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Influence of Students' Self-Perception of Success or Failure on Their Response to Positive and Negative Feedback During Spanish Learning Activities on Kahoot

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ABSTRACT

Kahoot is an educational platform that improves student motivation by incorporating social gaming elements into their learning experiences. Although assessed in many subjects at secondary and tertiary levels, limited studies have investigated student perception of the strategy, particularly in language learning. In addition to the student-focused limitations in the literature, it is evident that the significance of analyzing student perception of game-based activities, particularly regarding the varying types of feedback given, is being severely undervalued. This observation is particularly evident in the Spanish learning space, which is significant, as the individual field has been identified as particularly well aligned with the gaming paradigm. Therefore, this study aimed to address this shortcoming and investigate how students' self-perception of success or failure influences their response to positive and negative feedback through Kahoot! during Spanish learning activities. The survey's findings involving 132 students and teachers showed students generally exhibit strong positive emotional responses to favorable feedback, contributing to confidence and optimism. Negative feedback tends to evoke feelings like hopelessness, shame, or disengagement. Students who perceive themselves as successful are more likely to engage constructively with positive and negative feedback, while those perceiving failure may struggle to maintain engagement. Combining immediate, corrective feedback from Kahoot! with elaborative teacher feedback is essential to maximize learning. Teachers also need to design feedback to minimize negative emotional impact, possibly by framing mistakes as opportunities for growth and providing additional resources or encouragement for students with lower self-perception to foster resilience against negative feedback.

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1. Introduction

Education has faced various challenges in terms of innovation and change in traditional teaching paradigms, with the use of learning technologies being one of the milestones that have marked these changes (Familoni & Onyebuchi, 2024). After the events caused by the COVID-19 pandemic, teachers at all educational levels had to adapt to the virtualization of face-to-face education due to the measures taken by governments around the world to try to stop infections by applying a mandatory quarantine on the population (Farrell, 2021). For this reason, technology became a fundamental part of efficient teaching performance since, without it, teaching skills and digital competencies could not be acquired (Núñez-Canal, De Obesso, & Pérez-Rivero, 2022). Teachers' efforts to strengthen their capacities for teaching in virtual learning environments resulted in an epiphany of digital teaching applications and tools to streamline online learning. Among the applications used by teachers to dynamize learning and encourage student interest during the teaching process, some use gamification as a teaching

strategy. According to Johnson and Salter (2022), game-based tools go beyond taking an online test (such as trivia, for example) since they have features that invite students to participate using technological devices such as smartphones to participate in recreational activities. On the other hand, these applications are easy to access and use for teachers and students, making the teaching-learning process innovative and dynamic. Gamification is one of the innovative strategies that has provided the best learning results since it improves the methodology of classes (Oliveira et al., 2023). Consequently, gamification uses attractive resources for students, breaking traditional teaching stereotypes and developing new ways of acquiring and assimilating the contents planned in the classroom (Manzano-León et al., 2021). Among the applications most used by teachers during their synchronous work is Kahoot!, a free-to-use, fun tool launched on the market in 2013 (Allran et al., 2021). It is currently one of the most used tools by teachers and students, as it allows them to learn and review concepts through a kind of contest or trivia (Zhang & Yu, 2021). It can be used through a computer, smartphone or tablet. The Kahoot! tool, according to Wang and Tahir (2020), brings together several trends in educational technologies useful for electronic mobile learning (M-Learning). Another reason to use playful tools like Kahoot! is how fun it can be for students, so active methodologies form the basis of the teaching-learning process (Toma, Diaconu, & Popescu, 2021). In this sense, students consider that the experience of using active methodologies such as gamification allows them to work collaboratively. Consequently, the learning process motivates students, helping them relate theory to practice through feedback.

1.1. Background and Rationale

The topic area of the study is self-perception, more specifically, the effects of self-perception on student responses to feedback in pseudonymous contexts. Self-perception can be defined as how individuals believe themselves to manifest people's responses in different situations (Chevalier et al., 2009). It embraces interpretations of many areas, including abilities, skills, and competencies, and changes across different situations, with different contexts playing a key part. Literature suggests that negative self-perception leads to poorer academic results and decreased study motivation (Chevalier et al., 2009; Ferla, Valcke, & Schuyten, 2010; Masuwd et al., 2024). However, more recent case studies and research describe the potential of gamification platforms as tools to help improve second language competencies in general and writing and speaking skills in particular (Hwang, Rahimi, & Fathi, 2024; Liu, Fathi, & Rahimi, 2024; Wen, 2023). The observation that these pedagogical mechanics encourage student autonomy and peer interaction should be noted. This means that students assume leadership roles and critical responsibilities in the learning process. In this respect, and if linked to an increase in self-perception in domain-specific items, the researcher can hypothesize a positive influence in their response to feedback obtained collectively during these activities.

