Gamification and the Duality of Extrinsic and Intrinsic Motivation

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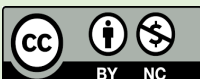
Abstract

This study aimed to investigate the influence of a gamification-enhanced language classroom within the context of Moodle in promoting extrinsic and intrinsic motivational attributes of language learners. A total of 220 language learners from different universities in Iran were recruited as the participants and randomly assigned the gamification-enhanced (n= 114) and control groups (n= 106). Over the eight weeks of treatment, the experimental group members were taught using various gamified tasks and activities through the gamified Moodle LMS. A motivational orientation scale was administered before and after the intervention. The results of ANCOVAs demonstrated a significant boost in the extrinsic motivation of language learners, including external, introjected, and identified regulation. Furthermore, the study confirmed that the integration of gamification has resulted in a higher level of intrinsic motivation for the participants in the areas of knowledge, accomplishment, and stimulation. The relevant pedagogical implications and directions for future studies are discussed.

Introduction

The growing trend of globalization and cross-border collaborations has increased the emphasis on English language learning (Bogart, 2024). Consequently, the academic community has been engaged in constant endeavors to advance language teaching and learning methodologies. In this regard, several innovative approaches have surfaced, each aimed at enhancing the language acquisition process (Gayed et al., 2022; Qiu et al., 2023; Wang et al., 2023). One such approach is gamification, which is increasingly recognized as a valuable and novel tool for language learning (Dehghanzadeh et al., 2021). Its potential to revolutionize the field has been widely acknowledged, and it has opened up new avenues for learners to improve their language skills (Dehghanzadeh et al., 2024).

Gamification is a potent technique that employs game design elements to generate more captivating and motivational learning experiences (Kim & Ahn, 2017). Gamification is a concept that differs from both game-based learning and serious games (Karagiorgas & Niemann, 2017). It involves incorporating various game elements, such as badges, levels, points, and avatars, into contexts that are not games themselves (Zimmerling et al., 2019). The underlying principle of gamification is to engage and motivate individuals to achieve desired objectives in non-game contexts by manipulating the motivational aspects of games (Ding, 2019). Therefore, the primary objective behind the incorporation of gamification in each educational setting is to deliver an immersive experience to the students and boost their motivation towards learning (Buckley & Doyle, 2016).

While some believe that gamification primarily revolves around rewards and can enhance student performance through extrinsic motivation (Buckley & Doyle, 2016; Ding et al., 2020), others contend that the provision of rewards may undermine and harm intrinsic motivation (Mekler et al., 2017). This debate raises the pertinent question of whether gamification can decrease students' intrinsic motivation. Recent studies have indicated that gamification not only diminishes intrinsic motivation but also enhances it through the satisfaction of learners' three basic psychological needs of competence, autonomy, and relatedness (Sotos-Martinez et al., 2022; Xu et al., 2021). Concerning this duality and in response to the research call made by Zainuddin et al. (2020), we embarked on research to investigate the eventual impact of gamification on each of the learners' motivational orientations including extrinsic and intrinsic.

Literature Review

Gamification is a prevalent trend in which game elements are utilized to encourage and reinforce desired behavior (Zainuddin, 2020). The concept of gamification has gained significant attention in both academic and business settings as an effective means of motivating individuals to engage in activities that may otherwise be deemed monotonous or uninteresting (Bai et al., 2020). Originating from the digital media field, gamification refers to the application of game elements in a non-game context, intending to drive individuals towards predetermined objectives. The core elements of gamification (i.e., points, badges, and leaderboards) provide a sense of accomplishment and reward to the user, thereby promoting their motivation and engagement (Sailer et al., 2017).

Originating in the business world, gamification was first utilized as a tool for generating brand loyalty and marketing such as Starbucks or Nike (Bai et al., 2020). This creative approach has gradually infiltrated other fields, including education (Huang & Hew, 2018). Gamification has been adopted by educators as a means of enhancing learning outcomes (Yildirim, 2017), by making the learning process more interactive (Huang et al., 2019b), engaging (Huang et al., 2019a), and enjoyable (Oliveira et al., 2022). As such, gamification has emerged as a valuable tool for educators seeking to increase student motivation in the classroom (Zeybek & Saygi, 2024).

