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Gamification as a Course Organizing Principle in Second Language Curricula

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Gamification within courses has offered great opportunities for students to engage further into the course material. Traditionally, gamification is used with one or two elements of a course. This study investigated full course gamification of a Second Language (L2) classroom, which has not been explored heavily within research. The researchers used a constructivist grounded theory methodology to deepen the understanding of the student perception and possible impact of a full course gamification. Course curriculum, including textbook and assignments, remained the same for the 71 students enrolled in the L2 classes. The pedagogical approach to the course organization was gamified. Participants responded to open-ended questionnaires at the beginning and end of the course. The data from the questionnaire was coded line by line to deduce categories and then themes. Overall, students experienced higher levels of mastery learning, engagement, motivation, and lower levels of stress. This study demonstrates successful implementation of gamification as a course organizing principle, which should continue to be explored in future research.

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INTRODUCTION

Gamification is the concept of gamifying non-game contexts by incorporating games or gameful experiences (Deterding et al., 2011; Hamari et al., 2014; Werbach, 2014). Non-game contexts can include educational settings like classrooms in which games are played to teach or review course material (e.g., Jeopardy, Kahoot, or 20 questions) or, less commonly applied, games can be used as an organizing principle for the entire course. Gamification in learning has been defined as "the use of game elements, including action language, assessment, conflict/challenge, control, environment, game fiction, human interaction, immersion, and rules/goals, to facilitate learning and related outcomes" (Landers, 2014, p. 5). Gamification, outside of the second language (L2) classroom, has been found to increase motivation, engagement, and academic achievement (Beemer et al., 2019; Castañeda-Vaszquez et al., 2019; Garcia-Cabot et al., 2019; Le, 2020; Linehan et al., 2011; Pinter et al., 2020; Sailer et al., 2017; Stansbury et al., 2016). In the second language (L2) classroom, research has discovered that gamification plays a role in both lexical and pragmatic L2 development and fosters intercultural competence development and global learning (Knight et al., 2020; Liang, 2012; Luk, 2013; Peterson, 2010; Thorne, 2008). It also influences engagement and participation in the L2

classroom (Holden & Sykes, 2011; Le, 2020; Luk, 2013), which can be attributed to the fact that games provide a sense of community and supportive L2 environment while decreasing foreign language anxiety (Bryant, 2006; Knight et al., 2019; Le, 2020; Thorne et al., 2009). Moreover, gamification can be used in tandem with a task-based language teaching approach (Sykes et al., 2010).

Indeed, there is a plethora of research stating the benefits of using games in the L2 classroom for a variety of reasons, and using individual games is the most common occurrence of gamification in the L2 classroom. However, an area that has not been as deeply researched or explored is using games as an organizing principle for a course. Reinhardt et al. (2014) proposed the following: "What might it mean to take games…as an organizing principle for foreign language curricula?" (p. 172). To the authors' knowledge, there is no published research on gamification as a course organizing principle in L2 curricula. Therefore, the purpose of this study is to explore gamification as an organizing principle for L2 curricula and to understand students' perceptions of full course gamification in their L2 class.

DESIGN AND POSITIONALITY

The basis of this study came from constructivist grounded theory methodology as introduced by Charmaz (2006). Constructivist grounded theory was used throughout this study as a way to construct the in-depth perceptions of full course gamification in participants' L2 classroom. Within this methodology, a literature review does not come until after data has been analyzed so as to "avoid importing preconceived ideas and imposing them on [the] work" (p. 165). As such, this article follows the structure of grounded theory within both the methodology and the report of the study. It is important to note researchers did not conduct a pilot study or literature review before starting this study. The full course gamification was implemented to be part of a new classroom experience. The key element of using constructivist grounded theory is to fully understand the impact of gamification and the experiences of the participants in relation to gamification, which researchers are able to do without preconceived notions. As constructivist grounded theory follows a qualitative approach, open-ended questionnaires given at the beginning of the course and after game play were collected to understand participants' initial experiences and perceptions of gamification within the classroom. Data was analyzed using a constructivist grounded theory approach, which is detailed in the data analysis section.

