited for development into a game that

incorporates images, animations, and simple dialogues relevant to students' everyday lives. The aesthetic aspect, with the highest score (89.2%), plays a dominant role in influencing learning motivation, proving that visual design is not merely decorative but essential in enhancing engagement and motivation (Fadillah et al., 2023; Rahayu & Utami, 2023).

From a technical perspective, most students already own personal devices such as smartphones, indicating a high potential for implementing digital media (Rosiva et al., 2022). However, some still experience internet connectivity issues, particularly in rural areas (Maryani et al., 2025). Therefore, the developed media should be accessible offline to ensure equitable use among all students. The research conducted by (Syukur et al., 2022) shows that applications designed to be flexible for both online and offline use can greatly help students who experience internet connectivity issues Human resource readiness at the school is also relatively good—teachers demonstrate an adequate understanding of the Merdeka Curriculum and recognize the importance of technology-based innovation for developing students' communicative competence (Bastian et al., 2023). Nevertheless, teachers still require training in using game-based learning applications as teaching media (Widjayatri & Nurhasanah, 2024). Thus, developing Unity-based educational games is considered highly relevant to both curriculum needs and student characteristics.

The main features suggested for integration into the media include:

1. Vocabulary games (e.g., matching words or drag-and-drop) to strengthen students' understanding of new words.
2. Listening quizzes to train pronunciation and listening comprehension.
3. Colorful and animated graphics to create an enjoyable, non-monotonous learning atmosphere.
4. Automatic scoring and feedback features to help both teachers and students monitor learning progress in real time.

Overall, the findings of this study provide a strong empirical foundation for the next stage: developing a Unity-based educational game prototype. The media to be designed is expected to integrate curriculum content with engaging learning activities, feature an attractive interface, be easy to operate, and support automated learning evaluation. Therefore, the developed media will not only serve as a teaching aid but also as an innovative tool to enhance motivation, engagement, and learning outcomes for the *Favourite Food and Drinks* topic at SMP Negeri 2 Sungai Lilin.

## CONCLUSION

Based on the results and discussion, it can be concluded that the needs analysis for the development of a Unity-based educational game on the *Favourite Food and Drinks* topic at SMP Negeri 2 Sungai Lilin indicates a very high level of urgency. Both teachers and students expressed the need for more interactive, engaging, and contextual learning media to enhance motivation and vocabulary comprehension in English learning. The questionnaire results showed an average need level of 83.96% (very high category), with the aesthetic aspect scoring the highest, emphasizing the importance of appealing visual design in the learning process. In addition, the school's

technical infrastructure and human resources are sufficiently prepared to support the use of digital media, although an offline access option is recommended to address internet limitations. Therefore, the development of a Unity-based educational game is considered highly relevant and feasible as an innovative learning medium aligned with the Merdeka Curriculum and the characteristics of the students, aimed at improving the effectiveness and quality of English learning at the junior high school level.

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**BIBLIOGRAPHY**

Aji, S. D., Hakim, A. R., Novita, K. M., & Hudha, M. N. (2023). Unity-Engine-Based E-Module to Increase Learning Results on Online Learning. *AL-ISHLAH: Jurnal Pendidikan*, *15*(4), 5886–5892. https://doi.org/10.35445/alishlah.v15i4.4590

Andriani, A., Dewi, N. S. N., & Wijayanti, A. (2024). Junior High School English Teachers' Perception on Games- Based English Vocabulary Teaching. *Jurnal Teknologi Pendidikan (JTP)*, *23*(1), 46–67. https://doi.org/10.24114/jtp.v8i2.3329

Aprilia, N., Syahril, S., & Azhar, A. (2024). Needs Analysis for the Development of Blended Learning Media Based on PBL to Improve Critical Thinking Skills. *Jurnal Paedagogy*, *11*(1), 186. https://doi.org/10.33394/jp.v11i1.9934

Bakti, K. N. N. (2017). Vocabulary Learning Strategies Used by Junior High School Students. *Indonesian Journal of English Language Studies (IJELS)*, *3*(2), 44–59. https://doi.org/10.24071/ijels.v3i2.1064

Bastian, A., Firdaus, M., & Rizky, R. (2023). The School Readiness in Implementing the Merdeka Curriculum in Pekanbaru : A Survey of Teachers and Students' Perspectives. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran*, *9*(4), 1162–1173.