Motivation plays a pivotal role in successful English language acquisition (Dornyei, 2009a; Gardner, 1985; Ushioda, 2009). Motivation is a psychological construct that refers to an internal state that drives, guides, and sustains behaviors toward a particular goal or objective (Tremblay & Gardner, 1995). It has been well-documented that L2 motivation can contribute to L2 learners' engagement (Zhang et al., 2020), perseverance (Teimouri & Plonsky, 2022), and ultimately L2 achievement (Li & Zhang, 2021). Prior research conducted in the domain of second language (L2) motivation has incorporated a diverse range of theoretical frameworks (Alamer & Lee, 2019). Each theory has demonstrated its usefulness in comprehending the essential components involved in L2 acquisition. Self-determination theory (SDT) (Deci & Ryan, 1985), Goal Orientation Theory (Elliot, 1999), Motivational Emotion (Pekrun, 2006), L2 Motivational Self System(L2MSS) (Dornyei, 2009b), and most recently Directed Motivational Currents (Dornyei et al., 2014) are among the most adopted theoretical foundations of Language studies.

As one of the most robust theoretical frameworks, the Self-Determination Theory (SDT) asserts that second language (L2) learners can be characterized by the diversity of orientations, or reasons, that motivate them to engage in language learning. This theory posits that individuals' motivational orientations include a spectrum ranging from impersonal and external, to somewhat internal, and finally fully internal (Deci & Ryan, 1985). Intrinsic motivation is formed when an individual considers learning to be personally important and integral to his/her sense of self. In other words, intrinsic motivation is the drive to engage in activities for their inherent interest and enjoyment, rather than external rewards or pressures (Deci & Ryan, 2000).

Intrinsic motivation is classified into three distinct types: intrinsic motivation knowledge, intrinsic motivation accomplishment, and intrinsic motivation stimulation (Deci & Ryan, 1985). Intrinsic motivation knowledge signifies the impetus to engage in an activity for the sake of deriving pleasure associated with acquiring knowledge and novel perspectives (Deci & Ryan, 1985). Intrinsic motivation accomplishment, conversely, refers to the sense of satisfaction that arises from striving to achieve a goal or master a task (Carreira, 2012). Finally, intrinsic motivation stimulation is predicated on the sensations aroused by the performance of a task, such as amusement and exhilaration (Carreira, 2012). Research has indicated that having a stronger internal motivation is linked with favorable language-related results. Such outcomes include a heightened sense of self-efficacy, amplified drive, and reduced apprehension (Noels et al., 2000).

In contrast to intrinsic motivation, extrinsic motivation pertains to behaviors that are motivated by factors other than their inherent gratifications (Ryan & Deci, 2020). SDT posits that extrinsic motivation comprises three key motivational constructs, namely external regulation, introjected regulation, and identified regulation. External regulation refers to behaviors that are driven by externally imposed rewards and punishments (Ryan & Deci, 2000). This form of motivation is generally perceived as being controlled and non-autonomous. In other words, external regulation is a form of motivation where learners may only be motivated by tangible benefits and/or the avoidance of negative consequences such as punishment. Introjected regulation is activated when learners approach a task out of a sense of obligation, rather than personal importance (Van den Broeck et al., 2021). This type of extrinsic motivation is partially internalized and the person starts to see values in it (Ryan & Deci, 1985).

As the process becomes more autonomously enacted, the individual progressively begins to consciously identify with the activity. This particular stage is commonly referred to as identified regulation (Ryan & Deci, 2020). Identified regulation can be described as a state in which individuals perceive a strong alignment between their learning activities and their personal pursuits, goals, and desires (Senécal et al., 1995). This state is characterized by a sense of purpose and self-determination, as learners feel that their educational efforts are meaningful and relevant to their lives (Guay et al., 2000). Individuals who experience identified regulation are more likely to be intrinsically motivated, meaning that they approach learning tasks with enthusiasm and curiosity. This type of motivation is associated with better academic performance, increased creativity, and improved overall well-being (Ryan & Deci, 2020).