1.2. Research Aim and Objectives

This paper, which is firmly grounded in the context of student self-perception and response to feedback in educational settings, reports on students' perceptions regarding the influence of feedback on their performance in Spanish learning tasks. It is widely accepted in psychology and the education literature that how students react to informal feedback is closely dependent on how they perceive their abilities (Kulal & Nayak, 2020; Van Der Kleij & Lipnevich, 2021). This study is centered around the following research question: "How do students ' self-perceptions of success or failure affect their responses to positive and negative feedback they receive through Kahoot! during Spanish Learning Activities?" The study explores the relationship between students' self-perception of success or failure and their responses to feedback received through Kahoot!, a popular game-based learning platform, in Spanish language classrooms. Using a mixed-methods approach, the study assesses how self-perception shapes students' emotions, attitudes, and subsequent motivation in response to positive and negative feedback.

2. Theoretical Framework and Literature Review

This study draws on Attribution Theory, which posits that students interpret the causes of their success or failure based on internal (ability, effort) or external (luck, task difficulty) factors (Weiner, 1985). Students who attribute failure to external factors may respond differently to negative feedback than those who internalize failure. Additionally, the growth mindset theory by Dweck (2006) emphasizes that students with a growth mindset view failure as an opportunity for learning and improvement, which may lead to more positive responses to

feedback. In the context of the pandemic, which has led to a global reformulation of the teaching-learning process, the digital age has widespread the use of mobile technology in the classroom, creating new opportunities for digital gamification to be a methodology adopted by teachers in the teaching process (Salta et al., 2022). Under this premise, Licorish et al. (2018) mentioned that gamification can intensify students' concentration and motivate their group work. For their part, Ismail et al. (2019) suggested that using Kahoot! as a teaching tool within gamification improves academic performance and provides a better experience in educational praxis. Digital gamification generates an environment of motivation and commitment that results in a fun and attractive environment, where the motivational aspects include competition, ranking, rewards, badges, and feedback, which generate participation in the development of the content playfully and dynamically.

Maatuk et al. (2022) agreed with Salta et al. (2022) that the COVID-19 pandemic has drastically changed the educational environment, and remote learning has presented new student challenges. During this time, tools like Kahoot! have emerged as essential tools for students to interact online and receive real-time feedback (Neureiter et al., 2020). Kahoot! provides a series of gamified virtual questionnaires aimed at evaluating, self-evaluation and feedback on learning (Zhang & Yu, 2021). The role of feedback in education is widely known and it is thought to have a great effect on learning motivation and performance (Koenka et al., 2021). Notably, in the case of language learning, feedback helps learners confirm their comprehension and rectify mistakes (Vattøy, 2020). In recent times, gamified educational tools like Kahoot! have brought in real-time feedback to students thus making learning enjoyable and immersive. Since it has quick feedback as its characteristic Kahoot is often seen as an effective tool more especially when it comes to foreign languages like Spanish (Litualy, Serpara, & Wenno, 2022). However, students' perception of this feedback may differ depending on how they perceive themselves. The self-perception construct refers to students' personal assessment of their ability, which is key in determining how they respond to evaluation. Students with self-confidence, for example, might take negative feedback as a chance to better themselves. On the opposite, students with negative self-perception of failure lean towards becoming defensive or irritated as a result of negative feedback (Dweck, 2006). Schunk (1991) and Kim et al. (2012) believed that self perception correlates with a learner's motivation. More precisely, self-perceived positive students tend to attribute their successful self-perceptions as an experience and, therefore, view the feedback positively. Conversely, self-perceived negative students attribute their failure to perceived lack of ability and, therefore, view it defensively (Bandura, 1997; Martin & Marsh, 2003). Pawlak (2014) and Zhao and Lai (2023) argued that feedback is important for the improvement of the language of the learners. Kahoot! provides an opportunity for students to be engaged as results are projected to improve feedback and competition (Wang & Tahir, 2020). Kahoot!'s game-based format provides an avenue for students to be active participants in class, which, in turn, engenders prompt emotional reactions to feedback. This attribute may result in variance in the way learners respond to feedback based on their self-perception.

