

A Playful Method: The influence of gamification on the self-learning of students in the Department of Foreign Languages at the Public University of Education in Peru

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Abstract– *This study investigates the relationship between gamification and self-learning among students at the Public University of education. Utilizing reliable questionnaires with coefficients of 0.918 for gamification and 0.930 for self-learning, the research measures students' perceptions across several dimensions of gamification and self-learning. The descriptive results reveal a predominantly low perception of gamification, with 68% of students rating it as low. Similarly, 64% of students perceive their self-learning capabilities as low. Hypothesis testing shows no significant correlation between gamification and self-learning, suggesting that gamification, as currently perceived, does not significantly influence self-learning processes. These findings indicate the need for re-evaluating gamification strategies to better support and enhance self-learning among students. The study contributes to understanding the effectiveness of gamification in educational contexts and highlights areas for future research and development.*

Keywords-- *gamification, self-learning, cognitive engagement, motivation in learning, educational technology.*

I. INTRODUCTION

This research focuses on the critical dimensions of self-directed learning, awareness, adaptability, and effectiveness in language learning within higher education. As the demand for language proficiency continues to rise in a globalized world, understanding how students engage with and perceive these aspects of their learning process becomes increasingly important. By examining these dimensions, this study aims to provide valuable insights into the factors that influence language acquisition and to identify strategies that can enhance the overall learning experience for students in higher education. Through this investigation, we seek to contribute to the ongoing discourse on effective language teaching methodologies and to support educators in fostering a more engaging and productive learning environment.

The basic theories had given that gamification has been widely used in virtual education to facilitate student's learning motivation and engagement, it is valuable to explore the impacts of gamification on students' self-regulated learning,

according to [1]. Therefore, [2] mentions that Gamification applied in higher education courses helps to increase students' readiness for self-fulfillment. Applications. The results of the study will be of interest to all participants in the educational process who are looking to improve the quality of education

Mention before that the annual research framework, as teachers at UNE University, we have conducted the study titled "The influence of gamification on the self-learning of students in the Department of Foreign Languages at the Public University of Education in Peru," based on the following question: What is the relationship between gamification and the self-learning of students in the UNE- University?

[3] Said that Students enjoy learning in a self-learning, which is the most prominent finding; many link it to the facilitation of self-regulated learning behaviors. So, engage in this research. Also, Bachtiar affirmed that [4] the concept of gamification can be utilized to enhance student engagement in learning.

Additionally, [5] examines the impact of gamification on learners' academic performance, assesses their level of self-directed learning within an online gamified learning environment, and explores the relationship between learners' self-directed learning levels and their experiences with gamified learning.

[6] Investigates that gamification, which involves applying game mechanics to non-game contexts, has recently gained significant attention across various industries and is seen as a potential disruptive force in education. It is founded on the idea that it can enhance motivation and engagement, thereby contributing positively to the learning process. Also, [7] noticed that gamification arises from the notion that many traditional classroom activities are inherently dull and fail to capture students' attention. Given that today's learners are immersed in interactive media and video games, incorporating games into their education can be appealing and motivating.

Based on the experience of [8] provided a deeper understanding of the underlying motivational processes, clarifying how gamification functions within an educational setting. Rapp's research [9] on gamification has progressed slowly in enhancing the techniques used to design gamified applications. Additionally, current studies on gamification lack a critical perspective that can examine the unintended consequences of design choices.

On the other hand, reviewing the literature about self-learning [10] applied for the self-learning pedagogy has been created and discussed, which appears to indicate an effective and cost-efficient method for ESL learners to enhance their linguistic, sociolinguistic, and pragmatic skills beyond the traditional language classroom. In addition to this, [11] emphasizes that self-regulated learning is widely recognized as the systematic effort made by learners to manage and control their learning processes in order to achieve specific educational goals.

Additionally, [12] research that self-generated thoughts, feelings, and behaviors that are directed towards achieving individual personal goals. In other words, self-regulated learning focuses on how students become masters of their own learning processes.

According to [13] proponents of gamification strongly argue that incorporating game elements in both classrooms and virtual e-learning environments can enhance learning outcomes by boosting students' motivation and engagement. Also, [12], smart technology allows students around the world to easily access games through their smartphones.

II. METHOD

This research employed quantitative methods, including correlational research, which aims to determine the relationship between two or more variables. This hypothesis aims to explore the overall impact of gamification on students' self-directed learning processes, assessing whether the implementation of gamified elements within educational contexts effectively enhances their ability to learn independently. Therefore, these specific hypotheses target to test the relationship between the different dimensions of gamification appreciation (dynamic, mechanical, and components) and the self-learning of students in the foreign language department. By examining these relationships, the study seeks to provide a more nuanced understanding of how various aspects of gamification may influence or correlate with students' self-directed learning processes.

