# From Past to Present: Leveraging Digital Traditional Games in Teaching English Vocabulary for Young Learners

Ahmad Syawaluddin[1], Nur Aeni[1], Aswati Asri[1]

[1] Universitas Negeri Makassar, Indonesia

Correspondence: Ahmad Syawaluddin, Teacher Professional Program, Universitas Negeri Makassar, Indonesia. E-mail: unmsyawal@unm.ac.id

Received: February 26, 2025 Accepted: May 20, 2025 Online Published: August 1, 2025

doi:10.5430/wjel.v16n1p235 URL: https://doi.org/10.5430/wjel.v16n1p235

**Abstract**

This study investigates the effectiveness of digitalized traditional games specifically a digital version of Snakes and Ladders in enhancing English vocabulary acquisition among young learners. Employing a quasi-experimental design, the study involved two groups: an experimental group using the digital game for vocabulary instruction and a control group receiving conventional instruction. Vocabulary gains were assessed through pre- and post-tests, while interviews explored students' perceptions of the game-based learning experience. Findings indicated a significant improvement in the experimental group's vocabulary scores, supported by a paired sample t-test ($p < 0.05$). Students reported increased motivation, engagement, and enjoyment, although some challenges such as difficulty completing the game were noted. Recommendations include enhancing visual elements, simplifying rules, and introducing levels to improve learning outcomes and user experience.

**Keywords:** digital traditional games, Snakes and Ladders, vocabulary learning, elementary school students, game-based learning

## 1. Introduction

Vocabulary learning is a critical component of language learning, yet traditional practice such as rote memorization techniques often fail to effectively engage young learners. Recent research highlights the potential of digital game-based learning to address this issue, as compared to rote memorization (RM), educational video games (EVGs) can keep students motivated, foster autonomous learning, and stimulate their interest (Qiao, Woodward, & Alam, 2024). Furthermore, EVGs create an engaging environment where learners can acquire vocabulary while experiencing satisfaction through overcoming challenges (Chen & Hsu, 2020; Lan, 2015; Wu & Huang, 2017). Digital games offer an immersive and interactive learning environment that supports vocabulary learning through experiential learning, as they encourage active participation, boost motivation, and enhance retention (Jia et al., 2024). Additionally, gamification elements, including points, levels, and badges, significantly increase user engagement and motivation in language learning applications, making repetitive tasks like vocabulary drills more enjoyable and effective (Lee & Lee, 2023). Digital-based learning has emerged as a crucial innovation in education across various levels, from elementary to higher education. Studies have shown that implementing digital learning can improve student achievement and learning outcomes (Kaharuddin et al., 2022; Lubis, 2022). Huang and Soman (2013) explain, Gamification in education uses the engaging elements of games, such as rewards and challenges, to improve motivation and learning outcomes, particularly in vocabulary learning.

Arnab, Lim, and Carvalho (2013) assert, Game-based learning has shown significant promise in improving student motivation, increasing engagement, and enhancing vocabulary learning by providing dynamic, interactive environments. Gamification, as defined by Kapp (2012), involves incorporating game-like elements to enhance engagement, encourage participation, facilitate learning, and address challenges, has become a key feature in language learning applications, and gamified features such as challenging tasks, incentive rewards, and systematic levels have been shown to positively impact student motivation and engagement (Huynh et al., 2016, 2018).

Despite the importance of vocabulary learning, traditional techniques such as rote memorization, word lists, or flashcards often become monotonous and lead to disengagement, diminishing their effectiveness. As Zou et al. (2019) noted, vocabulary learning is an incremental process, with learners absorbing different aspects of a word at varying rates, which necessitates more dynamic and engaging instructional methods to ensure sustained learning and retention. Without engaging strategies, students may struggle to retain the vocabulary they are exposed to, and their motivation to continue learning may wane. In response to these challenges, digital games have emerged as a promising tool in language instruction, with studies by Zou et al. (2019) showing that digital games can significantly enhance both short-term and long-term vocabulary learning. Digital games provide a level of interactivity and engagement that traditional learning methods often lack, making learning both enjoyable and effective. Moreover, the immersive nature of digital games encourages learners to actively participate in the learning process, boosting motivation, increasing retention, and improving overall language proficiency. As Rasti-Behbahani (2021) argues, games can help reduce anxiety, making the language learning process less stressful and more enjoyable.

The integration of traditional games into a digital format offers an innovative way to engage young learners in vocabulary learning.

Nguyen and Kim (2023) emphasized, adapting traditional games such as Snakes and Ladders into digital formats offers learners an interactive and engaging method to enhance vocabulary learning. These digital adaptations not only preserve the educational value of the games but also introduce new dimensions of learning by incorporating technology to make the experience more engaging and accessible. By adapting well-known games like Snakes and Ladders, educators can leverage students' prior familiarity with the game mechanics to create an environment that feels both comfortable and stimulating. Zou et al. (2019) emphasized the importance of context in vocabulary learning, noting that when learners encounter new vocabulary in an environment that feels familiar and enjoyable, they are more likely to retain the information in the long term. Digital adaptations of traditional games provide a unique opportunity to blend engagement with educational value. Digital versions of games like Snakes and Ladders offer young learners an interactive space to practice vocabulary while engaging in a fun, low-stress activity. This aligns with Rasti-Behbahani's (2021) view that digital games help decrease anxiety and promote positive engagement. In a digital Snakes and Ladders game, learners may match vocabulary words to their meanings or complete word-related challenges to advance on the game board, actively interacting with new words and receiving instant feedback that reinforces their learning while addressing any misconceptions.

The theoretical framework for this research draws on the principles of game-based learning and constructivist theories of education. Game-based learning is based on the idea that games can promote active and engaging learning experiences by enabling students to interact with the content in purposeful and meaningful ways. Piaget's theory of cognitive development suggests that learners build knowledge through interaction with their environment, and games create a dynamic environment where learning becomes a hands-on, participatory experience. Zou et al. (2019) support this view, noting that digital games provide an interactive and stimulating environment that supports vocabulary learning through experiential learning. The digital version of Snakes and Ladders exemplifies how traditional game mechanics can be used to support vocabulary learning. As Rasti-Behbahani (2021) explains, familiarity with game mechanics plays a crucial role in engaging learners, and the classic structure of Snakes and Ladders provides an ideal starting point for incorporating interactivity, multimedia, and immediate feedback, creating a learning environment that is both meaningful and enjoyable.