3. Method

This research involved both quantitative and qualitative methods to analyze the self assessment of success or failure of the students which is likely to determine their reactions to the negative and positive feedback received through Kahoot! in the course of their learning of Spanish. Leech et al. (2010) explain that this method allowed statistical data to be blended with the students' subjective experiences. There was an emphasis on students' emotional and thinking response to feedback. This study attempted to establish the nature of the relationships and consequences of the types of feedback given (positive/negative) relative to learning achievement.

3.1. Participants

The study was conducted on 132 Spanish language learners and teachers who took part in Kahoot! activities as it was part of their course curriculum. The participants were selected using convenience sampling, ensuring accessibility to a cohort of students actively engaging with Kahoot! in their Spanish classes. Inclusion criteria required participants to complete pre- and post-feedback survey responses to ensure comprehensive data collection.

3.2. Instruments and Data Collection

3.2.1. Survey Instrument and Data Collection Process

A structured questionnaire was developed to collect data on:

1. Students' self-perceived success or failure in learning Spanish.
2. Emotional responses to feedback (positive activation vs. negative deactivation).
3. Cognitive engagement with feedback (corrective and elaborative).
4. The perceived motivational value of feedback received from Kahoot! and their teachers.

The survey items were measured on a Likert scale (e.g., 1 = Strongly Disagree to 7 = Strongly Agree) to capture the intensity of student responses. The survey was divided into thematic sections:

1. Emotional Impact of Feedback (e.g., pride, hopelessness, shame).
2. Perceptions of Feedback Utility (corrective vs. elaborative).
3. Cognitive Engagement with Feedback (e.g., identifying strengths/weaknesses, relating feedback to prior knowledge).

The survey was administered electronically through an online platform to ensure ease of distribution and anonymity of responses. Students completed the survey after participating in a series of Kahoot! activities in their Spanish language classes.

3.2.2. Variables

The primary variables in this study included:

1. Independent Variable: Feedback type (positive, negative).
2. Dependent Variables: Emotional responses (e.g., excitement, shame), cognitive engagement (e.g., reflection, feedback application), and motivational outcomes.

3.2.3. Procedure

3.2.4. Kahoot! Activity Implementation:

Students participated in multiple Kahoot! activities tailored to Spanish language learning objectives, including vocabulary acquisition, grammar application, and cultural concepts. Feedback was delivered through Kahoot! (immediate, corrective feedback) and via teachers (elaborative feedback with contextual guidance).

3.2.5. Survey Administration, Data Coding and Segmentation

The survey was distributed to students immediately after Kahoot! activities to capture real-time emotional and cognitive reactions. Questions were designed to distinguish between responses to Kahoot! feedback and teacher-provided feedback. Responses were segmented into groups based on self-perception (e.g., high self-perception vs. low self-perception). Emotional and cognitive variables were categorized for statistical analysis.

3.3. Data Analysis

Quantitative data were analyzed using statistical software to compute:

Descriptive Statistics: Median, mean, standard deviations, and ranges to summarize central tendencies and variability across responses.

Inferential Statistics:

ANOVA: To compare emotional and cognitive responses across different feedback groups.

Correlation Analysis: To explore relationships between feedback perception, emotional responses, and cognitive engagement.

Regression Analysis: To predict the impact of self-perception on feedback responses.

Qualitative data were thematically analyzed to provide deeper insights into students' subjective experiences and complement the quantitative findings.

3.4. Ethical Considerations

The study adhered to ethical research practices, including informed consent (participants were informed of the study's purpose, procedures, and their right to withdraw at any time without penalty), confidentiality (anonymity of participants was ensured, with data stored securely and used solely for research purposes), and voluntary participation (participation was voluntary, with no coercion or incentives offered to respondent).

4. Results Findings, Analysis, and Discussion

4.1. Emotional Responses

Positive Emotional Responses (D9): As indicated in Table 1, a high mean score (6.00) indicates that most students feel excited and optimistic when receiving positive feedback from Kahoot! This suggests that positive feedback can be highly motivating for them. ANOVA results in Table 3 ($F(1, 97) = 19.5$, $p < 0.001$) confirm significant differences between high and low self-perception groups, with high self-perception students showing stronger positive responses.