Regarding the research method, the strategy of analysis and synthesis was employed to gather data and evidence with the purpose of uncovering new information and achieving a deeper understanding of the research topics. Additionally, to

contrast the findings, the hypothetical-deductive method was applied, which led to answering the research question.

According to [14] the population of a research study refers to the entirety of elements defined by the researcher. The population and the universe share similar characteristics, allowing for measurements to be made. For this research, the population is 90 students from the Department of Language Learning DALEX- UNE University.

To gather information, students complete the technique google form. After that, the information was systematized to carry out the inferential calculations and analyses, presenting the results in accordance with the objectives established in the research. For data processing and recording in a database, the SPSS v25 statistical program was used, which allowed for descriptive analyses, generating tables and figures, as well as performing statistical inferences.

III. RESULTS

The validity and reliability of the instruments

TABLE I
Expert opinion on the variable "gamification"

Parameters	Haydee Flores	Soledad Chavéz	Gala Nieve
Clarity	90	90	90
Objectivity	90	90	90
Organization	95	90	90
Sufficiency	90	90	90
Intentionality	90	90	90
Consistency	95	90	90
Coherence	95	90	90
Methodology	95	90	90
Relevance	90	90	90
Totals	92.50%	90%	90%

TABLE II
Expert opinion of the variable: self- learning

Parameters	Haydee Flores	Soledad Chavéz	Gala Nieve
Clarity	85	90	90
Objectivity	85	90	90
Organization	85	90	90
Sufficiency	85	90	90
Intentionality	95	90	90
Consistency	95	90	90
Coherence	95	90	90
Methodology	85	90	90
Relevance	85	90	90
Totals	89.00%	90%	90%

Table I – II showed instrument validation refers to the process of obtaining empirical evidence to determine whether a measurement instrument effectively evaluates with precision and reliability what it is expected to measure. It is a crucial step in research and in the creation of measurement tools to ensure that the results obtained are valid and meaningful. In our research, we consider two important steps:

Content validity, where it is ensured that the instrument adequately covers the domain it is supposed to measure, experts in the field evaluate whether the included elements are relevant and representative.

Reliability, referred to as the consistency and stability of measurements over time and in different situations. It is used to evaluate whether the instrument produces consistent and reproducible results. A valid and reliable instrument provides a stronger basis for making inferences and informed choices based on the measurement results obtained.

TABLE III
RELIABILITY OF THE VARIABLE: GAMIFICATION

Estadísticas de fiabilidad	
Alfa de Cronbach	N de elementos
.918	15

Table III. show the resulting coefficient is 0.918, indicating that the questionnaire regarding the perception of gamification usage demonstrates significantly high reliability.

TABLE IV
RELIABILITY OF THE VARIABLE: SELF-LEARNING

Estadísticas de fiabilidad	
Alfa de Cronbach	N de elementos
.930	15

Table IV showed the resulting coefficient is 0.930, indicating that the questionnaire on self-learning has very high reliability.

TABLE V
OPERATIONALIZATION OF THE VARIABLE: GAMIFICATION

Nivel	Gamificación	Apreciación dinámica de la herramienta	Apreciación mecánica de la herramienta	Apreciación de los componentes de la herramienta
Bajo	15 – 34	5 – 11	5 – 11	5 - 11
Medio	35 – 54	12 – 18	12 – 18	12 - 18
Alto	55 – 75	19 – 25	19 – 25	19 - 25

TABLE VI
DIMENSIONS OF GAMIFICATION

Ítem	Gamificación		Apreciación dinámica de la herramienta		Apreciación mecánica de la herramienta		Apreciación de los componentes de la herramienta	
	Frec.	%	Frec.	%	Frec.	%	Frec.	%
Bajo	69	68	70	69	81	79	48	47
Medio	31	30	29	28	20	20	51	50
Alto	2	2	3	3	1	1	3	3
Total	102	100	102	100	102	100	102	100

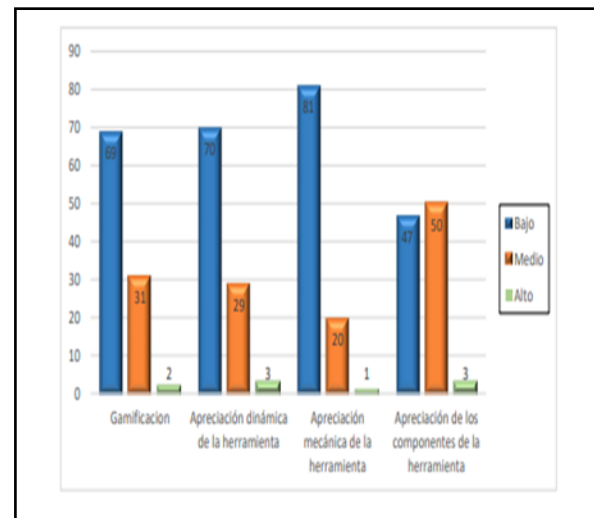


Figure 1: Dimensions of Gamification (Data: IBM SPSS)