Additionally, digital games offer the flexibility to adjust difficulty levels, allowing customization to meet the needs of individual learners. Zou et al. (2019) argue that this customization is particularly beneficial for young learners, ensuring that the learning experience is appropriately challenging without being overwhelming. Teachers can also incorporate different vocabulary themes into the game, aligning them with lesson objectives and creating targeted opportunities for students to engage with specific language areas. These digital games go beyond simple vocabulary recall; they create an immersive learning experience that fosters deeper understanding and retention.

After reviewing the research of Zou et al. (2019) and Rasti-Behbahani (2021), it is clear that expanding vocabulary, especially for younger students, is an important challenge. Therefore, researchers should not neglect this topic. It can be argued that language cannot develop without words, and many studies show that a person's vocabulary level can be an indicator of their overall language competence.

By employing this gamification strategy, kids will be more driven to use new vocabulary and will want to be more imaginative and interactively generate language for themselves. While many research have examined the impact of games on early learners, few have focused exclusively on the effects of games on young children with beginning-level fluency (Al-Jifiri, 2017; Al Neyadi, 2007; Ashraf et al., 2014).

In addition, previous studies (Al-Jifiri, 2017; Al Neyadi, 2007; Ashraf et al., 2014) claim that the majority of experts agree that games play an important role in foreign language teaching. According to these studies, foreign language learners can benefit greatly in vocabulary learning if provided with high-quality resources. Mastery of an extensive vocabulary is essential for students, but it also requires a significant commitment of time and effort from teachers. Evidence from previous research suggests that teaching vocabulary communicatively, for example through educational videos, provides greater benefits for language learners. Therefore, this study aims to examine how the use of snakes and ladders games can affect vocabulary learning in young students.

## 2. Methods

### *2.1 Research Design*

In this study, a combination of quantitative and qualitative data collection tools was used to gather comprehensive insights into the effectiveness of digitalized traditional games, specifically the digital Snakes and Ladders game, in improving students' vocabulary learning. The data collection techniques aimed to assess both the measurable vocabulary improvement through tests and the subjective experiences of the students through interviews. The following sections outline the specifics of each data collection technique employed in this study. The quantitative data collection process primarily involved the use of pre-tests and post-tests, which were designed to assess the students' vocabulary knowledge before and after the intervention. These tests were crucial in measuring the immediate impact of the digital game treatment on the students' vocabulary learning.

The choice of Snakes and Ladders as the learning medium was based on several considerations. First, Snakes and Ladders is an engaging and interactive game that enhances students' motivation and participation, making vocabulary learning more enjoyable than traditional rote memorization. Additionally, it supports contextual vocabulary learning, as students can associate new words with in-game situations, improving retention. Furthermore, the game fosters interactive learning by encouraging communication among students, allowing them to practice and reinforce vocabulary in a social context. The digital adaptation of this traditional game adds an extra layer of engagement, integrating modern technology to enrich students' learning experiences. Its structured format also enables systematic tracking of student progress, making it easier to evaluate vocabulary improvement.

*2.2 Research Site and Participants*

The school that took part was a public primary school in Makassar. For this study, fifth-grade classrooms were chosen at random to take part. 30 students in all, 18 boys and 12 girls, with ages ranging from 8 to 9 years (M = 8 years and 5 months), participated.

*2.3 Instruments*

To find out how well the participants knew English vocabulary, a pre-test consisting of 15 multiple choice items with a maximum score of 30 was given to the study groups. The Indonesian Ministry of Education's defined outcomes were part of the pre-test instrument. To gauge the students' degree of progress in relation to their pre-test scores, a post-test was administered. The 15 questions in this test were scored on a 30-point scale. Another instrument is interview. To gather qualitative data on the students' experiences and perceptions of the digital game treatment, interviews were conducted with six students. The interviews were conducted after the post-test to ensure that the interviewees had been exposed to the digitalized traditional game and had participated in the learning process. The selected group of students consisted of a diverse range of performance levels to capture a variety of perspectives.

*2.4 Procedures*

Before the learning with snake and ladder game began, a pre-test was administered to assess the students' existing vocabulary knowledge. This pre-test consisted of multiple-choice questions covering various vocabulary items, including animals, objects, places, and flowers, which the students were expected to learn during the treatment phase. The pre-test served as a baseline measurement of their vocabulary level, allowing the researchers to evaluate any changes following the intervention. The treatment phase involved integrating a digitalized version of the traditional Snakes and Ladders game into the vocabulary learning process. The goal was to use the game as an engaging tool to reinforce vocabulary learning in an interactive manner. The treatment was conducted over four separate class meetings, each with a specific focus designed to enhance the learning experience. Below are the details of each meeting:

2.4.1 First Meeting

In the first meeting, the students were introduced to the concept of digitalized traditional games, specifically the digital Snakes and Ladders game. The teacher explained the rules of the game and how it would be used as a tool for learning English vocabulary. The introduction aimed to familiarize the students with the game mechanics and ensure they understood how vocabulary learning would be integrated into the gameplay The teacher also highlighted the educational objectives of the game, ensuring that students knew they would be learning new words including various vocabulary categories such as nouns, pronouns, and verbs, during each round of play.

2.4.2 Second Meeting

The second meeting focused on the Snakes and Ladders game. Students took turns playing this game, which was designed to introduce them to new vocabulary. While playing, they face vocabulary-related questions or challenges that require them to interact and understand the new words. Afterwards, the teacher instructs students to use the vocabulary they have learned in sentences. This aims to reinforce their understanding while encouraging active engagement in vocabulary learning. This session provides an opportunity for students to internalize the new words and practice them in everyday contexts. By making sentences based on the vocabulary learned, students can better understand how to construct proper sentences using the new words.