Camacho-Sánchez, R., Rillo-Albert, A., & Lavega-Burgués, P. (2022). Gamified Digital Game-Based Learning as a Pedagogical Strategy: Student Academic Performance and Motivation. *Applied Sciences (Switzerland)*, *12*(21). https://doi.org/10.3390/app122111214

Fadillah, E. F., Nasrullah, N., & Muth'im, A. (2023). The use of video games on vocabulary learning in English as second language context. *IDEAS Journal of Language Teaching and Learning Linguistics and Literature*, *11*(2), 1876–1885. https://doi.org/10.24256/ideas.v11i2.4802

Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital

technologies in education: A review. *Sustainable Operations and Computers*, *3*(May), 275–285. https://doi.org/10.1016/j.susoc.2022.05.004

Harlinda, A., & Suratmi. (2024). Needs Analysis As the First Step of Articulate Storyline Assisted Learning Media Development. *Jurnal Cakrawala Pendas*, *10*(3), 446–457. https://doi.org/10.31949/jcp.v10i3.9082

Hu, Y., Gallagher, T., Wouters, P., van der Schaaf, M., & Kester, L. (2022). Game-based learning has good chemistry with chemistry education: A three-level meta-analysis. *Journal of Research in Science Teaching*, *59*(9), 1499–1543. https://doi.org/10.1002/tea.21765

I Wy Ana Kurniawan. (2024). English Language and Its Importance as Global Communication. *Samā Jiva Jnānam (International Journal of Social Studies)*, *2*(1), 51–57. https://doi.org/10.25078/ijoss.v2i1.3920

Ikhsan, A. (2025). TEACHING VOCABULARY IN INDONESIAN EFL CLASSROOMS : A COMPARATIVE CASE STUDY OF JUNIOR HIGH SCHOOL. *GLOBAL: Education Language and Humanity Journal*, *3*(1), 68–78.

Ivgin, A. B., & Akcay, H. (2024). The Impact of Using Educational and Digital Games on Middle School Students Science Achievement. *International Journal of Technology in Education*, *7*(3), 386–416. https://doi.org/10.46328/ijte.781

Karunianingsih, D. A., Wahyudin, A., Utomo, A. S., Oktora, D. D., & Marwati, A. (2022). Pengembangan Video Media Pembelajaran Berbasis Multimedia dan Animasi bagi Guru Sekolah Dasar. *PARAHITA : Jurnal Pengabdian Kepada Masyarakat*, *3*(1), 17–28. https://doi.org/10.25008/parahita.v3i1.59

Khaerudin, M., Srisulistiowati, D. B., & Warta, J. (2023). Game Edukasi Dengan Menggunakan Unity 3D Untuk Menunjang Proses Pembelajaran. *Jurnal Sistem Informasi Universitas Suryadarma*, *8*(2), 263–272. https://doi.org/10.35968/jsi.v8i2.741

Komang Santi Widi Rahayu, & I G A Lokita Purnamika Utami. (2023). Wordwall-Based Digital Media to Stimulate Students in Learning English Vocabulary. *International Journal of Language and Literature*, *7*(4), 233–240. https://doi.org/10.23887/ijll.v7i4.81884

Kristyaningdih, N. K., Padmadewi, N. N., Sulistia Dewi, N. L. P. E., & Artini, L. P. (2023). 21st-Century Skills Implementation in Teaching English at Primary School. *International Journal of Language and Literature*, *6*(3), 119–125. https://doi.org/10.23887/ijll.v6i3.29269

Li, Y., Chen, D., & Deng, X. (2024). The impact of digital educational games on student's motivation for learning: The mediating effect of learning engagement and the moderating effect of the digital environment. *PLoS ONE*, *19*(1 January), 1–21. https://doi.org/10.1371/journal.pone.0294350

Maryani, I., Suyatno, S., Arfiani, I., Nizaar, M., Astuti, I. A. D., & Sulisworo, D. (2025). Gamified Mobile-Based Learning Approach: Efforts to Improve Students' Engagement and Learning Quality in Remote Schools in Indonesia. *Educational Process: International Journal*, *15*. https://doi.org/10.22521/edupij.2025.15.179

Nurdiyanto, R. (2023). Tren dan Visualisasi dari Unity 3D For Education sebagai riset gamifikasi Pembelarajan: Bibliometrik analisis. *Proceedings Series of Educational Studies*.

http://conference.um.ac.id/index.php/pses/article/download/8544/2882

Prayudha, I. T., & Chotijah, U. (2024). Pengembangan Game Edukasi 2D Mata Pelajaran Ipa Menggunakan Unity Berbasis Mobile. *Jurnal Teknik Informatika Dan Komputer*, *3*(2), 46–52. https://doi.org/10.22236/jutikom.v3i2.15933

Putri, A. S. A., & Akhiriyah, S. (2024). The Use of Web-Based Vocabulary Games to Improve Junior High School Students' Vocabulary Mastery in Reading. *JET (Journal of English Teaching)*, *10*(3), 279–291. https://doi.org/10.33541/jet.v10i3.6090

Putri, M. A., Herpratiwi, H., & Firdaus, R. (2025). The Influence of Game Based Learning on Student Motivation in the Digital Era: Literature Review. *Jurnal Teknologi Pendidikan : Jurnal Penelitian Dan Pengembangan Pembelajaran*, *10*(1), 122. https://doi.org/10.33394/jtp.v10i1.13814

