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ORIGINAL

The Influence of Gamified Learning and Linguistic Intelligence on Vocabulary Acquisition

La influencia de la gamificación en la instrucción directa y la inteligencia lingüística en la adquisición de vocabulario

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ABSTRACT

Gamification has emerged as a captivating topic within the sphere of education. However, its efficacy often differs across contexts and student profiles. Understanding the interaction between gamification and individual differences—especially linguistic intelligence—is crucial for optimizing educational strategies. This study investigated the influence of gamified learning and linguistic intelligence, as well as their interaction, on vocabulary acquisition among secondary school students in Indonesia. A quasi-experimental design with a factorial (2x2) pretest-posttest nonequivalent control group model was employed. The study involved 64 eighth-grade students from Mrebet 2 State Secondary School, Purbalingga, Indonesia, who were selected using convenience sampling based on class availability. A vocabulary pretest and posttest served as the sources of data collection, along with a structured questionnaire measuring linguistic intelligence, and analyzed using two-way ANCOVA. The findings revealed significant differences in learning outcomes between the gamification and non-gamification groups, $F(1, 60) = 27{,}29$, $p < 0{,}001$. Learning outcomes also differed between students with strong and weak linguistic abilities, $F(1, 60) = 4{,}90$, $p < 0{,}031$. Moreover, an interaction effect was identified between gamification and linguistic intelligence on vocabulary acquisition, $F(1, 60) = 5{,}90$, $p < 0{,}018$. The study found that learners with low linguistic intelligence who were taught through gamification strategies achieved a slightly greater increase in vocabulary scores compared with learners possessing high linguistic intelligence. These results contributed to the ongoing debate on the integration of gamified elements in vocabulary learning, drawing attention to the necessity of linguistic intelligence as a moderating factor in shaping learning outcomes.

Keywords: Gamified Learning; Linguistic Intelligence; Vocabulary Acquisition.

RESUMEN

La gamificación ha surgido como un tema fascinante dentro del ámbito educativo. Sin embargo, su eficacia a menudo varía según los contextos y los perfiles de los estudiantes. Comprender la interacción entre la gamificación y las diferencias individuales —especialmente la inteligencia lingüística— es fundamental para optimizar las estrategias educativas. Este estudio investigó la influencia del aprendizaje gamificado y la inteligencia lingüística, así como su interacción, en la adquisición de vocabulario entre estudiantes de secundaria en Indonesia. El estudio se llevó a cabo mediante un diseño cuasi-experimental con un modelo factorial (2x2) de tipo pretest-postest con grupo de control no equivalente. El estudio involucró a 64 estudiantes de octavo grado de la Escuela Secundaria Estatal Mrebet 2, Purbalingga, Indonesia, seleccionados mediante muestreo por conveniencia basado en la disponibilidad de clases. Los datos se recopilaron a través de un pretest y postest de vocabulario, junto con un cuestionario estructurado que midió la inteligencia

lingüística, y se analizaron utilizando ANCOVA de dos vías. Los resultados revelaron diferencias significativas en los logros de aprendizaje entre los grupos con gamificación y sin gamificación, $F(1, 60) = 27,29$, $p < 0,001$. Los resultados de aprendizaje también variaron entre los estudiantes con habilidades lingüísticas fuertes y débiles, $F(1, 60) = 4,90$, $p < 0,031$. Además, se identificó un efecto de interacción entre la gamificación y la inteligencia lingüística en la adquisición de vocabulario, $F(1, 60) = 5,90$, $p < 0,018$. El estudio encontró que los estudiantes con baja inteligencia lingüística que fueron enseñados mediante estrategias gamificadas lograron un aumento ligeramente mayor en las puntuaciones de vocabulario en comparación con los estudiantes con alta inteligencia lingüística. Estos resultados contribuyeron al debate en curso sobre la integración de elementos gamificados en el aprendizaje de vocabulario, destacando la importancia de la inteligencia lingüística como un factor moderador en los resultados del aprendizaje.