2.4.3 Third Meeting

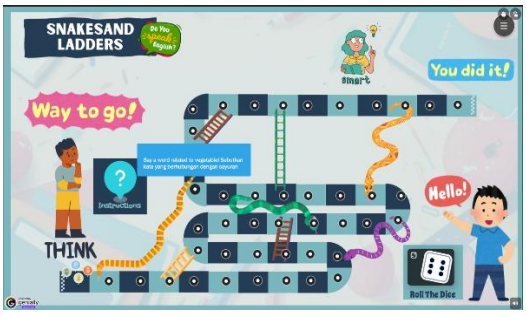
In the third meeting, the students played a new version of the Snakes and Ladders game with a different set of vocabulary. The teacher deliberately selected vocabulary items that aligned with the lesson's learning objectives, including categories such as nouns, pronouns, and verbs. During the activity, students took turns playing the game and encountered new vocabulary. Following the gameplay, the teacher encouraged them to use the newly learned words in sentences to further reinforce their understanding. This session aimed to build upon the vocabulary learned in the previous meeting, enabling students to expand their lexicon and continue applying their knowledge in various contexts.

2.4.4 Fourth Meeting

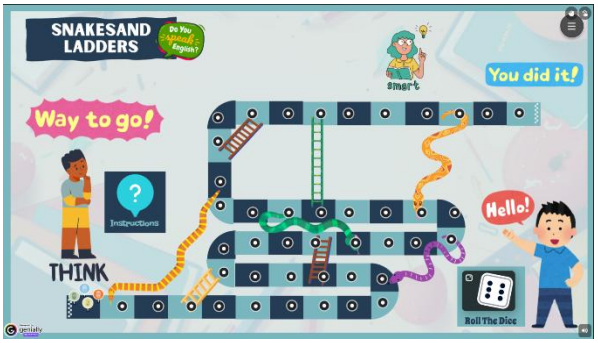
The fourth and final meetings of the treatment phase was dedicated to reflection and feedback. In this session, students were invited to reflect on their experiences playing the digitalized Snakes and Ladders game. The teacher facilitated a discussion about the students' feelings toward the game, how they perceived their learning, and what they thought about the vocabulary learning process. The teacher also sought feedback from the students about the game's design, asking for suggestions on features they would like to see in future digital versions of the game. This reflective process not only provided valuable insights into the students' learning experiences but also allowed them to contribute ideas for improving the game in future iterations.

2.4.5 Post-test

The post-test was conducted at the end of the treatment phase, after the students had engaged with the digital Snakes and Ladders game over four sessions. The post-test aimed to assess whether the students had gained new vocabulary and whether their understanding of the vocabulary had improved. The post-test, like the pre-test, consisted of multiple-choice questions that focused on the vocabulary introduced through the game. By comparing the results of the pre-test and post-test, the researchers were able to determine whether the digital game had a measurable impact on the students' vocabulary learning.




Picture 2.1 Snakes and Ladders preview with questions




Picture 2.2 Snakes and Ladders preview

2.4.6 Interviews

To gather qualitative data on the students' experiences and perceptions of the digital game treatment, interviews were conducted with six students. The interviews were conducted after the post-test to ensure that the interviewees had been exposed to the digitalized traditional game and had participated in the vocabulary learning process. The selected group of students consisted of a diverse range of performance levels to capture a variety of perspectives.

The six students were selected based on their performance in the post-test: two students with the lowest scores, two students with average scores, and two students with the highest scores. This approach ensured that the interviews provided a representative sample of the students' experiences across different levels of vocabulary learning.

These interviews provided valuable insights into the students' subjective experiences, offering a deeper understanding of how the digital game influenced their vocabulary learning. The qualitative data gathered from the interviews complemented the quantitative data from the pre- and post-tests, allowing the researchers to gain a more comprehensive view of the effectiveness of the digital game in promoting vocabulary learning.

*2.5 Ethical Consideration*

Any social science research, including this one, must take ethical considerations into account; according to Wellington in Absor (2016), this is a crucial aspect of all research. In support of this assertion, Bryman stated that "ethical issues cannot be ignored as they relate to the integrity of the research and the scientific disciplines involved." Consequently, this study was carried out in an ethical way. Permission from the appropriate institutions was acquired prior to the collection of study data. Official letters sent to local government agencies for approval are authorized by the Universitas Negeri Makassar, Teacher Professional Program of UNM which also supervises a number of administrative procedures. Researchers could acquire the needed data and then speak with the principal of Public Primary School in Makassar (SDN Inp Gunung Sari Baru Makassar) with the director's agreement. Following the principal's approval and a detailed discussion and agreement on the research method, the researchers started gathering data through interviews and questionnaires. Before interviews for this study could start, the individual (the headmaster of that school) had to sign a consent form. Furthermore, this consent form clarifies that the data was recorded and securely stored and will only be used for this research.

**3. Results**

*3.1 Vocabulary Test*

This section aims to evaluate the impact of using the digitization innovation of traditional games as a basic literacy learning method to improve the vocabulary of elementary school students. The results were analyzed by comparing the pre-test and post-test scores, which included statistical analysis of paired samples, clustering of scores, as well as a T-test to evaluate the significance level of the improvement. Through this approach, the study is expected to show the extent to which the digitization of traditional games contributes to the

improvement of students' vocabulary.

3.1.1 Students Paired Sample Statistic

Table 1. Students paired sample statistics

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | Pretest | 7.93 | 30 | 2.83 | 0.52 |
| | posttest | 11.00 | 30 | 1.44 | 0.26 |

Table 1 presents the results of a paired sample analysis comparing students' vocabulary performance before and after the intervention. The mean score on the pre-test was 7.93 (SD = 2.83), whereas the post-test mean score increased to 11.00 (SD = 1.44). This substantial increase in the mean score, accompanied by a decrease in the standard deviation and standard error, indicates not only an improvement in students' vocabulary acquisition but also greater consistency in their performance.

These findings suggest that the implementation of digitalized traditional games had a positive impact on students' vocabulary development. The rise in average scores reflects overall academic progress, while the reduced variability implies more uniform learning outcomes across the group. Consequently, the use of digitalized traditional games appears to be an effective and engaging instructional strategy for enhancing vocabulary learning among primary school students.

3.1.2 Comprehensive Students Score Percentage

The following section discusses the overall student scores on the pre-test and post-test to determine the percentage improvement.

Table 2. Comprehensive Students' Score Percentage

| Category | Pre-Test Percentage | Pre-Test Frequency | Post-Test Percentage | Post-Test Frequency |
|---|---|---|---|---|
| Very good | 34.48% | 10 | 86.21% | 26 |
| Good | 31.03% | 9 | 13.79% | 4 |
| Fair | 31.03% | 9 | 0.00% | 0 |
| Requiring guidance | 3.45% | 1 | 0.00% | 0 |

Based on Table 2, which presents the distribution of students' scores in accordance with the classification standards set by Kemendikbud (2022), there was a notable shift in performance following the intervention. The proportion of students in the 'Very Good' category increased markedly from 34.48% in the pre-test to 86.21% in the post-test, indicating a significant improvement in vocabulary achievement.