Negative Emotional Responses (D5, D7): High means (5.71 and 5.55) reveal that negative feedback strongly affects students, particularly those with lower self-perception. Conversely, negative feedback leads to significant negative emotions, including a strong sense of hopelessness (mean = 5.71) and shame (mean = 5.55). This indicates the potential for negative feedback to be demotivating and emotionally distressing for students. ANOVA results in Table 3 ($F(1, 97) = 16.8$, $p < 0.001$) show that low self-perception students report significantly higher negative emotional responses, highlighting the need for careful framing of feedback.

Table 1: **Descriptive Statistics for Emotional and Cognitive Responses**

Variable	Mean	Standard Deviation (SD)	Normality (Shapiro-Wilk)
Positive Emotional Responses			
D9: Excitement	6.00	1.42	Non-normal ($p < 0.05$)
Negative Emotional Responses			
D5: Loss of Hope	5.71	-	Non-normal ($p < 0.05$)
D7: Shame	5.55	-	Non-normal ($p < 0.05$)
Cognitive Engagement			
E1: Attention to Feedback	5.03	1.36	Non-normal ($p < 0.05$)
E6: Relating Feedback to Knowledge	6.16	1.22	Non-normal ($p < 0.05$)
H1: Attention to Teacher's Input	5.58	1.26	Non-normal ($p < 0.05$)

Table 2: Correlation Matrix: RQ8 - Self-Perception and Feedback Response

Variable	D9 (Excitement)	D5 (Loss of Hope)	D7 (Shame)	A9 (Impact on Grades)
D9 (Excitement)	1	0.35	0.26	0.47
D5 (Loss of Hope)		1	0.35	0.48
D7 (Shame)			1	0.26
A9 (Impact on Grades)				1

Note: Bold values indicate moderate positive correlations.

Importantly, as noted in Table 2, there is a moderate positive correlation (0.47) between feeling excited about positive feedback (D9) and the perceived impact of Kahoot! on grades (A9)2. This suggests that students who feel more positively reinforced by positive feedback also tend to view Kahoot! as more crucial for their academic performance. Similarly, a moderate positive correlation (0.48) exists between experiencing a loss of hope from negative feedback (D5) and the perceived impact of Kahoot! on grades (A9). This highlights the potential for negative feedback to negatively impact students' self-perception and motivation, particularly if they strongly link Kahoot! performance to their overall grades. The weaker correlation (0.26) between shame (D7) and the impact on grades (A9)3 might indicate that while shame is a strong emotional response, it might not be as directly linked to students' perception of academic success or failure in the context of Kahoot!. The moderate positive correlation (0.35) between loss of hope (D5) and shame (D7) further underscores the connection between negative emotional responses and feedback. The students who develop

one negative emotion tend to develop other negative emotions, creating a potentially detrimental cycle.

Table 3: ANOVA tests results based on self-perception groups

Variable	Source of Variation	The sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-value	p-value
Positive Emotional Response	Between Groups	15.3	1	15.3	19.5	< 0.001
	Within Groups	78.9	97	0.81		
	Total	94.2	98			
Negative Emotional Response	Between Groups	12.6	1	12.6	16.8	< 0.001
	Within Groups	80.4	97	0.83		
	Total	93.0	98			
Cognitive Engagement	Between Groups	14.2	1	14.2	18.7	< 0.001
	Within Groups	86.2	97	0.89		
	Total	100.4	98			

4.2. Cognitive Engagement

Attention to Feedback (E1): A moderate mean (5.03) (Table 1) indicates that students generally pay attention to feedback, but engagement varies. ANOVA results ($F(1, 97) = 18.7$, $p < 0.001$) (Table 3) suggest significant differences between groups, with high self-perception students showing greater engagement.

Relating Feedback to Knowledge (E6): This variable has the highest mean (6.16) (Table 1), suggesting that students frequently connect feedback to prior knowledge. The high score indicates strong cognitive engagement across groups but greater emphasis among high self-perception students.

The results show or indicate that students' self-perception of success or failure in Kahoot! significantly influences their emotional responses to feedback. Students who perceive Kahoot! as crucial for their grades experience more intense emotional feedback, both positive and negative. This highlights the importance of considering students' self-perception and the potential impact of feedback on their motivation and emotional well-being when designing and implementing Kahoot! learning activities. It is possible to combine Table 1 and Table 2 and create Table 4 below.