According to Zainuddin et al. (2020), gamification can serve as a potent motivator for individuals, provided it is integrated effectively into a comprehensive engagement strategy. The efficacy of gamification, as a motivational tool, is contingent upon its harmonious integration with other engagement techniques. Therefore, gamification should be adopted as part of a larger strategy, which takes into account the unique needs of the target audience, the objectives of the engagement initiative, and the context in which the engagement is taking place. Several studies have been conducted to investigate the impact of gamification on promoting learners' motivation (Jones et al., 2023; Luarn et al., 2023). The majority of previous studies have predominantly centered on motivation as a singular construct. Additionally, in instances where gamification has been employed, the focus has been largely on the impact of either extrinsic or intrinsic motivation, without directly comparing the effects of each orientation within the same study.

Following the research conducted by (Buckley & Doyle, 2017), the implementation of game principles as external incentives or rewards has proven to be a successful approach in stimulating learners' extrinsic motivation. This finding is consistent with the conclusion drawn by Ding et al. (2019), who observed that gamification concepts yield a substantial increase in students' extrinsic motivation, yet do not affect their intrinsic motivation to the same degree. In another recent study, Mekler and his colleagues conducted an online experiment to analyze the impact of game elements such as points, leaderboards, levels, and participants' goal causality orientation on intrinsic motivation, competence, and performance in an image annotation task. The study findings indicated that the presence of the abovementioned game

elements did not have a significant impact on intrinsic motivation when compared to a control condition. Thus, these elements acted as extrinsic incentives, which were only effective in encouraging performance quantity (Mekler et al., 2017).

It has been posited that the implementation of extrinsic rewards may harm intrinsic motivation (Mekler et al., 2017), However, several studies have yielded results that contradict this notion. In a recent study, Jones et al. (2022) utilized the self-determination theory to examine the effect of gamification on learners' intrinsic motivation. The study revealed that students who participated in a gamified course demonstrated higher levels of autonomy and competence perceptions than their counterparts who were enrolled in a conventional course. These findings suggest that gamification can be an effective strategy to promote intrinsic motivation in learners.

According to a recent systematic review conducted by Xu et al. (2021), psychological interventions through virtual gamification have been found to improve academic intrinsic motivation. The review included a comprehensive analysis of relevant published articles, which revealed that the use of badges, social interactions, points, and leaderboards can contribute to the enhancement of intrinsic motivation. The study suggests that gamification can be effectively integrated into virtual contexts to augment motivation. Based on these findings, it can be concluded that gamification is a promising tool for enhancing intrinsic motivation in academic settings.

The current state of research in gamification reveals a dearth of longitudinal studies (Elliott et al., 2024; Rodriguez-Ferrer et al., 2023), a phenomenon that is compounded by the novelty effect. This issue is a critical one, as testing the efficacy of gamification strategies over time is necessary to understand their true impact. in a study conducted by Hanus and Fox, gamification was investigated for its longitudinal effect in the classroom. The findings revealed that students who were exposed to gamification were less motivated towards the end of the course. It was observed that the use of rewards may have negative repercussions on students and their motivation levels (Hanus & Fox, 2015).

The concept of duality in motivational orientation calls for a deeper understanding of the different aspects involved in gamification (Dah et al., 2024; Meena & Sarabhai, 2023; Zainuddin et al., 2020). It is necessary to determine which type of motivation, extrinsic or intrinsic, would be more relevant to incorporate in a gamification process. This analysis will help in designing a gamification strategy that resonates better with the intended audience's motivational orientation, leading to better engagement and participation. Therefore, the objective of the present study was to address the aforementioned gap in the literature by introducing gamification in a second language (L2) context in a general English course that has received insufficient attention thus far. Therefore, this research intends to empirically investigate the following research questions:

1. What are the effects of a gamification-enhanced classroom (GEC) on language learners' extrinsic motivation and its four sub-components (i.e., External Regulation, Interjected Regulation, Identified Regulation)?

2. What are the effects of a gamification-enhanced classroom (GEC) on language learners' intrinsic motivation and its four sub-components (i.e. Knowledge, Accomplishment, Stimulation)?