Conversely, the percentage of students in the 'Good' category declined from 31.03% to 13.79%, suggesting that many students moved into the higher performance tier. Similarly, the proportion of students in the 'Fair' category dropped from 31.03% to 0%, and those categorized as 'Requiring Guidance' also decreased from 3.45% to 0%, demonstrating that all students achieved at least a satisfactory level of vocabulary proficiency by the end of the intervention.

These results provide clear evidence of the effectiveness of the learning strategy. The substantial increase in high-performing students and the elimination of lower-performing categories reflect the success of the educational intervention—in this case, the use of digitalized traditional games—in enhancing students' vocabulary mastery.

3.1.3 Students' T-Test of Pre-Test and Post-Test

Table 3. T-Test of Pre-Test and Post-Test

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | Pretest-posttest | -3.06667 | 2.86397 | .52289 | -4.13609 | -1.99724 | -5.865 | 29 | .000 |

This section presents the results of the paired samples t-test, which was conducted to determine whether there was a statistically significant difference between students' vocabulary scores before and after the intervention. The analysis revealed a mean difference of -3.07 (SD = 2.86), with a standard error of 0.52. The computed t-value was -5.865 with 29 degrees of freedom.

The significance level ($p = 0.000$) is well below the conventional threshold of 0.05, indicating a statistically significant difference between the pre-test and post-test scores. Accordingly, the null hypothesis ($H_0$), which posits no difference between the two sets of scores, is rejected in favor of the alternative hypothesis ($H_1$), which asserts a meaningful difference.

These findings confirm that the use of digitalized traditional games as a pedagogical strategy had a significant positive effect on students' vocabulary acquisition. In the context of this study, conducted at SD Inpres Gunung Sari Baru, Makassar, the intervention proved to be an effective tool for enhancing elementary school students' vocabulary proficiency.

3.1.4 N gain

This section presents the analysis of the N-Gain score, which is utilized to measure the effectiveness of digitizing traditional games in enhancing elementary school students' vocabulary acquisition, as reflected in the difference between pre-test and post-test results.

The N-Gain score is calculated using the following formula:

The N-Gain score is calculated as follows:

$$\text{N-Gain} = \frac{posttest\ score - pretes\ score}{maximum\ score - prestest\ score}$$

$$\text{N-Gain} = \frac{330-238}{450-238} = \frac{92}{212} = 0.43$$

Based on this calculation, the resulting N-Gain score is 0.43. According to standard interpretation criteria (Hake, 1999), an N-Gain value between 0.3 and 0.7 is categorized as moderate. Therefore, it can be concluded that the implementation of digitalized traditional games resulted in a moderate improvement in students' learning outcomes. This further supports the effectiveness of the intervention in enhancing language skills among elementary school students.

*3.2 Interview Results*

3.2.1 Improvement in English Vocabulary

Most students reported that playing Snakes and Ladders on digital platforms helped them remember new English words. The interactive nature of the game, including visual elements and gameplay, made vocabulary learning more engaging. For example, Respondent 1 shared:

**Extract 1: SR**

*"Kadang bantu, kata-kata yang saya ingat seperti apel, anjing, dan matahari."*

(It helps sometimes, and I remember words like apple, dog, and sun.)

Thursday, October 29, 2024

Respondent 3 echoed this sentiment:

**Extract 2: R3**

*"Iya, bantu, kata-kata seperti kucing, pohon, dan matahari lebih mudah diingat."*

(Yes, it helps. Words like cat, tree, and sun are easier to remember.)

Thursday, October 29, 2024

This indicates that the game has a positive effect on students' ability to recall vocabulary, particularly through its engaging and repetitive use of words.

3.2.2 Engagement and Enjoyment

The students found the game enjoyable, particularly due to its fun visuals, animations, and sound effects. For qualitative insights, selected participants' responses were chosen to represent common themes identified during data analysis, including visual appeal, audio-visual engagement, challenges in vocabulary use, and suggestions for game improvement. These respondents were selected because their answers clearly illustrated the core experiences shared by many learners during the intervention.

Respondent 1 highlighted the visuals:

**Extract 3: R1**

*"Gambarnya lucu, jadi seru mainnya."*

(The visuals are cute, so it's fun to play.)

Thursday, October 29, 2024

Respondent 3 also pointed out the animation and sound:

Extract 4: R3

*"Animasi dan suara yang keren bikin saya lebih tertarik main."*

(The cool animation and sounds make me more interested in playing.)

Thursday, October 29, 2024

These responses reflect the students' positive emotional responses to the game, which enhances their overall learning experience.

3.2.3 Challenges in the Teaching Process

While the teaching process provided many benefits, students also faced some difficulties. The most common challenge was understanding and using new vocabulary in sentences. Respondent 1 expressed:

**Extract 5: R1**

"Susah buat kalimat pakai kata baru."

("It's hard to make sentences using new words.")
Thursday, October 29, 2024

Respondent 6 shared a similar challenge:

**Extract 6: R6**
"Kadang lupa arti katanya, jadi sulit ngomong."
("Sometimes I forget the meaning of the words, so it's hard to speak.")
Thursday, October 29, 2024

This shows that the challenge of applying new vocabulary in communication adds an extra level of difficulty, encouraging students to stay engaged while improving their language skills.

3.2.4 Suggestions for Improving the Game

To make the game more enjoyable and easier to learn, students offered several suggestions. Respondent 1 suggested adding more cute images:

**Extract 7: R1**

*"Tambah gambar lucu supaya lebih menarik."*

(Add more cute images to make it more interesting.)

Thursday, October 29, 2024

Respondents 5 and 6 proposed simplifying the rules:

**Extract 8: R5**

*"Kurangi aturan supaya lebih mudah dimengerti."*

(Reduce the rules to make it easier to understand.)

Thursday, October 29, 2024

**Extract 9: R6**

*"Kasih level biar makin seru*."

(Add levels to make it more fun.)

Thursday, October 29, 2024

These suggestions indicate that students want the game to be more user-friendly and progressively challenging.