Fig. 1 General Conclusion: There is a low perception of the use of gamification. This finding is reflected across all the evaluated dimensions, where the dynamic and mechanical appreciation of the tool also ranks low, and although some components receive a medium rating, most students do not perceive gamification as an effective resource to enhance their self-directed learning.

TABLE VII
OPERATIONALIZATION OF THE VARIABLE: SELF-LEARNING

Nivel	Autoaprendizaje del Inglés	Conciencia del aprendizaje	Adaptabilidad del aprendizaje	Eficacia del aprendizaje
Bajo	15 – 34	5 – 11	5 – 11	5 – 11
Medio	35 – 54	12 – 18	12 – 18	12 – 18
Alto	55 – 75	19 – 25	19 – 25	19 – 25

TABLE IX
NORMALITY TEST

	Kolmogórov-Smirnov			Shapiro-Wilk		
	Estadístico	GI	Sig.	Estadístico	GI	Sig.
Autoaprendizaje	,053	102	,200*	,979	102	,096
Gamificación	,082	102	,089	,970	102	,020

*. Esto es un limite inferior de la significación verdadera.
a. Corrección de significación de Lilliefors

Table IX. Results: Sig. 0.200 > 0.05 and 0.089 > 0.05, indicating that the data follow a normal distribution.

TABLE VIII
DIMENSIONS OF SELF-LEARNING

Ítem	Autoaprendizaje del Inglés		Conciencia del aprendizaje		Adaptabilidad del aprendizaje		Eficacia del aprendizaje	
	Frec.	%	Frec.	%	Frec.	%	Frec.	%
Bajo	65	64	78	76	66	65	51	50
Medio	37	36	24	24	36	35	51	50
Alto	00	00	00	00	00	00	00	00
Total	102	100	102	100	102	100	102	100

H0: The provided data follows a normal distribution.
H1: The provided data does not follow a normal distribution.
H0 is accepted if and only if: Sig. > 0.05
H1 is accepted if and only if: Sig. < 0.05
The results show that Sig. 0.200 > 0.05 and 0.089 > 0.05. Therefore, H0 is accepted, and it can be concluded that the provided data follows a normal distribution. As a result, a parametric test, specifically Pearson's Correlation Coefficient, will be used for further analysis.

TABLE X
GENERAL HYPOTHESIS TEST

Correlaciones			
		TotalV1	TotalV2
TotalV1	Correlación de Pearson	1	,185
	Sig. (bilateral)		,063
	N	102	102
TotalV2	Correlación de Pearson	,185	1
	Sig. (bilateral)	,063	
	N	102	102

Table X. Results: Sig. 0.063 > 0.05, H0 is accepted, and H1 is rejected. Conclusion: There is no correlation between gamification and the self-learning process of DALEX students.

TABLE XI
SPECIFIC HYPOTHESIS TEST 1

Correlaciones			
		TotalV1	Dim_21
TotalV1	Correlación de Pearson	1	,179
	Sig. (bilateral)		,073
	N	102	102
Dim_21	Correlación de Pearson	,179	1
	Sig. (bilateral)	,073	
	N	102	102

Table XI. Results: Sig. 0.073 >= 0.05, H0 is accepted, and H1 is rejected. Conclusion: There is no relationship between dynamic appreciation and self-learning.

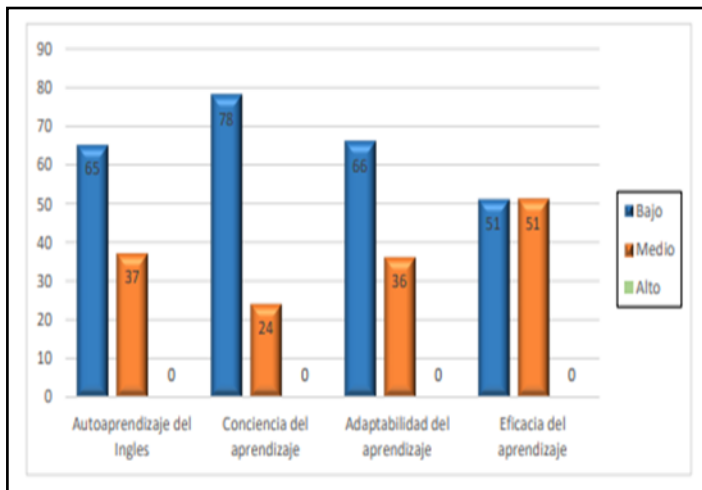


Figure 2. Dimensions of Academic Achievements (Data: IBM SPSS)

Fig. 2 The results show that the perception of self-directed language learning is predominantly low among students, with 64% rating it as low and 36% as medium. In the evaluated dimensions, 76% consider the awareness of learning to be low, 65% view adaptability as low, and 50% rate effectiveness as low. General Conclusion: There is a low perception of language self-learning.