Palabras clave: Aprendizaje Gamificado; Inteligencia Lingüística; Adquisición de Vocabulario.

INTRODUCTION

Gamification has emerged as a captivating topic within the sphere of education, particularly given its capability to promote student engagement and learning outcomes.[1] The current study aims at examining how gamification in direct instruction, along with the role of linguistic intelligence, influences students' vocabulary acquisition.

Understanding the interaction between gamification and individual differences—especially linguistic intelligence—is crucial for optimizing educational strategies.[2,3] This topic is significant because it has substantial implications for improving vocabulary skills among EFL (English as a Foreign Language) learners, which is a key constituent of language proficiency in the 21st century.[4]

Integrating gamification into educational contexts can create interactive and motivating learning environments.[5] However, its effectiveness often varies depending on the context and student profiles.[6] In this paper, we will outline the structure of the research, beginning with a review of relevant literature on gamification and linguistic intelligence, followed by the methodology, results, and discussion of findings. The decision to explore this topic stems from the need to respond conflicting scholarly results related to the implications of gamification for vocabulary acquisition and to provide insights that can inform future educational practices.[7,8]

The main issue addressed in this study is how gamification in direct learning and the role of linguistic intelligence influence vocabulary acquisition in learners. The central research inquiries that focus on this study are: 1) Does a disparity exist in learning outcomes across the gamification and non-gamification groups with respect to English vocabulary acquisition? 2) Is there a difference in vocabulary learning outcomes between participants with advanced linguistic intelligence and those with lesser ability in English vocabulary acquisition? 3) Is there an interaction effect between the implementation of gamification and non-gamification in direct learning, as well as the learners' linguistic intelligence, on English vocabulary acquisition?

The incorporation of gamification into learning environments has garnered significant scholarly attention, we will discuss its application to vocabulary acquisition within direct instruction frameworks by considering linguistic intelligence as part of individual differences.

Direct instruction, initially conceptualized by Bereiter and Engelmann in 1966, posits that well-structured and explicit instructional designs can overcome learning barriers, enabling all students to achieve measurable success.[9] This pedagogical model emphasizes systematic teaching through step of orientation, presentation, structured, guided, and independent practice, fostering skill mastery through explicit teacher guidance.[10] Direct instruction is built derived from the premise that every learner can learn with well-designed instruction.[9] Theoretically, direct learning emphasizes the importance of providing continuous positive reinforcement during the teaching process and celebrating student successes periodically. Therefore, the learning process should reward students. Additionally, this approach benefits teachers as it allows them to observe their students' learning progress.[11]

Criticism of direct instruction emphasizes that this approach should not be used all the time, for all educational purposes, or for all learners.[10] Nevertheless, direct instruction in vocabulary learning is an important aspect of literacy development.[12] In this instruction, most of the classroom time is dedicated to vocabulary and includes activities involving specific vocabulary such as word creation, semantic mapping, and word matching.[13] However, direct vocabulary learning may not necessarily be effective for all learners.[14,15] Students must engage in activities that provide them with opportunities to interact extensively with words.[14] Integrating gamification into learning can be a beneficial effort as it makes the experience more interactive, engaging and increasing student engagement, motivational levels, and academic achievement.[5,16]

With the incorporation of game design elements into areas unrelated to games, gamification has arisen as a

progressive method in various fields, particularly education. It aims To encourage deeper learner engagement, motivation, and learning outcomes.[17] The concept of gamification gained traction in the early 2000s, with significant contributions from researchers, who first articulated the theoretical framework surrounding gamification.[17] Subsequently, researchers expanded on this foundation by developing a theoretical framework that links gamified learning to behavior modification. His research emphasized the role of game attributes in enhancing instructional design, thus influencing a generation several investigations emphasize the practical applications of gamification in learning context.[18] In an effort to integrate gamification into learning, investigator propose a five-stage process for integrating gamification in learning, which includes examining learning goals, deciding on game elements, matching them with activities, launching the design, and evaluating the implementation results.[19]