3.2.5 Motivation to Learn English through Games

All students expressed that they enjoyed learning English through games, as it made the process more fun and engaging. Respondent 3 stated:

**Extract 10: R3**

"*Belajar sambil santai, jadi gak terasa berat*."

(Learning while relaxing, so it doesn't feel heavy.)

Thursday, October 29, 2024

Respondent 5 also shared a similar view:

**Extract 11: R5**

*"Main sambil belajar itu seru, jadi lebih semangat belajar*."

(Playing while learning is fun, so I'm more excited to learn.)

Thursday, October 29, 2024

These responses highlight that the game not only motivates students but also makes learning English more enjoyable and less stressful.

The findings of the study suggest that the use of digital traditional games, such as Snakes and Ladders, can be an effective strategy for teaching English vocabulary to young learners.

The experimental group that used the digital Snakes and Ladders game demonstrated significantly higher vocabulary scores on the post-test compared to the control group, indicating enhanced vocabulary learning and retention. (Wu et al., 2020) (Rasti-Behbahani, 2021)

Furthermore, the survey and interview data revealed that the learners in the experimental group expressed a higher level of engagement,

enjoyment, and motivation in the vocabulary learning process.

The results also suggest that the digital adaptation of the traditional game provided an interactive and immersive learning environment, which facilitated the learners' ability to associate the target vocabulary words with the game context and visual cues. (Pavita, 2022)

## 4. Discussion

This research highlights the use of digitalized traditional games as a method to enhance basic literacy, specifically vocabulary learning in elementary school students. The study results show a significant improvement in students' vocabulary skills following the implementation of digitalized traditional games, evidenced by increased average scores and reduced standard deviation. Based on data collected from pre-tests, post-tests, and student interviews, it can be concluded that digitalized traditional games effectively improve students' vocabulary.

### *4.1 The Impact of Digitalized Traditional Games on Vocabulary Improvement*

The integration of digitalized traditional games in the educational setting represents a significant shift in how learning materials and activities are delivered. This method not only embraces technology but also honors cultural traditions by adapting them into a modern context. The improvement in vocabulary learning, observed through statistical analysis and pre-test/post-test comparisons, shows that digitalized traditional games offer a unique opportunity for immersive learning. Kazu and Kuvvetli (2023) emphasized that triangulation methods highlighted the effectiveness of Digital Game-Based Vocabulary Learning (DGBVL) in vocabulary learning by fostering motivation and contextual learning, providing substantial support for its integration into language education.

As students engaged with the digital version of Snakes and Ladders, the game environment offered more than just entertainment; it also provided a context for contextual vocabulary learning. Unlike rote memorization techniques, the active engagement in a game-like environment allows students to encounter new vocabulary in a more dynamic and organic way. The context in which these words are learned through action, choice, and decision-making helps reinforce the meanings and usage of new words, allowing for better retention and understanding.

Digital games bring a more interactive element to the traditional classroom by using multimedia components like graphics, sounds, and animations. This can cater to various learning styles. For visual learners, seeing words represented visually, coupled with sounds or animations that match the vocabulary, reinforces the learning experience. The inclusion of these elements also assists in creating a multisensory learning environment, which is widely regarded as effective in enhancing comprehension and retention (Felder & Silverman, 1988).

Research by Faizal et al. (2023) and Handayani and Munastiwi (2023) reinforces the idea that digitalizing traditional games such as Snakes and Ladders makes learning enjoyable and culturally relevant. In addition to learning vocabulary, students gain a deeper connection to cultural heritage. The integration of technology into these games helps bridge the gap between the traditional and modern educational experience, offering an engaging approach to vocabulary development that resonates with students' interests.

Moreover, digitalized traditional games present opportunities for adaptive learning. Students who may initially struggle with vocabulary can repeat certain segments or levels, thereby providing additional practice and reinforcing learning without the pressure of formal tests. This approach is aligned with Vygotsky's Zone of Proximal Development (ZPD), which emphasizes the importance of learning within a scaffolded environment. The game provides a "just right" challenge that pushes students slightly beyond their current abilities, facilitating optimal learning.

### *4.2 Engagement and Enjoyment in Learning*

Beyond vocabulary improvement, digitalized traditional games have a profound impact on student engagement and enjoyment. In the context of language learning, engagement is critical as it directly correlates with motivation and sustained effort. The interviews conducted with students indicate that the use of digital Snakes and Ladders sparked a new sense of enthusiasm for learning English. Students felt more motivated and found the learning process to be more enjoyable, highlighting the impact of interactive and game-based learning. Students felt more motivated and found the learning process more enjoyable, highlighting the impact of interactive and game-based learning. Bouzaiane and Youzbashi (2024) highlights that students' perceptions and attitudes towards digital game-based language learning demonstrate its efficacy in vocabulary retention and engagement, offering a promising alternative to traditional methods.

Prensky's (2001) theory of Digital Game-Based Learning (DGBL) articulates that the interactive nature of digital games significantly enhances student motivation. The engagement of students in these games goes beyond passive learning, as they are actively involved in the learning process through decision-making, problem-solving, and immediate feedback. The interactive design, with its real-time rewards and challenges, mirrors the principles of Self-Determination Theory (SDT) (Ryan & Deci, 2000), which posits that motivation is significantly higher when individuals experience autonomy, competence, and relatedness. The students in this study felt more competent in their vocabulary knowledge because of the immediate feedback they received from the game, and the autonomy of choosing how to progress through the game made them more invested in the learning process.

Furthermore, the integration of visual and auditory elements in the digital game provides an immersive learning experience. The positive responses from students, who mentioned the appeal of images, sound effects, and animations, support this theory. The playful and

interactive design enhances the overall student experience, turning learning into an enjoyable activity rather than a mere task or obligation. This aligns with Csikszentmihalyi's (1990) concept of Flow, which describes the state of complete immersion in an activity. The students felt immersed in the game, which facilitated a deeper level of engagement and learning.

*4.3 Challenges within the Game*

Despite the many benefits, students faced some challenges while playing the game, particularly with the competitive elements such as encountering snakes in Snakes and Ladders. The challenges faced by students during the game may initially seem like barriers to learning. However, as Gee (2003) suggests, challenges in games are a natural part of the learning process and can enhance cognitive development. The difficulty in reaching the game's end or landing on a snake can teach students valuable lessons in perseverance and adaptability.