Method

Participants

The study comprised 220 English language learners at a lower-intermediate level who were enrolled in a general English course at a private academy in Iran. The sample consisted of 153 females and 67 males. Participants' ages ranged from 22 to 40 ($M = 23$, $SD = .73$). All participants spoke Persian as their first language and studied English as their second language. The intervention spanned eight weeks, during which none of the participants had prior experience using Moodle. These participants were randomly assigned into two groups: GEC (n = 114) and control (n = 106).

Materials and Instruments

Language Learning Motivational Orientations Scale (LLOS-IEA)

The language learning orientation scale, developed and validated by Noels et al., (2003) was used to identify the intrinsic and extrinsic motivation of participants before and after the treatment. This scale includes 21 items classified under seven major categories that measure: (1) a motivation (3 items) ($\alpha =.75$); (2) external regulation (3 items) ($\alpha =.75$); (3) interjected regulation (3 items) ($\alpha =.80$); (4) identified regulation (3 items) ($\alpha =.73$); (5) intrinsic motivation-knowledge (3 items) ($\alpha =.78$); (6) intrinsic motivation- accomplishment (3 items) ($\alpha =.79$); (7) intrinsic motivation- stimulation (3 items) ($\alpha =.81$). The participants were asked to rate the items on a 5-point Likert scale (1 = *strongly disagree* and 5 = *strongly agree*). For this study, we have exclusively utilized responses obtained from participants concerning the second through the seventh sections of the scale related to the evaluation of extrinsic and intrinsic motivation.

Moodle

Moodle is a highly regarded Learning Management System (LMS) that is widely used for managing, delivering, and measuring online learning and training programs. It is renowned for its customizable features and is considered one of the most popular LMS platforms of its kind. The Moodle learning management system provides users with a variety of around fifteen different activity types. Upon activation of the gamification plugin, it introduces various gamification elements that serve to augment the overall learning experience. This results in a more engaging and effective learning environment that helps to improve learners' motivation, participation, and retention of knowledge. These elements include automatically attributed points based on students' actions, a display of the current level, and a leaderboard that displays student rankings. The gamification elements in Moodle challenge learners to apply their knowledge and make informed decisions that result in achieving the course objectives within the simulated environment.

Procedure

Before the commencement of the study, a homogeneity test was performed to ascertain that all participants possessed a lower intermediate level of proficiency. The participants were then randomly assigned to either the experimental or control group. The first author, who also served as the instructor, conducted all classes, teaching the *American File 2* (2ⁿᵈ Edition) written by Christina Latham-Koenig, Clive Oxenden, and Paul Seligson published by Oxford University Press. All classes were conducted via a fully online platform. A diverse range of activities was developed, which all participants were expected to undertake across eight sessions. The individuals in the experimental group accessed their designated assignments and activities through the Moodle learning management system, whereas those in the control group utilized conventional techniques to work on them.

The study encompassed three distinct phases namely the pretest, intervention, and posttest. During the first session, the instructor administered the motivational orientation scale, which took approximately 15 minutes to complete. Over the course of eight weeks, both groups engaged in various class activities, with the participants in the experimental group accessing them through Moodle. The experimental group participants were motivated by employing incentives in the form of badges and levels, and their performance was constantly displayed on a leaderboard, ensuring that their status among their peers was readily visible. After the intervention phase was completed, the same motivational orientation scale was administered to both groups of learners, and the data was collected during the final session of treatment.

Results

An ANCOVA was conducted to respond to the initial research inquiry that compared the Language learners' external motivation during the pre and post-test administration of the motivational orientation survey. Before conducting the ANCOVA, some preliminary checks were done to ensure that the analysis assumptions were not violated, which was essential to validate the appropriateness of the ANCOVA procedure. The descriptive statistics of the pre- and post-test administration of extrinsic motivation for both groups were presented in Table 1.