Recent empirical works have addressed various aspects of gamification in education, particularly its impact on vocabulary acquisition and overall learning experiences. For instance, researchers investigated the effectiveness of gamified environments, demonstrating that game elements significantly enhance student motivation and retention.[20] Similarly, investigator focused on the specific strategies employed in gamified learning, providing empirical evidence that supports the desirable outcome of gamification on learning outcomes.[5]

Despite the growing body of research, several gaps remain. For example, while many studies focus on the benefits of gamification, fewer have critically examined the challenges and limitations associated with its implementation. Previous studies indicates that not all students respond positively to gamified approaches, suggesting a need for more nuanced investigations into the contextual factors that influence student engagement.[6,21] Moreover, some studies have reported mixed results regarding the efficacy of gamification. For example, while others found significant improvements in student engagement and performance, other research indicates that the implementation of gamification can sometimes lead to unintended consequences, such as increased competition among students, which may foster anxiety rather than motivation.[22,23]

Other studies report results, suggesting that the positive outcomes of gamification Is highly contingent upon the learner characteristics and the specific design of the gamified activities.[24, 8] The results draw attention to the complexity of gamification as a pedagogical tool and the need for careful consideration of its design and application.

In terms of linguistic intelligence as one of the characteristics of individual learners, some studies highlights a strong correlation between linguistic intelligence and vocabulary acquisition in EFL contexts.[25,26] These findings suggest that individual differences, such as intelligence types, play a crucial role in how students engage with gamified learning environments. Linguistic intelligence, one of Howard Gardner's multiple intelligences, is particularly relevant to language learning. It encompasses awareness of oral and written language, proficiency in language acquisition, and competence in effective language use for various purposes.[27]

The growth of intelligence is substantially shaped by experience.[28] Two key processes are crystallizing experiences, which enhance potential, and paralyzing experiences, which hinder growth due to negative emotions. Further ideas expressed by scholar suggest that there is a relationship between different types of intelligence, which can be categorized into three domains: interactive (verbal/linguistic, interpersonal, kinesthetic), analytical (musical, logical, naturalistic), and introspective (existential, intrapersonal, visual). Each domain reflects different processes: social for interactive, heuristic for analytical, and affective for introspective.[29] Moreover, the interplay between gamification and individual learner characteristics, particularly linguistic intelligence, is underexplored. This gap underscores the need for further empirical study to investigate how these variables interact and affect learning outcomes.

Within the domain of English as a Foreign Language (EFL), gamification has gained relevance due to its potential to overcome traditional barriers such as limited vocabulary knowledge and low motivation.[30] Gamification has been reported to improve vocabulary acquisition, engagement, and autonomous learning among EFL students by creating a competitive and enjoyable learning environment.[31] Vocabulary is defined as the words in a language, encompassing individual terms and phrases or combinations of multiple words with specific meanings. Vocabulary goes beyond single lexical items with defined meanings; it also includes lexical phrases and multi-word expressions.[32]

Enriching vocabulary is crucial in the language learning process, as effective communication is nearly impossible with a limited vocabulary.[33] It is essential for students to acquire more productive vocabulary knowledge to enhance their fluency and express themselves more accurately in English.[32] Furthermore, investigator emphasizes that it is impossible to learn English without learning vocabulary, and relying solely on pictures in textbooks will not enable students to fully understand what they are learning.[34] Scholar identifies three main components of vocabulary learning: form, meaning, and use. The word form comprises its pronunciation (oral form), spelling (written form), and every part of the word that constitutes a specific item (such as prefixes, roots, and suffixes).[35] Meaning encompasses both the form and the definition of the word used together; in other words, it refers to the concepts and items indicated, as well as the concepts that are brought to mind when someone thinks of a particular word or expression. Meanwhile, the notion of use refers to

the grammatical function that a word or phrase performs, word combinations, and the limitations on its usage.