These challenges also provide an opportunity for students to apply critical thinking and strategize their way through the game. The element of uncertainty, inherent in games like Snakes and Ladders, allows students to practice problem-solving and decision-making, which are vital skills in both academic and real-life scenarios. As students encounter obstacles within the game, they are required to reassess their strategies and approach challenges with creativity. Such learning moments are crucial in developing resilience and patience, qualities that are transferable to academic and personal growth. Lin and Aloe (2021) highlight that digital game formats, such as educational apps, enhance cognitive, social, and emotional development in students, fostering critical skills like problem-solving and creativity, reinforcing the idea that overcoming game-based challenges enhances these essential skills.

Furthermore, factors such as the type of game and the duration of play can influence how well educational games foster cognitive development and perseverance. Hou et al. (2023) emphasize that the type of game and the duration of play can influence how well educational games foster cognitive development and perseverance, suggesting that strategic elements and the time spent playing may have a significant impact on how effectively students develop these skills through the game. Reliable and systematic reviews are crucial in assessing the effectiveness of game-based learning and ensuring that challenges faced during gameplay are addressed to maximize educational benefits, as Lundh and Gøtzsche (2008) stress, ensuring that both the design of the game and the review process maximize its educational impact.

Additionally, these challenges create a competitive yet safe learning environment, where students can learn from their mistakes without fear of failure. This process of trial and error, along with the possibility of success through effort and strategy, encourages a growth mindset a key principle in modern educational psychology (Dweck, 2006). Students can experience firsthand the process of overcoming difficulties, thus fostering a sense of accomplishment that further boosts motivation.

*4.4 Suggestions for Game Improvement*

The feedback provided by students for improving the game indicates a willingness to engage further with the digitalized version of Snakes and Ladders, but also highlights areas for refinement. Suggestions such as the inclusion of more varied levels or simplified rules show that students are open to a more personalized and adaptable learning experience. Zhao et al. (2021) emphasize, Game-based learning is most effective when personalized to meet learners' specific needs, fostering greater engagement and maximizing educational outcomes.

The concept of gamification is central to this point. Educational games should offer just the right balance between simplicity and challenge. As Anderson and Dill (2000) suggest, games that are easy to understand but offer varying levels of difficulty encourage continuous engagement without overwhelming students. By adding more levels, the game can cater to different learning paces, ensuring that students of all levels can continue to progress and experience the game's educational benefits. Additionally, the integration of competitive elements in educational games should be balanced to maintain motivation and prevent feelings of frustration or overwhelm (Tang, et al, (2024). This balance is critical in ensuring that the game remains motivating while minimizing potential negative impacts such as frustration. Furthermore, the inclusion of additional visual appeal, such as more dynamic images or personalized avatars, can help students feel a greater sense of ownership over their learning experience. Personalization, as suggested by Anderson and Bavelier (2011); RomÃ, (2024) helps students build a connection with the content, making it feel more relevant and engaging.

*4.5 Learning Motivation through Games*

The use of digitalized traditional games to enhance motivation is a key finding in this study. As seen in the interviews, students who played the digitalized Snakes and Ladders game reported feeling motivated to continue learning English, thanks to the relaxed and enjoyable atmosphere fostered by the game. Motivation is a crucial factor in language learning, as it determines the level of effort students put into their studies.

According to Ryan and Deci (2000), intrinsic motivation plays a central role in academic success. The students in this study reported enjoying the learning process due to the entertaining nature of the game, which helped reduce the monotony of traditional learning methods. As a result, they were more eager to continue playing and learning, which led to improved vocabulary learning. The social and competitive aspects of the game also contribute to motivation by providing rewards and challenges, which are essential in keeping students engaged. Jones and Smith (2021) argue that "gamified platforms leverage traditional game mechanics like levels and incentives to transform vocabulary learning into an engaging and motivating experience, particularly effective for younger learners. Guo et al. (2020); Demirdag, et al, (2024) highlighted that 'well-designed digital games that incorporate interactivity, rewards, and challenges not only facilitate vocabulary learning but also maintain high levels of student engagement and motivation throughout the learning process.'

This perspective aligns with the findings in this study, underscoring the critical role of game design in sustaining learners' interest.

In addition, according to According to Sykes and Reinhardt (2013) digital games with compelling narratives and structured feedback mechanisms can create 'flow states' that enhance intrinsic motivation, immersing learners in culturally rich and contextually meaningful environments for language learning. This perspective aligns with constructivist principles, as it highlights how such games provide a meaningful and interactive environment that supports language learning through active participation.

*4.6 The Role of Digitalization in Addressing Online Game Addiction*

The rise of online gaming addiction among children is a growing concern for educators and parents. Digitalized traditional games, as demonstrated in this study, offer a viable solution by merging the appeal of video games with educational content. The study shows that instead of spending excessive time on non-educational games, students can engage in educational games that promote vocabulary learning and language skills.

By leveraging the same technology and entertainment appeal that make online games so popular, educational games can create a productive and enjoyable learning environment. Boyle et al. (2016) emphasize that digital games have the capacity to engage learners deeply by integrating interactive features and narrative structures that captivate their interest, making them an effective tool for educational purposes. This aligns with the goals of digitalized traditional games, which merge educational content with engaging game mechanics to reduce the allure of non-educational games. This can help reduce the allure of addictive online games, which often provide little to no educational value. The gamification of learning through digitalized traditional games provides a healthier alternative by ensuring that the time spent playing games is both engaging and beneficial for students' academic progress.

Moreover, Syawaluddin and Nurhaedah (2018) argue, digitalized traditional games create a bridge between students' technological interests and their educational needs. This helps mitigate the risks associated with online gaming addiction by channeling students' enthusiasm for digital entertainment into educational pursuits. By doing so, digitalized traditional games can provide a balanced and productive solution to the challenges posed by digital gaming in today's society. Additionally, Hamari et al. (2014) emphasize that gamification elements such as rewards and challenges can transform traditionally monotonous learning tasks into engaging activities, reducing the likelihood of distraction by non-educational games, further supporting the benefits of integrating gamification into the learning process.

Furthermore, Chen and Hwang (2020) highlight that the use of gamified educational platforms aligns with students' preferences for digital interaction, ensuring that their engagement with technology contributes positively to their learning journey, which further reinforces the value of integrating technology with educational gaming to address online game addiction. In line with this, Papastergiou (2009) argues that "digital educational games can substitute addictive, non-educational games by offering a comparable level of engagement while delivering measurable learning outcomes," supporting the idea that educational games can be both engaging and academically beneficial.