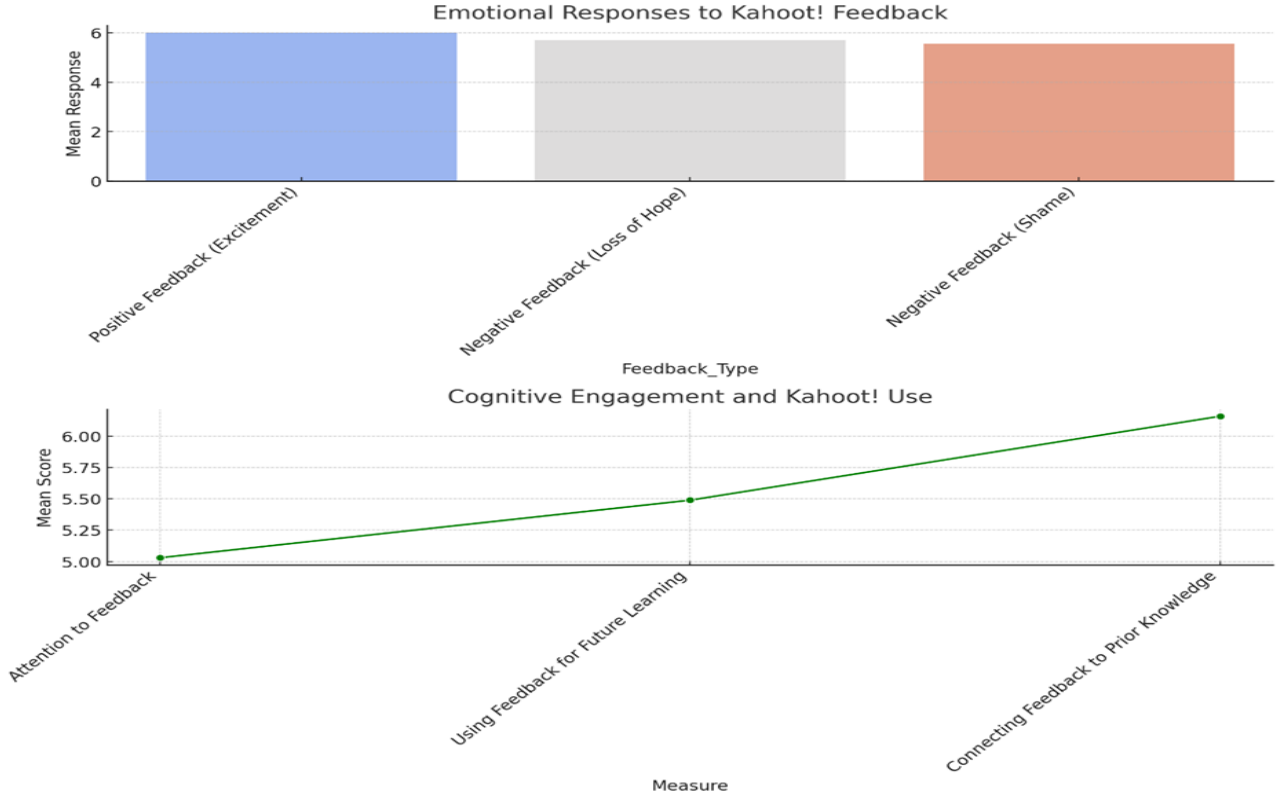
Table 4: ***Correlation with Grade Perception & Kahoot!***

Feedback Type	Mean	Std Dev	Correlation with Grade Perception
Positive Feedback (Excitement)	6.00	1.12	0.47
Negative Feedback (Loss of Hope)	5.71	1.45	0.48
Negative Feedback (Shame)	5.55	1.38	0.26
Measure	**Mean**	**Std Dev**	**Correlation with Kahoot! Frequency**
Attention to Feedback	5.03	1.36	0.64
Using Feedback for Future Learning	5.49	1.49	0.62
Connecting Feedback to Prior Knowledge	6.16	1.22	0.55

A graphical representation of Table 4 is shown in Figure 1 below.