Mastering English vocabulary is not an easy task, and its success largely depends on students' independence in learning vocabulary.[36] Engaging students in interesting vocabulary learning activities presents its own challenges, others argue that vocabulary learning through gamification may act as a strategy to tackle spark students' interest and enthusiasm for learning words in a fun and engaging context.[37]

METHOD

Research Design

This inquiry was conducted using a quasi-experimental framework with a factorial (2x2) pretest-posttest nonequivalent control group model to investigate the outcomes of gamified direct instruction and linguistic intelligence on vocabulary acquisition. Those in the experimental condition received gamified direct instruction, while the control group followed direct instruction without game elements. Pretest and posttest evaluations were conducted to assess vocabulary acquisition.

The study examined three primary variables. The independent variable was the instructional strategy, which compared gamified direct instruction and non-gamified direct instruction. The dependent variable was vocabulary acquisition, specifically focusing on the aspects of form, meaning, and usage of English vocabulary. Additionally, linguistic intelligence served as the moderator variable, measured to determine its role in modifying the relationship between instructional strategies and vocabulary acquisition outcomes.

Participants

Participants included 64 eighth-grade students (32 in each group) aged 14–16 years from Public Secondary School 2 Mrebet, Purbalingga, Indonesia. The non-random assignment of intact classes was utilized due to accessibility constraints. The experimental group comprised students from Class VIII E, and members of the control group were students from Class VIII A, determined through coin toss. Participants were selected using convenience sampling based on class availability.

Instruments

The instruments used in this study consisted of treatment instruments and measurement tools. The treatment instruments included a syllabus, lesson plans, student worksheets, and observation sheets, all tailored to suit the instructional approaches used in the experimental and comparison groups. Measurement tools comprised a validated linguistic intelligence questionnaire (α = 0,813) based on Gardner's Multiple Intelligences theory, designed to assess rhetorical, mnemonic, explanatory, and metalinguistic abilities using a 5-point Likert scale.[27,28] Learners who achieve a score ≥ median (33) are grouped as learners with high linguistic intelligence and vice versa for scores < median as learners with low linguistic intelligence.

Additionally, a vocabulary acquisition test (α = 0,864), which consisted of 40 items assessing word form, meaning, and usage, was employed to evaluate students' vocabulary knowledge both before and after the instructional intervention structured in a multiple-choice format, word matching, and sentence completion. The difficulty level of the 40 vocabulary questions consists of: Very Difficult = 2 (5 %); Difficult = 7 (17,5 %); Medium = 19 (47,5 %); Easy = 12 (30 %); Very Easy = 0 (0 %).

Procedures

The research procedure was divided into three phases: preparation, implementation, and posttest. During the preparation phase, the gamified elements of the instructional strategy were designed following Huang and Hew's framework (figure 1) consisting of examine, decide, match, lounch and evaluate.[19] Incorporating progress bars, point systems, and challenges to foster engagement. Instructional materials, including syllabi, lesson plans, and assessment tools, were prepared and validated by subject-matter experts. Instrument validity and reliability were tested using SPSS 27 to ensure robustness.

In the implementation phase, the experimental and control groups underwent eight instructional sessions over a semester, with each session lasting 90 minutes. Pretests were administered to assess baseline vocabulary knowledge and linguistic intelligence levels. The experimental group participated in gamified direct instruction, incorporating Quizizz as a platform for interactive tasks with progress tracking and point systems. Meanwhile, the control group received direct instruction without game elements. Both groups followed direct instruction structured step of orientation, presentation, structured, guided, and independent practice.[10] Table 1 displays the data for a basic comparison of learning activities among the control and experimental conditions.

Finally, in the posttest phase, vocabulary acquisition was measured using the same instrument as the pretest to evaluate the impact of the instructional interventions. Statistical analysis was conducted using two-way ANCOVA via SPSS 27 to examine the primary effects and interaction effects of gamification and linguistic intelligence on students' vocabulary acquisition.