THE STUDY

Institutional and Program Context

This study was conducted at a midsized, southeastern, private university in the United States. The university is a predominately white institution with no university-wide mandatory language requirement. The curriculum within the L2 classrooms follow a communicative approach. Specifically for Spanish courses, students use the same textbook across all sections. Faculty members create and design their own activities, projects, exams, etc.

The local culture surrounding the university is heavily influenced through the history of the area, which includes pirates, food, and sports. Students at the university are able to

connect with these various elements in the local community throughout their time at the university as the student population is entrenched in the local culture.

Participants

Participants were 71 students enrolled in an intermediate level Spanish course. The participants were predominately female (n=53), while males represented a portion of the sample (n=18). Most participants were also in their first or second year of college (n=57). The average age was 19.3 years, and 70 of the students were primary speakers of English with one student being a primary speaker of Portuguese. Students were enrolled in four sections of intermediate level Spanish, and all sections were taught by the same instructor during the same semester. It is important to note that none of the students in this study were studying Spanish as a primary major, and the majority of students were taking the course to fulfill either a general education requirement or a major language requirement.

Students were asked about prior or current gaming experience. Fifty-four students (76.1%) reported having played computer or console gaming with 30 students (42.2%) indicating that they play rarely; 17 students (23.9%) saying they rarely play; 13 (18.3%) playing weekly; eight (11.3%) playing monthly and three (4.2%) daily. All but one student stated that they currently played or had played board games or puzzles with the majority stating they play rarely (53.5%), which was followed by monthly (26.8%), weekly (14.1%), daily (4.2%), and never (1.4%). Students reported playing strategy (54.9%), puzzle (53.5%), and/or multiplayer games (50.7%) as the most common games played and indicated that the reasons they played games were because they were bored (76.1%) and/or wanted to play with others (56.3%).

THE GAME

Gamification was used as the course organizing principle. This means no course content or student learning objectives were changed. Only the grading structure of the course was changed to follow gamification. The previous student learning objectives, which followed Bloom's Taxonomy (revised by Anderson & Krathwohl in 2001), scaffolding of assignments and content, which followed Vygotsky's theory (1978), had been effective and remained the same. The only change was to the number of points on assignments in order to meet gamification requirements.

The course was pirate-themed to connect to the culture of the local area. Students started the semester with 0 points (XP) and leveled up by earning points through task completion, skill development, and material mastery. Each level of the game corresponded to a letter grade as required by the institution and a level of a rank of a person on a pirate ship, which can be seen Table 1. Total available XP was 155,000.

Table 1
Grading scale with corresponding levels

Level		XP Earned	Course Grade
1	Swab	0	F

2	Striker	30,000	F
3	Sea Artist	50,000	F
4	Pilot	93,000	D
5	Carpenter	100,000	CD
6	Surgeon	106,000	C
7	Boatswain	113,000	BC
8	First Mate	120,000	B
9	Quartermaster	128,000	AB
10	Captain	135,000	A
11	Captain Jack Sparrow	138,000	ABOVE & BEYOND

The course assignments were divided into four main groups or tasks, which were Voyages, Battles, Quests, and Treasure Chests to earn XP, as seen in Table 2. The Voyages category had assignments that included attendance, participation, and online homework. Battles were six chapter quizzes, a midterm and final exam, and two conversation exams. Quests were made up of four projects, and Treasure Chests were additional practice activities, experiential learning, out-of-class activities, etc. The focus of these classes was on mastery of material. As such, for the online homework and chapter quizzes, students had unlimited attempts to master material and earn points. For the written projects and midterm and final exams, students were given the option to revise and resubmit their work, following certain criteria, to earn additional XP while learning the material and focusing on mastery of the material.