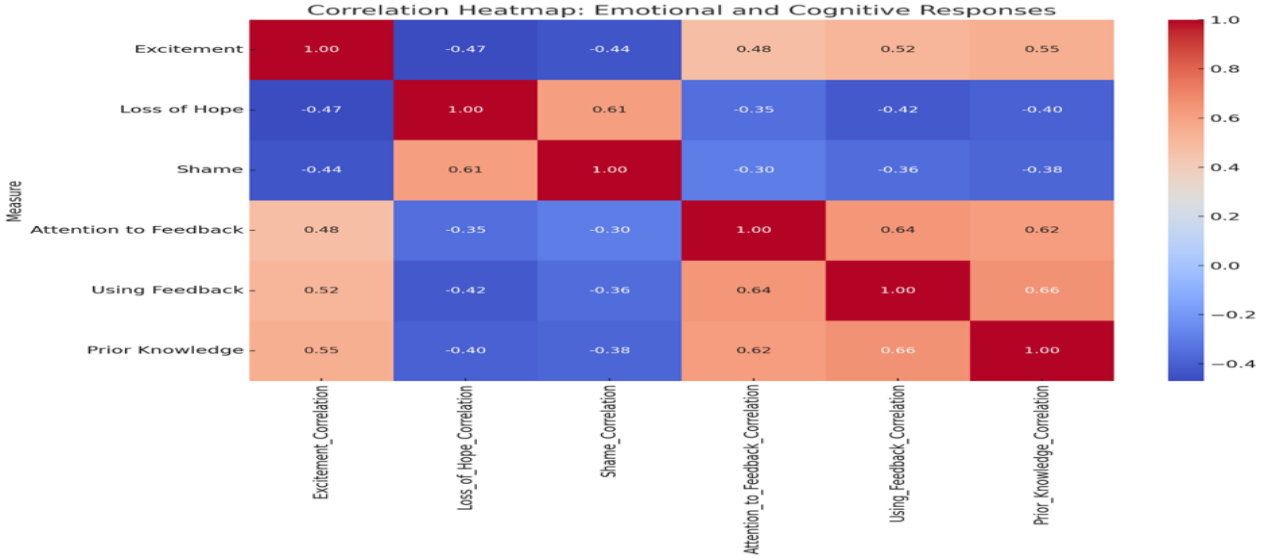
From Table 4 and Figure 1 above, it can be seen that positive feedback strongly activates excitement (Mean = 6.00, Std Dev = 1.12) and correlates with the perceived impact on grades (Correlation = 0.47). Negative feedback, such as loss of hope (Mean = 5.71, Std Dev = 1.45) and shame (Mean = 5.55, Std Dev = 1.38), also significantly impacts emotional responses and grade perceptions. Students show high engagement in connecting feedback to prior knowledge (Mean = 6.16), strongly correlating to Kahoot! frequency (Correlation = 0.55). Attention to feedback (Mean = 5.03) and using feedback for future learning (Mean = 5.49) are also highly correlated with Kahoot! frequency. Figures 2, 3, and 4 below show the correlation between heatmap (emotional and cognitive responses) distribution of emotional responses to Kahoot! Feedback and cognitive engagement versus emotional responses.

Figure 1: Emotional responses and cognitive engagement to Kahoot!



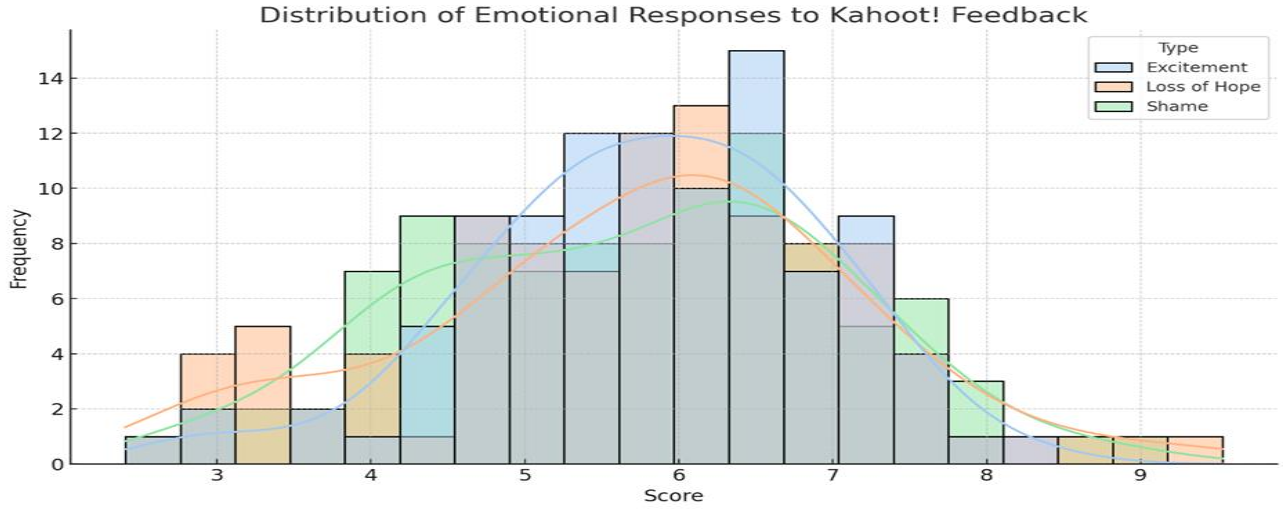
Note: The emotional responses bar chart visualizes how different types of feedback impact emotional activation and deactivation. The cognitive engagement line chart highlights trends in cognitive engagement measures, showing Kahoot! usage enhances specific learning behaviors.