Table 1. *Descriptive Statistics of Pre- and Post-Intervention Administration of Extrinsic Motivation Survey*

Variable	items	Pre-intervention					Post-intervention				
		Cronbach A	GEC mean	SD	C mean	SD	Cronbach α	GEC mean	SD	C mean	SD
ER	3	0.71	8.4	3.5	7.39	2.68	0.71	11.47	2.34	8.39	2.82
InR	3	0.73	8.87	3.2	9.08	3.57	0.74	12.03	2	8.21	3.08
IdR	3	0.78	8.7	3.43	8.8	3.29	0.79	12.23	1.85	8.99	2.33
TEM	9	0.77	25.96	8.94	24.99	8.04	0.77	35.73	4.58	25.77	7.77

Notes: ER = External Regulation; InR = Introjected Regulation; IdR = Identified Regulation; TEM = Total Extrinsic Motivation

After that, the ANCOVA was performed to eliminate any pre-existing extrinsic motivation differences' impact on the results. As shown in Table 2, regarding the external regulation, the mean scores of the participants in the GEC group were significantly higher than the participants in the other two groups (F (1, 217) = 96.95, p = .000). A partial eta square of .30 reveals a quite large effect size. Therefore, it is evident that the treatment significantly impacted learners' external regulation.

Turning to the second variable of extrinsic motivation (i.e., introjected regulation), the ANCOVA results manifested significant differences between the participants in the two groups. (F (1,217) = 203.092, p = .000, partial eta squared = .51). These results confirmed the outperformance of GEC participants compared to their counterparts. Similarly, the GEC participants scored higher in the post-intervention motivation questionnaire regarding the third component of extrinsic motivation (i.e. identified regulation). F (1, 217) = 141.157, p =.000, partial eta squared = .39.

Finally, for the total extrinsic motivation of participants, it is clear that the GEC participants' mean scores were significantly higher in the post-test administration of the extrinsic motivational survey. For total extrinsic motivation (F (1, 217) =354.908, p = .000, partial eta squared =.62), the large effect size underscores the powerful influence of the GEC treatment.

Table 2. *Summary of Five ANCOVAs Comparing GEC, and control Groups on Extrinsic Motivation Variables*

Dependent Variable	Covariate	Type III sum of squares	Df	Mean square	F	Significance	Partial eta square
ER-post	ER-pre	332.011	1	332.011	96.95	.000	.30
INR-post	INR-pre	845.304	1	845.304	230.092	.000	.51
IDR-post	IDR-pre	592.305	1	592.305	141.157	.000	.39
TEM-post	TEM-pre	4775.240	1	4775.240	354.908	.000	.62

Notes: ER = External Regulation; InR = Introjected Regulation; IdR = Identified Regulation; TEM = Total Extrinsic Motivation

As indicated previously, the second research question sought to investigate the impact of the GEC on L2 learners' intrinsic motivation. An ANCOVA analysis was executed to address this research question, which compared the intrinsic motivation pre- and post-test performances of the three groups in three variables of intrinsic motivation knowledge, intrinsic motivation accomplishment, and intrinsic motivation stimulation. Before conducting the ANCOVA, some preliminary evaluations were conducted to verify that the analysis assumptions were met, which was crucial to validate the suitability of the ANCOVA process. The descriptive analysis of intrinsic motivation pre- and post-test administration, for both groups was summarized and presented in Table 3.

Table 3. *Descriptive Statistics of Pre- and Post-Intervention Administration of Intrinsic Motivation Survey*

Variable	Items	Pre-intervention					Post-intervention				
		Cronbach A	GF mean	SD	C mean	SD	Cronbach α	GF mean	SD	C mean	SD
IMK	3	0.79	7.34	2.63	7.86	3.06	0.8	11.65	2.43	10.04	2.53
IMA	3	0.77	7.65	2.87	7.42	2.58	0.76	11.34	2.51	9.66	2.74
InS	3	0.78	7.07	2.46	7.7	2.47	0.78	10.55	3	9.8	2.53
TIM	9	0.74	22.05	7.23	22.98	6.47	0.75	33.54	6.71	29.5	5.86

Notes: IMK = Intrinsic Motivation Knowledge; IMR = Intrinsic Motivation Accomplishment; INS = Intrinsic Motivation Stimulation; TIM = Total Intrinsic Motivation

The ANCOVA was conducted to eliminate the influence of pre-existing external motivation differences on the results. As indicated in Table 4, the mean scores of the participants in the GEC group were significantly higher than those of the participants in the other group in intrinsic motivation knowledge ($F (1, 217) = 58.99$, $p = .000$). A partial eta square of .21 indicated a substantial effect size. Therefore, it is apparent that GEC had a significant impact on learners' intrinsic motivation knowledge.