Table 2
Course assignments and corresponding XP

VOYAGES	XP
Attendance/Asistencia	6000 (500 x 12)
Participation/Participación	Varies each day
Online Homework/Tarea en Línea	13,000

BATTLES	XP
Chapter Quizzes/Pruebas	15,000 (2500 x 6)
Conversation Exams/Exámenes de Conversación	18,000 (9000 x 2)
Exams (Midterm and Final)/Exámenes (Parcial y Final)	20,000 (10,000 x 2)
QUESTS	**XP**
Projects/Proyectos	36,000
TREASURE CHESTS	**XP**
Midterm LearnSmart Modules	900
Final LearnSmart Modules	400
Survey Ticket	4000 (2000 x 2)
Reflection Ticket	4000 (2000 x 2)
Interview Ticket	4000
Give Back Ticket	4000 (2000 x 2)

To connect the game to the course, the instructor included the theme throughout the semester and students were encouraged to earn points. In traditional courses, students typically lose points if they do not complete an assignment or if they do not get a 100%. In comparison, full course gamification is focused on students earning points to level-up. For example, students were encouraged to master the material through the opportunity to earn points by completing different tasks and assignments.

As previously mentioned, only the grading structure of the course was changed. The content of individual assignments remained the same as when the course was previously taught. Additionally, there was no other gamified content except for the grading structure and course organization.

DATA COLLECTION AND ANALYSIS

Students were given an open-ended questionnaire at the beginning and end of the course online using Qualtrics. At the beginning of the course, students were asked to answer the following questions: *How do you feel about games being incorporated in a learning environment?* and *What are your expectations related to games being incorporated in a learning environment?* At the end of the semester, students were asked the same questions except in the past tense and were asked to reflect about their experience with course gamification. Additionally, they were asked the following: *What were the benefits and challenges of incorporating a game into a Spanish class?* Questionnaires were not compared based on individual student responses. Instead, they were aggregated to make a large corpus to address the purpose of student perception of gamification.

All data was collected using Qualtrics, and students were given time during class to complete the questionnaires. Students wrote about 1-5 sentences per open-ended response. Students were not given a minimum or maximum number of words or sentences. Students were asked to write freely. This allowed researchers to understand their true perspective without forced requirements.

Data was then coded following line-by-line coding for each individual response, memoing, and focused coding in which categories and themes ultimately emerged from the data analysis (Charmaz & Thornberg, 2021). This coding system allows for researchers to determine an overall representation of students' perceptions of gamification throughout the given data set. This ultimately provides researchers with a holistic view of all findings. This approach to data analysis is rooted in credibility, originality, resonance, and usefulness (Charmaz & Thornberg, 2021). The researchers coded responses independently and met to review the categories and determine themes. Any discrepancies were discussed and an outcome was agreed upon by both researchers. Moreover, researchers reflected throughout the research process to recognize their own positionality. The authors of this study recognize their role as both educators and researchers, which undoubtedly influences their perceptions of the data.

FINDINGS

The findings emerging from the data are full course gamification in the L2 context has elements of lowering stress levels, focusing on mastery learning, and increasing motivation and engagement while being fun and new. While these areas emerged as recurring themes, it should be noted that it is the intersection of these areas that makes the results salient.

Stress Levels

The idea of lower stress levels emerged as a prominent theme from the data. Participants indicated that the course gamification made the class less stressful because students could only gain points meaning that their grade could only increase. One student reflected on the classroom environment saying, "The outlook that students have on the class shifted to a less stressed approach as the structure was more relaxed and fun." Another student discussed the benefits of incorporating the game and indicated that "it relieved some pressure and stress that is associated with a normal college class. If you miss an assignment in a non-game class,

you become stressed because it's hard to make up those points." As this student highlights the effects the game had on their grades, another student has a similar response saying that "[the game] did not put so much stress on getting a good letter grade. It also helped me not be so harsh on myself and let me have plenty of opportunities to raise my grade."