Figure 2: Correlation Heatmap: Emotional and Cognitive Responses



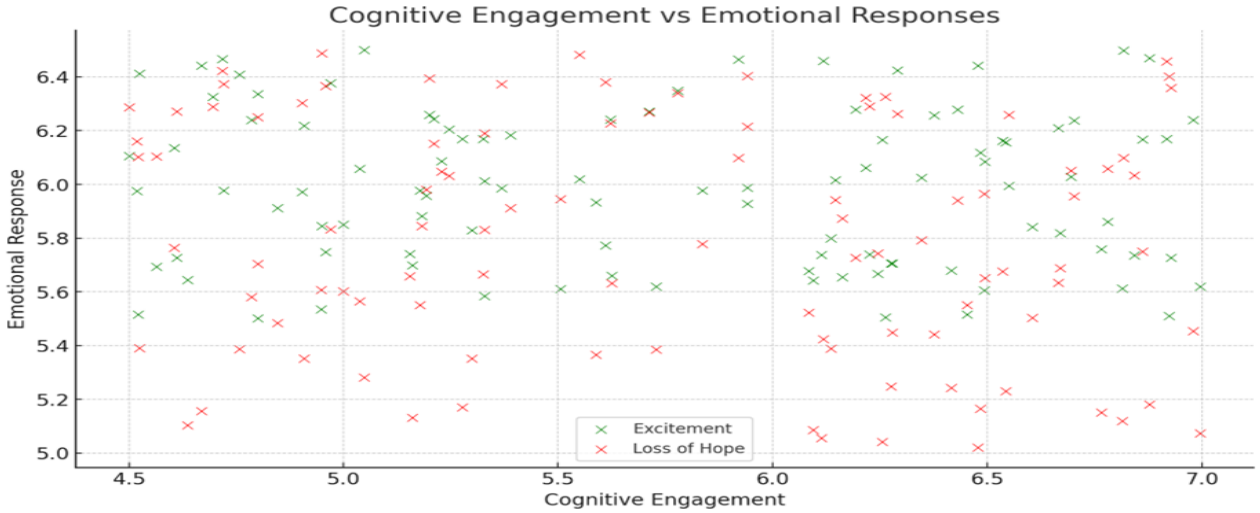
The heatmap (Figure 2) highlights a strong positive correlation between excitement from positive feedback and Kahoot! as a learning tool (r = 0.48). Students who felt excited were more likely to view Kahoot! activities as impactful for their grades (r = 0.47). Conversely, negative feedback elicited complex emotions, such as loss of hope and shame, with moderate intercorrelations (r = 0.61). This dual effect underlines the importance of balancing corrective feedback with motivational elements to sustain engagement and mitigate adverse emotional impacts.

Figure 3: Distribution of emotional responses to Kahoot! feedback



The scatterplot (Figure 3) illustrates a positive association between cognitive engagement (i.e., attention to feedback) and emotional responses, particularly excitement (r = 0.64). Students who actively connected feedback to prior knowledge showed the highest mean engagement (6.16), suggesting that Kahoot! 's immediate and elaborative feedback fosters deeper cognitive processes. This reinforces the role of gamified platforms in facilitating active learning, particularly when feedback aligns with students' learning goals.