## 5. Conclusion

This research paper has demonstrated the potential of using traditional digital games, such as Snakes and Ladders, in teaching English vocabulary to learners. The findings of this study suggest that this approach can improve vocabulary learning and retention, as well as foster greater engagement, motivation and enjoyment among learners. The successful integration of familiar game mechanics into a digital learning environment highlights the value of utilizing traditional games to create a more dynamic and interactive language learning experience. However, this study also has limitations. The use of a single game type may not be sufficient to measure overall vocabulary improvement, as variations in game types may provide a richer learning experience and target different aspects of language. Therefore, future research should explore the applicability of this approach to other traditional games and its potential for broader language learning purposes.

The implications of this research suggest that educators and curriculum designers should consider incorporating digital versions of traditional games into language learning programs. By doing so, they can create more learner-centered and engaging environments that support both formal instruction and informal learning. Furthermore, this approach could be adapted across different age groups and language proficiency levels, making it a versatile tool in diverse educational contexts.

**Acknowledgments**

We greatly appreciate the support and valuable contributions of *Universitas Negeri Makassa*r and *UPT SPF SD Inpres Gunung Sari Baru* so that this research and publication program can be carried out.

**Authors' contributions**

**Ahmad Syawaluddin** was responsible for funding, writing the original draft supervision, conceptualization and methodology. Orcid ID: https://orcid.org/0000-00011-9005-486X

**Nur Aeni** as the second author was responsible for writing, formal analysis, reviewing and editing the manuscript. Orcid ID: https://orcid.org/0000-0003-2618-2714

**Aswati Asri** was responsible for data curation and validation. All authors read and approved the final manuscript.

**Funding**

This work was independently funded by the authors.

**Competing interests**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

**Informed consent**

Obtained.

**Ethics approval**

The Publication Ethics Committee of the Sciedu Press.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

**Provenance and peer review**

Not commissioned; externally double-blind peer reviewed.

**Data availability statement**

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

**Data sharing statement**

No additional data are available.

**Open access**



**Copyrights**



**References**

Aeni, N. et al. (2024). Disclosing user views: A qualitative investigation of writing and speaking ability development via integration of Jenni AI and Jenni Speak. In V. Goar, M. Kuri, R. Kumar, & T. Senjyu (Eds.), *Advances in information communication technology and computing (AICTC 2024)* (Vol. 1074). Springer. https://doi.org/10.1007/978-981-97-6103-6_13

Aeni, N., Muthmainnah, M., La Sunra, L. S., Nurfadhilah, A. S., Inayah, F., & Nurwahida. (2025). AI-Driven Classroom Conversations: Revolutionizing Education 5.0 for Enhanced Student Engagement in Speaking Class. In A. Sorayyaei Azar, T. Elyas, M. Muthmainnah, & S. Curle (Eds.), *Innovations in Educational Robotics: Advancing AI for Sustainable Development* (pp. 173-192). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-6165-8.ch009

Al-Jifri, A., & Elyas, T. (2017). The impact of video games in the acquisition of English language: The case of Saudi youths. *Journal of Foreign Language Education and Technology, 2*(2), 15-35.

Arnab, S., Lim, T., & Carvalho, A. (2013). The role of game-based learning in education: A review of the literature. *Contemporary Engineering Sciences, 5*(3).

Bouzaiane, B., & Youzbashi, A. (2024). The role of digital-game based language learning in EFL vocabulary learning and retention: A case study at a higher educational institute in Oman. *Journal of Language Teaching and Research*, *15*(5), 1660-1669. https://doi.org/10.17507/jltr.1505.27

Boyle, E. A., Connolly, T. M., Hainey, T., & Boyle, J. M. (2016). Engagement in digital games: A systematic review. *Computers in Human Behavior, 55*, 771-780. https://doi.org/10.1016/j.chb.2011.11.020

Burston, J. (n.d.). Twenty years of MALL project implementation: A meta-analysis of learning outcomes. *ReCALL, 27*, 4-20. https://doi.org/10.1017/S0958344014000159

Chen, C. H., & Hwang, G. J. (2020). An empirical investigation of the impact of game-based learning design on student engagement, performance, and satisfaction. *Educational Technology Research and Development, 68*(5), 2287-2305.

Chen, H. J. H., & Hsu, H. L. (2019). The impact of a serious game on vocabulary and content learning. *Computer Assisted Language Learning, 33*(7), 811-832. https://doi.org/10.1080/09588221.2019.1593197

Cornillie, F., Thorne, S. L., & Desmet, P. (2012). Digital games for language learning: From hype to insight? *ReCALL, 24*(3), 243-256. https://doi.org/10.1017/S0958344012000134

Demirdag, M. C., Kucuk, S., & Tasgin, A. (2024). An investigation of the effectiveness of augmented reality technology-supported English language learning activities on preschool children. *International Journal of Human–Computer Interaction*, 1-14. https://doi.org/10.1080/10447318.2024.2323278

Godwin-Jones, R. (n.d.). Games in language learning: Opportunities and challenges. *Language Learning & Technology, 18*, 9-19.

Guo, W., Lara-Alecio, R., Irby, B., Kwok, O. M., & Sweany, N. W. (2020). *Digital games for vocabulary acquisition in learning English as a foreign/second language* [Doctoral dissertation].

Hake, R. R. (1999). *Analyzing change/gain scores*. Unpublished manuscript. Retrieved from http://www.physics.indiana.edu/~hake/

Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does gamification work? A literature review of empirical studies on gamification. In *Proceedings of the 47th Hawaii International Conference on System Sciences* (pp. 3025-3034). IEEE. https://doi.org/10.1109/HICSS.2014.377

Hazar, E. (2020). Use of digital games in teaching vocabulary to young learners. *Educatia 21, 19*, 98-104. https://doi.org/10.24193/ed21.2020.19.12

Hou, H. T. (2023). Diverse development and future challenges of game-based learning and gamified teaching research. *Education Sciences, 13*(4), 337. https://doi.org/10.3390/educsci13040337

Huang, W. H., & Soman, D. (2013). *A practitioner's guide to gamification of education*. Ontario Institute for Studies in Education, University of Toronto.