Mastery Learning

This notion of the point system and grading is another recurring theme. Students focus on the mastery of materials while at the same time earning points for mastering the course content. One student highlighted *mastery learning* by saying, "I enjoy [the game] and it makes me feel less like I am going through a semester of Spanish class, but more like I have many opportunities to do my best. More experience focused than performance driven." Similarly, another student said, "The point system ultimately made me try my best and learn more of the material from class. I was motivated to earn as many points as possible and make it to the highest level." There is a juxtaposition that is occurring between both mastery learning and performance orientation that permeates the data. Another student focused on the drive they felt to earn points while at the same time learning course material and said, "[The game] drives students to be dedicated to gain as many points as possible, as it really kept me motivated, engaged, and determined to get work done in the course so that I gain as many points as possible and still learn in a fun way."

Motivation and Engagement

Increased motivation was an additional concept that emerged from the data as a result of full course gamification. Motivation emerged as an effect of the intersection of mastery and performance, which is exemplified in this student's response: "I think [the game] is a good way to motivate students to participate and do the best they can." Participation and doing the best one can are examples of performance and mastery goals. Motivation is seen as a factor rising from full course gamification.

Engagement is another concept that emerged in two ways. The first was engagement with course material and content. A student said "A benefit of [the game] was that it was very engaging and it kept me on my toes and I always felt the need to improve on my points as the semester went on." There is engagement with the course content with the indication of a want to continue learning and improving. This again ties into the mastery learning concept as well as performance orientation as this student relates the two together. Additionally, there was engagement with the course due dates and actual course organization. One student said "[the game] made it easier to navigate the course and to know when things were due." Not only was engagement seen with the course content itself but with organizational factors as well.

Another area was the notion that full course gamification was fun and new. One student said, "I think that [the game] is an awesome and new way to alter class in a more attractive way for students." Elements of fun were inherently added because of the novelty of full course gamification; however, with newness, there can also be some apprehension. One student said they were hesitant towards the idea of the game because "it's not something I'm necessary [sic] comfortable with because it's foreign."

A code, but not a recurring theme, that emerged from a few students was a strong desire to know their grade, which is representative of being used to and having requirements that force students and faculty to adhere to a traditional grading structure. One participant noted this in their response by stating, "If school wasn't graded and truly just based on one's

learning, I think this would be a great way to teach." Another participant mentioned, "The only thing I did not particularly like about [gamification] is that it [was] harder to keep track of how well you are doing in the class until the end." This is indicative of students' focus on performance and how they have been socialized within the education system to believe that their performance on assignments is all that matters instead of focusing on mastering the material. Nonetheless, the majority of students had a positive outlook towards gamification, while some were more hesitant towards the new course and grading structure.

POSITIONING THE RESULTS IN THE LITERATURE

As Brown (2006) states, "the purpose of the grounded theory literature analysis is to demonstrate how the hypotheses and theoretical concepts that emerged from this research support and/or question existing literature" (p. 49). The results that emerged from the data in this study bring together multidisciplinary constructs and combine areas of gamification, psychology, sociology, and curriculum and instruction. Specifically, the results build upon Achievement Goal Theory, Sociocultural Theory, Second Language Acquisition (SLA) theories, and the Theory of Gamified Learning.

Mastery Learning Coupled with Performance Factors Explained by Achievement Goal Theory

The focus on mastery learning coupled with performance factors can be described by Achievement Goal Theory (AGT) (Ames, 1992; Ames & Archer, 1988; Diener & Dweck, 1980; Dweck, 1991; Dweck & Leggett, 1988; Elliot & Dweck, 1988; Leggett and Dweck, 1986). The main tenet of AGT is a concept called goal orientation, which looks at a person's motivation behind achievement-seeking behavior. Within AGT, there are mastery goals and performance goals. Within a classroom setting, mastery goal-oriented students seek to master the course content, and performance goal-oriented students look to earn a certain grade. This theory has been further adapted to include approach and avoidance tendencies, which explore how a person approaches their goal (Cury et al., 2006; Elliot et al., 2016; Elliot & McGregor, 2001; Elliot & Murayama, 2008; Law et al., 2012; Murayama et al., 2011; Van Yperen et al., 2009). A mastery approach goal-oriented student may have a goal to understand the concepts in the course whereas a mastery avoidance-oriented student may have a goal that is to not misunderstand the concepts in the course. Similarly, a performance approach goal-oriented student may have a goal to earn the most points in the class, but a performance avoidance individual may have a goal that is to make sure others do not perceive them as incompetent.