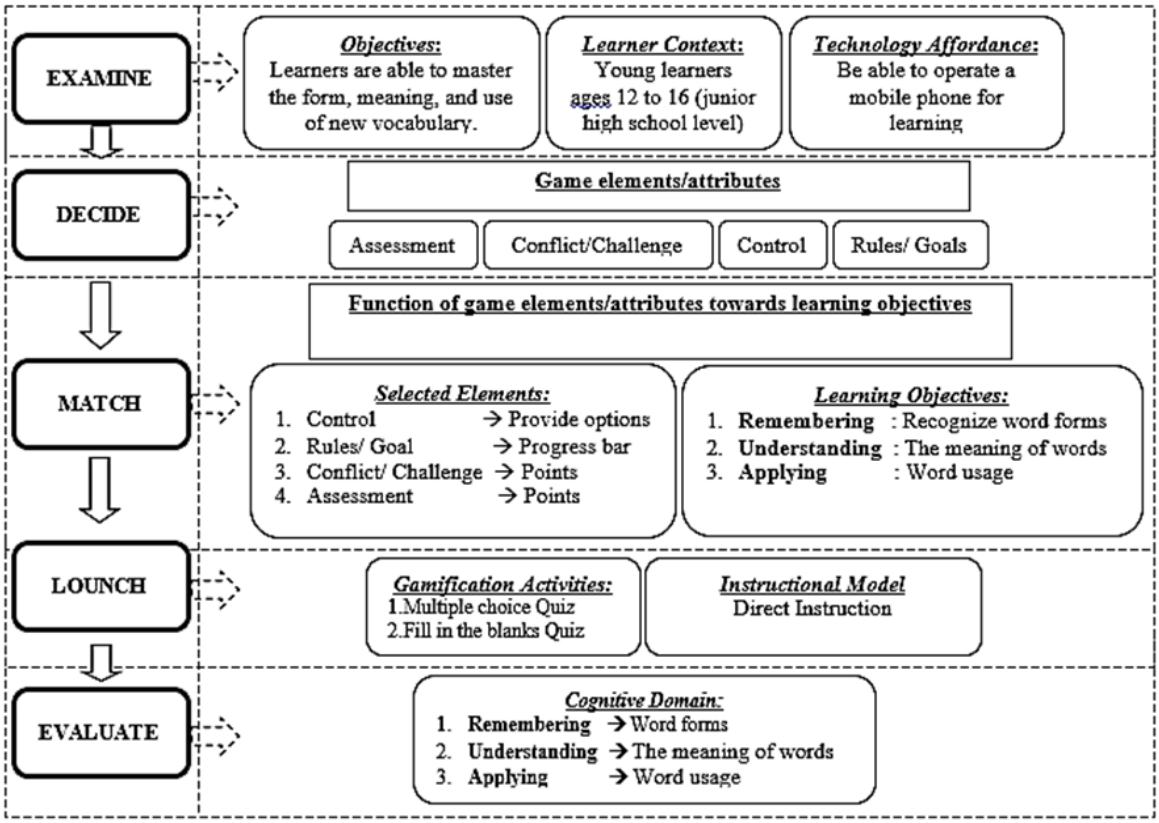

Figure 1. Procedures for integrating gamification in learning

Table 1. Comparison of learning activities in the control and experimental conditions

Learning Stage	Control Group	Experimental Group	Gamification
Orientation	The teacher sets the learning materials. Learners be attentive to the teacher's instruction about vocabulary.	The teacher provides material choices to learners. Learners choose materials and be attentive to the teacher's instruction.	Control (learners have control to choose the material)
Presentation	The teacher explains the forms and meanings of words. Learners be attentive to the teacher's explanation about new vocabulary.	The teacher introduces new vocabulary with videos on the Quizizz online platform. Learners be attentive to explanations through videos.	Goals (progress bar)
Structured Practice	Learners complete individual tasks on the student worksheet	Learners complete individual tasks on the Quizizz online platform.	Assessment (points)
Guided Practice	Learners work in groups on exercises in the student worksheet	Learners work in groups using the Quizizz online platform for exercises.	Challenge (points) (Answer practice questions correctly and quickly)
Independent Practice	Learners complete independent tasks on the student worksheet	Learners complete independent tasks on the Quizizz online platform.	Assessment (points) Learners earn points when they successfully complete an exercise correctly.