Hubbard, P. (n.d.). Technologies for teaching and learning vocabulary. In *The TESOL Encyclopedia of English Language Teaching* (pp. 1-5).

Jia, W., Zhang, L., Pack, A., Guan, Y., & Zou, B. (2024). Digital game-based learning's effectiveness on EFL learners' receptive and productive vocabulary knowledge. *Language Learning & Technology, 28*(1), xxx–xxx. https://doi.org/10.1080/09588221.2023.2276800

Jones, A., & Smith, B. (2021). Gamification and vocabulary learning: Enhancing motivation in digital contexts. *Journal of Educational Technology and Innovation, 18*(3), 123-135.

Kaharuddin, K., Iskandar, I., Ansurlawarlin, A., Zahar, M. N., & Nuramal, N. (2022). Study of learning opportunities and challenges based on digital pandemic era. *Aksiologi: Jurnal Pendidikan dan Ilmu Sosial.* https://doi.org/10.47134/aksiologi.v3i1.131

Kapp, K. M. (2012). *The gamification of learning and instruction: Game-based methods and strategies for training and education.* John Wiley & Sons. https://doi.org/10.1145/2207270.2211316

Kazu, İ. Y., & Kuvvetli, M. (2023). A triangulation method on the effectiveness of digital game-based language learning for vocabulary acquisition. *Education and Information Technologies, 28*(10), 13541-13567. https://doi.org/10.1007/s10639-023-11756-y

Kementerian, P., Kebudayaan, R., & dan Teknologi. (2022). *Keputusan Menteri Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia Nomor 56/M/2022 tentang Pedoman Penerapan Kurikulum dalam Rangka Pemulihan Pembelajaran.*

Klopfer, E., Osterweil, S., & Salen, K. (n.d.). *Moving learning games forward*. The Education Arcade.

Lee, Y., & Lee, C. (2023). Investigating the role of gaming mechanics in language learning applications. *Language Education Technology, 29*(1), 45-60.

Lin, L., & Aloe, A. M. (2021). Evaluation of various estimators for standardized mean difference in meta-analysis. *Statistics in Medicine, 40*, 403-426. https://doi.org/10.1002/sim.8781

Lundh, A., & Gøtzsche, P. C. (2008). Recommendations by Cochrane review groups for assessment of the risk of bias in studies. *BMC Medical Research Methodology, 8*, 1-9. https://doi.org/10.1186/1471-2288-8-22

Malouf, R. (n.d.). The effect of computerized flashcards on vocabulary acquisition. *Computers in Human Behavior, 4*, 331-339.

Moore, T. (2024). Pedagogy, podcasts, and politics: What role does podcasting have in planning education? *Journal of Planning Education and Research, 44*(3), 1134-1147. https://doi.org/10.1177/0739456X221106327

Muntean, C. H. (2011). Raising engagement in e-learning through gamification. In *Proceedings of the European Conference on Games Based Learning* (pp. 1-9).

Nguyen, T., & Kim, S. (2023). Integrating traditional games into digital platforms for language learning. *Language and Education, 37*(2), 142-158.

Oxford, R. L. (n.d.). *Language learning strategies: What every teacher should know*. Newbury House.

Papastergiou, M. (2009). Digital game-based learning in high school computer science education: Impact on educational effectiveness and student motivation. *Computers & Education, 52*(1), 1-12. https://doi.org/10.1016/j.compedu.2008.06.004

Pavita, M. D. A. (2022). Students' perceptions of the use of a Snake and Ladder board game in learning vocabulary at the English Club of SMK N 1 Banyumas. *Electrum, 2*(1), 24-30. https://doi.org/10.53416/electrum.v2i1.60

Prensky, M. (2001). *Digital game-based learning*. McGraw-Hill.

Qiao, J., Woodward, J. R., & Alam, A. S. (2024). Effectiveness of educational video games in English vocabulary acquisition: One case in China classroom context. *Cogent Education, 11*(1). https://doi.org/10.1080/2331186X.2024.2346038

Rasti-Behbahani, A. (2021). Why digital games can be advantageous in vocabulary learning. *Theory and Practice in Language Studies, 11*(2), 111-111. https://doi.org/10.17507/tpls.1102.01

Romá, V. (2024). Impact of a YouTube channel on ESL students' oral skills in a Peruvian higher institute. *World Journal of English Language, 14*(5), 392-392. https://doi.org/10.5430/wjel.v14n5p392

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68-78. https://doi.org/10.1037/0003-066X.55.1.68

Saleh, A. M., & Ahmed Althaqafi, A. S. (2022). The effect of using educational games as a tool in teaching English vocabulary to Arab young children: A quasi-experimental study in a kindergarten school in Saudi Arabia. *SAGE Open, 12*(1). https://doi.org/10.1177/21582440221079806

Selwyn, N. (n.d.). Digital play: The challenge of researching digital games and learning. *International Journal of Cultural Studies, 19*, 13-30.

Sunny, J. L., & Marefat, F. (n.d.). The effect of digital vocabulary games on vocabulary learning: A systematic review and meta-analysis. *Computer Assisted Language Learning, 33*, 949-974.

Sykes, J., Reinhardt, J., & Thorne, S. L. (2013). Language at play: Digital games in second and foreign language teaching and learning [Review]. *Language Learning & Technology, 17*, 47-51.

Tang, J. T., Chu, S. T., & Chang, T. F. (2024). Enhancing English alphabet handwriting skills in preschool children through digital game-based learning approach. *Innovation in Language Learning and Teaching*, 1-19. https://doi.org/10.1080/17501229.2024.2352791

Wu, Q., Zhang, J., & Wang, C. (2020). The effect of English vocabulary learning with digital games and its influencing factors based on the meta-analysis of 2,160 test samples. *International Journal of Emerging Technologies in Learning, 15*(17), 85-85. https://doi.org/10.3991/ijet.v15i17.11758

Zhao, D., Muntean, C. H., Chis, A. E., & Muntean, G. M. (2021). Learner attitude, educational background, and gender influence on knowledge gain in a serious games-enhanced programming course. *IEEE Transactions on Education, 64*(3), 308-316. https://doi.org/10.1109/TE.2020.3044174

Zou, D., Huang, Y., & Xie, H. (2019). Digital game-based vocabulary learning: Where are we and where are we going? *Computer Assisted Language Learning, 34*(5-6), 751-777. https://doi.org/10.1080/09588221.2019.1640745