Putri, S. A., Rohmatillah, R., & Kholid, M. F. N. (2024). A Descriptive Study on Students' Difficulties in Learning Vocabulary at the Eighth Grade of SMP Negeri 5 Natar. *Journal of Linguistics and Social Sciences*, *2*(2), 33. https://doi.org/10.24042/jlss.v2i2.24290

Putri, S. M., & Ilahiyah, I. I. (2025). Implementasi Keterampilan 4C (Communication, Collaboration, Critical Thinking, And Creativity) Pada Mata Pelajaran Pendidikan Agama Islam di SMK Negeri 1 Jombang. *Menara Tebuireng : Jurnal Ilmu-Ilmu Keislaman*, *20*(2), 128–144. https://doi.org/10.33752/menaratebuireng.v20i2.8736

Rabbani, N., Vianty, M., & Zuraida, &. (2016). USING GAMES TO ENHANCE SPEAKING PERFORMANCE OF THE SEVENTH GRADE STUDENTS OF SMP NEGERI 43 PALEMBANG. *SULE International Confferencee2nd*.

Rofi'i, A., Sumartini, S., Susilo, S. V., & Tundreng, S. (2023). Designing Mobile Games Application for Digitalization of English Teaching and Learning Materials for Elementary School. *Indonesian Journal of Educational Research and Review*, *6*(3), 488–500. https://doi.org/10.23887/ijerr.v6i3.66234

Rosiva, S. S., Kuswandi, D., & Soepriyanto, Y. (2022). Readiness toward M-Learning Implementation During Pandemic COVID-19: Secondary High School Teachers and Students Perception in Indonesia. *Jurnal Penelitian Ilmu Pendidikan*, *15*(2), 128–136. https://doi.org/10.21831/jpipfip.v15i2.47594

Safitri, D., Qodriyah, K., Khoiroh, U., & Hani, U. (2024). Digital Transformation on Student Behavior. *International Conference on Education , Society, and Humanity*, *02*(02), 1100–1108.

Safitri, E. R., Raharjo, M., & Harlin, H. (2023). Validitas Video Interaktif dengan Pendekatan Etnopedagogik Berbasis Saintifik untuk Siswa Sekolah Dasar. *Aulad: Journal on Early Childhood*, *6*(3), 330–338. https://doi.org/10.31004/aulad.v6i3.527

Saul, M. (2024). Piaget ' s Theory and Stages of Cognitive Development. *Simply Psychology*, 1–34. https://www.simplypsychology.org/wp-content/uploads/simplypsychology.org-Piagets-Theory-and-Stages-of-Cognitive-Development.pdf

Shemy, N. S. (2022). Digital Infographics Design (Static vs Dynamic): Its Effects on Developing Thinking and Cognitive Load Reduction. *International Journal of Learning, Teaching and*

*Educational Research*, *21*(5), 104–125. https://doi.org/10.26803/ijlter.21.5.6

Sugianto, H. (2023). Game-based learning in enhancing learning motivation research methodology. *International Journal of Instructional Technology*, *02*(01), 22–33. https://ejournal.unuja.ac.id/index.php/IJIT%0AGame-Based

Syukur, S., Dewie, S. S. E., & Oktarina, S. (2022). Museum Virtual Tour Development Using 3D Vista as a History Learning Source. *Jurnal Pedagogi Dan Pembelajaran*, *5*(3), 373–383. https://doi.org/10.23887/jp2.v5i3.51494

Wicaksono, A. A., Depra, L., Maharani, S., Syahrial, & Noviyanti, S. (2022). Media Digital Dalam Memberdayakan Kemampuan Berpikir Kritis Abad 21 Pada Pembelajaran IPA Di Sekolah Dasar. *Jurnal Pendidikan Dan Konseling*, *4*(3), 188–197.

Widjayatri, R. D., & Nurhasanah, A. (2024). Teacher Readiness in Using Digital-Based Learning Media Through Smart Game Applications. *Teknodika*, *22*(1), 35. https://doi.org/10.20961/teknodika.v22i1.82442

Yu, Z. (2023). Learning Outcomes, Motivation, and Satisfaction in Gamified English Vocabulary Learning. *SAGE Open*, *13*(2), 1–14. https://doi.org/10.1177/21582440231158332

Yosimayasari, S. (2021). Pengembangan mobile game untuk pembelajaran pada materi larutan penyangga. *Jurnal Inovasi Pendidikan IPA*, *7*(1). https://doi.org/10.21831/jipi.v7i1.37561

Zannah, U. N., Sri Mulyani, Tri Sulistianingsih, Tiara Amanda, Dhea Aprilia Nasution, & Dwi Yuli Astuti. (2023). Analysis of Indonesian Junior High School Students' Problem in Learning English. *Indonesian Journal of ELT and Applied Linguistics*, *2*(1), 10–15. https://doi.org/10.32696/ijeal.v2i1.2183