Ethical Considerations

This study was conducted in strict adherence to international ethical research guidelines, including the principles outlined in the Declaration of Helsinki. Written informed consent was obtained from the parents or legal guardians of the 64 junior high school students participating in the study. They were provided with comprehensive information regarding the study's objectives, procedures, potential benefits, and risks, as well as their right to decline participation or withdraw at any time without consequences. The confidentiality and anonymity of participants were maintained throughout the research process. The data collected were used solely for academic purposes and stored securely in compliance with institutional and data protection guidelines. The research involved no significant physical or psychological risks, and the gamified learning activities were designed to be engaging and supportive of students' well-being, with appropriate durations to

prevent fatigue. Although formal approval from a university ethics committee was not obtained, the research protocol was developed in consultation with and received approval from relevant authorities, including the school principal and school supervisor, to ensure compliance with ethical standards. Participants benefited from an engaging learning experience through the gamified approach, which was designed to enhance their vocabulary acquisition.

RESULTS

The normality test of residual data using Shapiro-Wilk and Kolmogorov-Smirnov was conducted to ensure that the sample data was normally distributed. The outcomes of the two normality tests, namely Kolmogorov-Smirnov [D(64) = 0,077, p= 0,200] and Shapiro-Wilk [W(64) = 0,965, p = 0,064], had a significance value above 5 % (α = 0,05i), indicating that the posttest residual data had a normal distribution.

The homogeneity test of variance between groups was carried out using Levene's Test of Equality of Error Variances. It resulted in [F(3, 60) = 1922, p=0,136] where the Sig. value of 0,136 > from the general significance limit (α = 0,05), meaning that the variance of the vocabulary posttest data of one learning group with other learning groups is homogeneous. Next, a regression homogeneity test was run to assess the existence of a significant difference in the regression slope between the existing groups. A summary of the regression homogeneity test findings is shown in table 2.

Table 2. Results of the homogeneity of regression slope test

Dependent variable: Posttets				
Interaction Model	**df**	**Mean Squrae**	**F**	**Sig**
Learning_Strategy * Linguistic_intelligence	3	20,152	2,518	0,067
Learning_Strategy * Pretest	1	10,673	1,334	0,253
Linguistic_intelligence * Pretest	1	6,370	0,796	0,376
Learning_Strategy * Linguistic_intelligence * Pretest	1	0,023	0,003	0,957

The overall test findings of interactions within groups fulfill the assumption homogeneity of regression slope (sig > 0,05) as a prerequisite for Two-Way ANCOVA analysis.

Linearity test with scatter plot was conducted to determine whether the pretest data was linear to the posttest data on four interaction models shown in figures below.

- In the direct learning strategy group interaction model with low linguistic intelligence, it produces a determination coefficient (R2) of 0,866;
- In the direct learning strategy group with high linguistic intelligence, it produces a determination coefficient (R2) of 0,772;
- In the gamified-direct learning strategy group interaction model with low linguistic intelligence, it produces a determination coefficient (R2) of 0,776;
- In the direct gamified-learning strategy group with high linguistic intelligence, it produces a determination coefficient (R2) of 0,723.

Thus, overall it can be seen that in each interaction model, the pretest data is linear with respect to the posttest data. Indicating that the pretest is a significant predictor for the posttest in each interaction model.

The findings of the two-way ANCOVA test to assess the influence of the variables of learning gamification strategies, linguistic intelligence and also the influence of the interaction of learning strategies and linguistic intelligence on learners' English vocabulary acquisition are provided in table 3.