Regarding the second intrinsic motivation variable (i.e., intrinsic motivation accomplishment), the ANCOVA results demonstrated significant differences between the participants in the three groups ($F (1, 217) = 37.37$, $p = .000$, partial eta squared = .14). These results confirmed the outperformance of GEC participants in comparison with their control counterparts. Similarly, the GEC participants scored higher in the post-intervention motivation questionnaire regarding the last component of intrinsic motivation (i.e., intrinsic motivation stimulation) ($F (1, 217) = 24.62$, $p = .000$, partial eta squared = .10). Finally, as for the total intrinsic motivation, it is evident that the GEC participants' mean scores were significantly higher in the post-test administration of the intrinsic motivation survey ($F (1, 217) = 100.63$, $p = .000$, partial eta squared = .31). Moreover, the large effect size emphasizes the strong impact of the treatment.

Table 4. *Summary of Five ANCOVAs Comparing GEC, and C Groups on Intrinsic Motivation Variables*

Dependent Variable	Covariate	Type III sum of squares	df	Mean square	F	Significance	Partial eta square
IMK-post	IMK-pre	198.006	1	198.006	58.99	.000	.21
IMA-post	IMA-pre	125.452	1	125.452	37.37	.000	.14
IMS-post	IMS-pre	86.341	1	86.341	24.62	.000	.10
TIM-post	TIM-pre	1214.693	1	1214.693	100.631	.000	.31

Notes: IMK = Intrinsic Motivation Knowledge; IMR = Intrinsic Motivation Accomplishment; INS = Intrinsic Motivation Stimulation; TIM = Total Intrinsic Motivation

Discussion

The results of this study established that gamification could drastically change the language learners' extrinsic motivation and its three variables of external regulation, interjected regulation, and identified regulation. Moreover, the findings confirmed that the participants' intrinsic motivation was promoted in all three variables of knowledge, accomplishment, and stimulation.

The significant change in the total three subcomponents of extrinsic motivation can be attributed to the direct use of game elements (i.e. points, badges, and level-up) as rewards in the gamified context (Zainuddin et al., 2020). Aligned with the rationale underlying self-determination theory (SDT) (Ryan & Deci, 2020), the provision of external rewards in a gamified context can initiate learning behaviors associated with external regulation. As the learning process progresses, the external regulation gradually becomes internalized, and learners start experiencing more interjected regulation (Ryan & Deci, 2020). This internalized behavior is driven by the satisfaction of their self-esteem and the desire to avoid negative feelings (i.e. placing in the leaderboard lower ranks). As learners move beyond the early stages of extrinsic motivation, they begin to consciously identify with the activity, resulting in a high degree of willingness to act. This final stage of internal motivation is characterized by a deep sense of engagement with the activity, which is the ultimate goal of any learning process (Ryan & Deci, 2020).

This result is in line with Buckley and Doyle (2016) argumentation that external incentives in the form of game elements are employed to directly address the learners' motivation and guide them toward achieving the pre-set course objectives. This result also confirmed Xu et al. (2021) findings that gamification utilizes points, badges, and leaderboards to enhance extrinsic motivation and ultimately strengthen intrinsic motivation. Consistent application of gamification techniques fosters intrinsic motivation by instilling an internal drive to accomplish goals and shifting the source of motivation from external to internal.