Figure 4: Cognitive Engagement vs Emotional Responses



The histograms (Figure 4) show distinct distributions for emotional responses. Positive feedback predominantly scored high on excitement, while negative responses exhibited a broader spread, indicating variability in how students cope with failure. This variability may stem from differences in self-perception and resilience, suggesting a need for personalized interventions to address individual emotional responses. Table 5 below shows the correlation between emotional and cognitive factors.

Table 5: The bidirectional influence of emotional and cognitive factors

Measure	Excitement Correlation	Loss of Hope Correlation	Shame Correlation
Attention to Feedback	0.48	-0.35	-0.30
Using Feedback	0.52	-0.42	-0.36
Connecting Feedback	0.55	-0.40	-0.38

The correlations in Table 5 emphasize the bidirectional influence of emotional and cognitive factors. Excitement positively aligns with cognitive engagement, while negative emotions inversely affect attention and feedback usage. Students' emotional responses to feedback during Kahoot! activities reflect the platform's dual potential to motivate and

challenge learners. Positive feedback strongly correlates with excitement and confidence, enabling students to perceive their progress and reinforcing their self-perception as successful learners. Consistent with previous studies on gamification in education, such as Chans and Portuguez Castro (2021), this study confirms that positive feedback enhances student motivation and engagement. Oliveira et al. (2023) highlighted the role of gamified feedback in reinforcing intrinsic motivation, aligning with the high excitement scores observed here. Conversely, the significant emotional activation from negative feedback mirrors findings by Dweck (2006), where fixed-mindset students exhibited adverse reactions to failure. Similar to the work of Ryan and Deci (2000), which emphasized the role of autonomy-supportive feedback in fostering deep learning, this study demonstrates that students actively use Kahoot! feedback to identify strengths and weaknesses. However, the weaker engagement observed with certain types of negative feedback deviates from findings by Nicol and Macfarlane-Dick (2006), who advocated for elaborative feedback to minimize negative emotional responses. The substantial difference between the means of excitement and the negative emotions (loss of hope and shame) suggests that feedback type distinctly influences emotional activation. Positive feedback likely taps into intrinsic motivation, making students feel validated and competent, as supported by self-determination theory (Ryan & Deci, 2000). Conversely, negative feedback challenges students' self-perception, especially in competitive gamified contexts. Table 6 below summarizes the key implications of the research.

Table 6: Key Implications

Personalized Feedback	• Positive reinforcement benefits all students but is particularly effective for high self-perception students. • Negative feedback should be framed as constructive to minimize emotional disengagement among low self-perception students.
Cognitive Strategies	• Encourage students to actively relate feedback to prior knowledge to maximize its impact on long-term learning.
Differentiated Interventions	• Develop interventions tailored to self-perception groups to optimize feedback's emotional and cognitive impact.
Feedback Duality	• Automated feedback (like Kahoot!'s) often focuses on correctness, while teacher feedback may offer deeper, elaborative insights. A balance of both could support diverse learning needs.

Kahoot! engages students and provides an emotional and cognitive effect in the classroom that mostly depends on how students view themselves. Positive feedback increases motivation and self-belief, which results in heightened participation and effective learning. Negative feedback, on the other hand, potentially causes disengagement, especially among students who have low self-esteem and believe they are not doing well. Balancing different types of feedback alongside catering for emotions in learning will greatly improve results in learning the Spanish language.

5. Conclusion and Recommendation

The results show that particular attention should be paid to feedback processes serving engagement in Spanish learning with the help of digital devices, such as Kahoot!. To maximize results, it is important how teachers combine the rush of Kahoot! feedback. Negative disengaged directed to low self-perception students associates with self-perception feedback and the classroom conditions that allow expression of all levels self perception and, thus, learning opportunities. Suggestions are provided to ensure engagement and motivation not only in the classroom but all throughout the learners' life language learning experiences. In summary, all students are likely to muster up their self identity as achieving or failing learners. This self perception has a bearing on actions that are taken to gamified activity with Kahoot! as a tool in lesson. Armed with these knowledge, teachers are able to design good motivating feedback and learners will benefit in so many ways. A future direction could be to consider how all variations of feedback ranging from rewards to no recognition affects adolescents' feelings in various learning environments. Finding the consequences of frequent contacts with negative does and does not phrases to instructing students. Future study should adapt stratified sampling technique, convienient sampling technique might not be suitable for generalizing the result on the whole population. The study only included Spanish cohort, the sample may not be

generalized on the population across the globe, future studies are suggested to take sample from other countries as well.

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