Table 3. Results of two-way ANCOVA test

Sourcei	**Type III Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig**	**Partial Eta Squared**
Corrected Model	2253,196a	4	563,299	71,666	0,000	0,829
Intercept	301,392	1	301,392	38,345	0,000	0,394
Pretest	1663,675	1	1663,675	211,663	0,000	0,782
Learning Strategy	214,477	1	214,477	27,287	0,000	0,316
Linguistic Intelligence	38,520	1	38,520	4,901	0,031	0,077
Learning Strategy * Linguistic Intelligence	46,539	1	46,539	5,921	0,018	0,091
Error	463,742	59	7,860			
Total	51890,000	64				
Corrected Total	2716,937	63				

Note: R Squared = 0,829 (Adjusted R Squared = 0,818)

The test results shown in the table 3 above provide information about the differences in vocabulary acquisition results of learners delivered through direct learning strategies and learners delivered through gamified-direct learning, indicated by the calculated F value of the learning strategy of 27,287 with a significance value of p = 0,00 or <0,05. The results of further testing on the effect of using the Direct Instruction strategy showed an increase in vocabulary of 30,41 % from initial vocabulary knowledge, while the group of learners who were given treatment using the Gamified-Direct Instruction strategy experienced an increase in vocabulary of 47,28 %.

Differences can be observed in vocabulary acquisition results among learners with low linguistic intelligence and learners with high linguistic intelligence, indicated by the F value of linguistic intelligence of 4,901 with a significance value of p = 0,031 or <0,05. Further testing resulted in the group of learners from the low linguistic intelligence group experiencing an increase in vocabulary of 37,8 % from initial vocabulary knowledge, while the group of learners with high linguistic intelligence experienced an increase in vocabulary of 39,4 %.

There is an influence of the interaction between learning strategies and linguistic intelligence on the results of learning English vocabulary of learners indicated by the calculated F value of 5,921 while the significance value is p = 0,018 or <0,05. Visualization of the interaction pattern between learning strategies (gamification and without gamification) and linguistic intelligence (high-low) on learners' vocabulary acquisition is shown in figure 2 below.

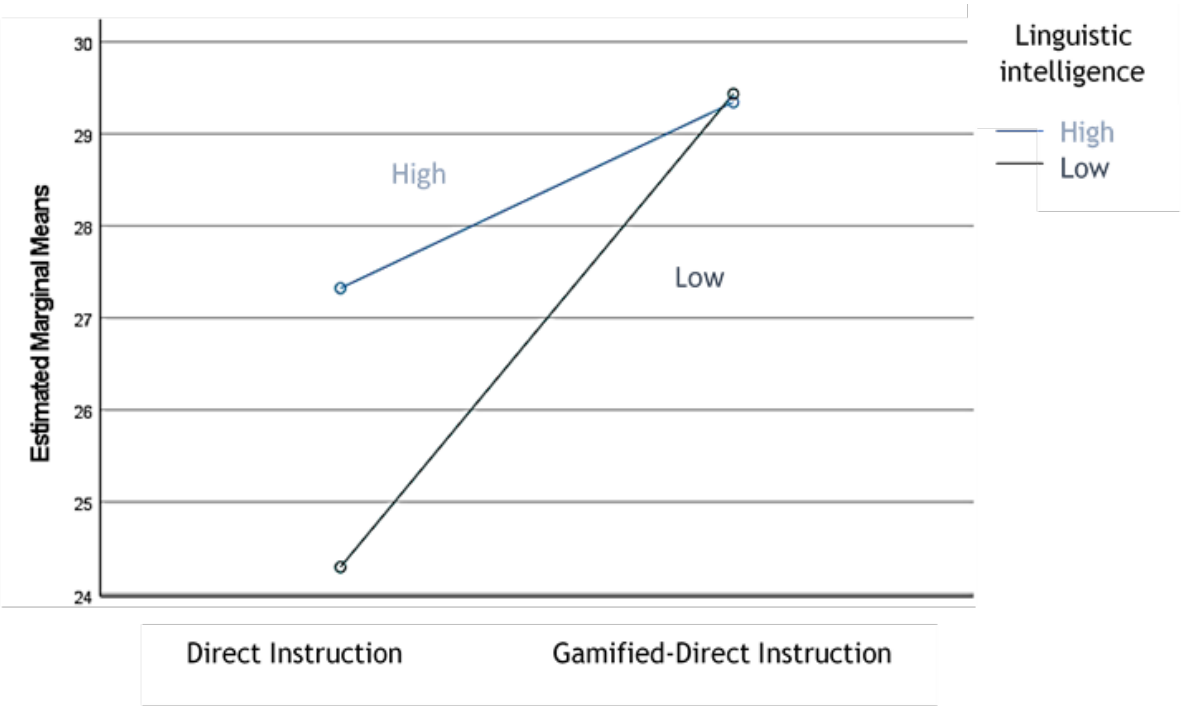

Figure 2. Interaction patterns of learning strategies and linguistic intelligence on learners' vocabulary acquisition