TABLE XII
SPECIFIC HYPOTHESIS TEST 2

Correlaciones			
		TotalV1	Dim_22
TotalV1	Correlación de Pearson	1	,185
	Sig. (bilateral)		,063
	N	102	102
Dim_22	Correlación de Pearson	,185	1
	Sig. (bilateral)	,063	
	N	102	102

Table XII. Results: Sig. 0.063 \geq 0.05, H0 is accepted, and H1 is rejected. Conclusion: There is no relationship between mechanical appreciation and self-learning.

TABLE XIII
SPECIFIC HYPOTHESIS TEST 3

Correlaciones			
		TotalV1	Dim_23
TotalV1	Correlación de Pearson	1	,129
	Sig. (bilateral)		,196
	N	102	102
Dim_23	Correlación de Pearson	,129	1
	Sig. (bilateral)	,196	
	N	102	102

Table XIII. Results: Sig. 0.196 \geq 0.05, H0 is accepted, and H1 is rejected. Conclusion: There is no relationship between appreciation of the components of the educational tool and self-learning.

IV. DISCUSSION

Due to this result, [15] posits that individuals have innate psychological needs for competence, autonomy, and relatedness. When these needs are met, motivation and engagement in learning are enhanced. Gamification may not always meet these needs, leading to low perception and effectiveness. Which is according to the results of this research. As a conclusion there is a low perception of the use of gamification. Addition to this, [16] are most engaged and satisfied when in a state of flow, marked by high concentration, challenge, and a balance of skills; however, gamification elements may not always achieve this state, resulting in lower perceptions of their effectiveness.

[17] provides a framework for designing motivational strategies, and when gamification does not effectively capture attention or relevance, it can lead to decreased perception and engagement. Besides, [18] Bandura's theory highlights the

importance of observational learning, imitation, and modeling, and if gamification lacks clear, observable benefits or relatable models, it may diminish its perceived value and effectiveness in self-learning. Moreover, [19] indicates that learning is hindered when cognitive load is too high. Overly complex or poorly designed gamification can increase cognitive load, resulting in lower effectiveness and perception.

To conclude, [20], supporting Jean Piaget, Lev Vygotsky's constructivist theory emphasizes active, hands-on learning where learners construct knowledge through experiences. If gamification does not align with constructivist principles, it may lead to a low perception of its utility in self-learning contexts.

V. Conclusions

The study concludes that there is a generally low perception of gamification among DALEX students, both in general and across various dimensions of appreciation. Despite the high reliability of the instruments used to measure these perceptions, the data do not support a significant relationship between gamification and self-learning. This lack of correlation suggests that gamification, as currently implemented or perceived by the students, does not play a significant role in enhancing their self-learning capabilities.

Summarize the main conclusions on academic achievement dimensions reflect a negative perception of language self-learning among students. The majority feel they lack awareness, adaptability, and effectiveness in their autonomous process of learning a foreign language. This suggests the need to implement more effective strategies to foster and improve students' perception of their ability to learn on their own.

These findings have important implications for educators and curriculum designers. The low perception of gamification indicates a potential need for re-evaluation and redesign of gamified elements to better align with students' learning needs and preferences. Additionally, it highlights the importance of exploring alternative or complementary strategies to support and enhance self-learning among students.

In conclusion, while gamification has shown promise in various educational settings, its impact on self-learning in this context appears limited. Further research and innovation are needed to better integrate gamification into the self-learning processes in a way that is both effective and positively perceived by students.

ACKNOWLEDGMENT

We wish to sincerely thank everyone who contributed to the completion of this research article. We would also like to dedicate this research to the educational community of our country, especially to the students and teachers at the Professional School of Foreign Languages at the Faculty of Social Sciences and Humanities of UNE. Your ongoing support and commitment to education have been instrumental in shaping this study. We extend our heartfelt gratitude to team researchers for their contribution to this scientific article. Their collaboration has been instrumental in advancing the dissemination of knowledge and fostering academic growth.

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