Turning to the second purpose of this study, the findings demonstrated that gamification has a significant impact on learners' total intrinsic motivation and its three subcomponents of knowledge, accomplishment, and stimulation. This result could be attributed to the fulfillment of the learners' basic psychological needs that are better met in a gamified context than in a traditional class (Sotos-Martinez et al., 2022). In a gamified learning environment, learners are provided with greater control over their progress, which can enhance their sense of competence. The use of leaderboards and badges serves as a source of feedback, indicating their progress and rewarding their achievements (Sailer et al., 2017). Moreover, the provision of challenges with varying levels of difficulty helps promote learners' competence and fosters a flow state, enabling them to move from a state of uncertainty to a state of mastery.

Moreover, the augmentation of intrinsic motivation is linked to providing more relatedness within a gamified context (Li et al., 2024). Designed to maximize collaboration among learners, gamified activities could foster feelings of relatedness when learners receive encouragement and support from teachers and peers; thus, influencing and motivating them. The scaffolding environment in a gamified context is unparalleled when compared to traditional classroom

settings. Additionally, the learners were empowered to choose which activities they wished to participate in. This autonomous learning directly contributes to the enhancement of intrinsic motivation.

These results seem to be consistent with previous research conducted by Chan et al. (2019), Facey-Shaw et al. (2020), Sotos-Martinez et al. (2022), Luarn et al., 2023; Zainuddin et. (2020), who found that gamification could effectively promote learners' intrinsic motivation. However, our findings are in contrast to those reported by Ding et al. (2019), who concluded that gamification was effective in enhancing the extrinsic motivation of learners but did not have a significant impact on their intrinsic motivation. This discrepancy could be attributed to the design of gamification. If the game elements are implemented with meticulous attention to detail and the gamification process is professionally designed, then learners' intrinsic motivation can be positively impacted.

Conclusion

The present study endeavors to examine the impact of a gamification-enhanced language classroom within the context of Moodle on fostering extrinsic and intrinsic motivational orientation and their corresponding sub-components among language learners. The study's outcomes have established that incorporating gamification into the language class can significantly influence the extrinsic motivation of language learners, as manifested in the three variables of external regulation, interjected regulation, and identified regulation. Furthermore, the study's findings confirmed that the intrinsic motivation of the participants was intensified in the three areas of knowledge, accomplishment, and stimulation.

The findings imply that although it is widely acknowledged that intrinsic motivation is a crucial factor in successful second language (L2) learning in cases where the fulfillment of learners' intrinsic motivation is not possible, extrinsic motivation can serve as a means of initiating the learning process and supporting the learner in the early stages of L2 acquisition. This external regulation can gradually give way to interjected and identified regulation, ultimately leading learners toward the intrinsic stages of motivation. In other words, although over time, the educational settings have shifted their focus from external regulatory mechanisms to promoting learners' internal motivation, the findings of our research demonstrated that removing the incentives from academic settings and solely focusing on encouraging learners' innate drive could not effectively address all learners' motivation orientations. Therefore, this study further supports the idea on the importance of the provision of rewards.

It is pertinent to acknowledge that the present research has certain limitations that deserve attention. Firstly, the study focused on Iranian students who were learning a second language. Consequently, the participants may not be representative of other cohorts in different educational contexts. It is uncertain whether the same outcome would be obtained in other cultural and educational settings. Thus, it is necessary to exercise caution while generalizing the findings of this study to other contexts. Secondly, the present study was conducted over eight weeks, during which gamification was implemented. It is important to note that the

utilization of longitudinal settings might lead to disparate outcomes. Therefore, the conclusions drawn from this study may not be generalizable to other settings or timeframes.

Upon scrutinizing the outcomes of our research, it has become apparent that certain pivotal inquiries necessitate further investigation. First, the present study employed Moodle as the medium of gamification. However, it is imperative to conduct further studies employing different learning management systems to ascertain whether similar outcomes can be achieved. Second, in this study we employed the pre and post-test method design, utilizing a self-report Likert scale to establish causal inferences. For future research, the use of qualitative research methods such as participant interviews may yield more comprehensive data, thereby providing possible explanations for the observed intervention effects. By integrating diverse research methods, a more comprehensive understanding of the phenomenon under investigation can be achieved. Finally, given that the subjects of this study were drawn from the higher education sector, it is recommended that further research be conducted to evaluate the efficacy of the gamification with K-12 or other younger learners.

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