It is evident that incorporating gamified -direct learning strategies with low linguistic intelligence shows greater results than other interaction groups.

DISCUSSION

The increase in vocabulary learning outcomes obtained by students in both direct learning groups, whether using gamification or not, further confirms that direct learning has a relatively solid and increasingly consistent empirical track record.[10]. Direct Instruction focuses on achieving low-level skills, and in an effort to expand students' opportunities to learn, educators must engage students by providing engaging learning.[38] Integrating gamification into learning can make learning more interactive and engaging. There is a lot of evidence from previous studies indicating that gamification has gained growing recognition as an effective educational approach applied to produce engaging learning experiences.[9] The game attributes in direct learning in this study were selected from a summary of Bedwell et al. of the influence of game attributes on the achievement of learning objectives based on Bloom's taxonomy by Krathwohl, by evidence from previous studies.[39,40] The employment of game attributes in the form of assessment, conflict/challenge, control, and goals in direct may lead to better vocabulary students achievement, especially in the cognitive domain, namely: remembering, understanding and applying.

Individual differences contribute substantially to the effectiveness of learning. Differences between individuals can be viewed in various ways, including categorizing each person based on their intelligence type.

[27] Linguistic intelligence has a direct relationship to English learning, specifically concerning the acquisition of vocabulary. Overall, students possessing advanced linguistic intelligence have a better ability to understand the meaning of vocabulary because they can relate vocabulary to context, analyze language structures, and are able to use effective memory techniques. In terms of English vocabulary learning, linguistic intelligence helps EFL learners in improving the success of English vocabulary learning. Therefore, it can be said that linguistic intelligence plays a significant part in influencing the vocabulary learning outcomes of EFL learners.

Although learners with high linguistic intelligence have better ability in understanding vocabulary meaning because they can associate vocabulary with context and understand sentence structure correctly, it turns out that learners with low linguistic intelligence can actually benefit more in terms of vocabulary acquisition through gamified-direct learning strategies. By using gamification, learners with low linguistic intelligence can experience more interactive, engaging and motivated which can improve their learning outcomes more effectively.[5,16]

Learners' linguistic intelligence can be developed and strengthened through adequate practice and learning. With the right environment, support, and opportunity, even learners with low linguistic intelligence can achieve adequate vocabulary learning outcomes.[28] Experience is an important factor in influencing the development of learners' linguistic intelligence, including interactions with parents, teachers, peers, friends, and others, can awaken intelligence (crystalizing), inhibit its development or actively suppress it (paralyzing).

Experience can have a significant impact on the cultivation of an individual's intelligence. Crystalizing experiences and paralyzing experiences are two crucial stages in the growth of intelligence. Elements of games, such as assessment, conflict/challenge, control, and goals in learning can increase learner engagement and interest, so they can be more active in learning vocabulary and support learners with low linguistic intelligence to gain better English vocabulary acquisition.

CONCLUSIONS

This study cocludes that there is an interaction effect between the implementation of gamification and non-gamification in direct learning, as well as the learners' linguistic intelligence, on English vocabulary acquisition. The integration of gamified-direct learning strategies with low linguistic intelligence shows greater results than other interaction groups. The application of gamification in direct learning strategies has been proven to encourage vocabulary acquisition in EFL learners with low linguistic intelligence more than learners with high linguistic intelligence.

Further research is needed to consider other intelligence variables, such as kinesthetic and interpersonal intelligence, which are part of the interactive domain, to understand the interaction of these types of intelligence in influencing the effectiveness of gamified learning.

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