A study by Martin and Magerko (2020) examined the connection between games, game design, and goal orientation in educational contexts. They found a significant relationship between achievement goals, causal attributions (attributions that affect motivation and behavior), and player experience. Based on their findings, they suggest that "game designers…not only design for challenge and immersion, but also design experiences that encourage players to form mastery approach achievement goals" (p. 18).

Still, within AGT, there is also the idea of having multiple goal orientations meaning that someone could be both mastery approach and performance approach, and this particular orientation is thought of as being very adaptive and effective for goal achievement (Barron & Harackiewicz, 2001; Harackiewicz et al., 2002a; Harackiewicz et al., 2002b; Pintrich, 2000; Wolters, 2004).

The majority of students in this study had mastery approach goals, and they explicitly mention mastery learning but juxtapose it with performance. In one sentence, they will say that their focus is on mastery of material, but the second sentence discusses gaining points, which is related to performance. This juxtaposition permeated students' results, which points to the indication of multiple goals or a multiple-goal-rich-environment. As research in AGT has shown that multiple goals are common and are adaptive and effective for goal achievement, this is an area that should be explored further in future research.

Lower Stress Levels Supported by Sociocultural Theory and the Zone of Proximal Development

The results of this study are supported by Vygotsky's (1978) Sociocultural Theory, which states that social contexts and interactions within those contexts play a major role in language development (Lantolf & Thorne, 2007). In particular, these interactions must occur in the Zone of Proximal Development (ZPD). According to Vygotsky, the ZPD is defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem-solving under adult guidance, or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). This means that when a learner is in the ZPD and has collaboration, interaction, and scaffolding, they can optimally move through the task (Aljaafreh & Lantolf, 1994; Lantolf, 2000; Mitchell & Myles, 1998; Swain & Lapkin, 2002). The idea of gamification as presented in the current study could help push students into this optimal zone of learning, but more research is needed.

Scaffolding is a debated concept as to whether it belongs within Sociocultural Theory and the ZPD (Xi & Lantolf, 2021). Scaffolding was first connected to the ZPD, albeit adjacently according to Xi and Lantolf (2021), by Cazden (1979, 1983), who related language games to instructed activities in the ZPD and said that learning that occurs must lead to development. Whether or not scaffolding belongs within Vygotsky's theory, much research has explored this notion and has said that within scaffolding, learners interact with a tutor who uses scaffolding so to "enable a child or novice to solve a problem, carry out a task or achieve a goal which would be beyond his unassisted efforts" (Wood et al., 2006, p. 199). One of the functions of feedback to scaffolding entails not making the process stressful for learners (Wood et al., 2006). Based on this study, lower stress levels were a main perceived outcome of the game and could be related to the scaffolding elements of the course and the game, but more research in this area is warranted. Furthermore, both cognitive and social stress play a role in Sociocultural Theory (McCafferty, 1994; Nyokos & Hashimoto, 1997), but not much research has explored this connection to L2 learning.

Moreover, it is interesting to note that the word "goal" is used in Wood et al.'s (2006) definition of the process of scaffolding. This shows the permeation of goals throughout many different aspects of language learning.

Motivation and Engagement in Second Language Acquisition

Motivation is an extensively covered topic within Second Language Acquisition (SLA) research and has been found to affect language acquisition, academic achievement, and a multitude of competencies and individual differences (Dashtizadeh & Farvardin, 2016; Gardner et al., 2001; Karlak & Velki, 2014; Noels et al., 2000; Semaan & Yamazaki, 2015; Wen, 1997). SLA theories of motivation have grown and expanded over the years from Gardner's (1985) socio-educational model to Dornyei's (2005) L2 motivational self system, and evidence

shows that motivation is a key component to learning another language. The word "motivation" filled the results of this study as students indicated the game and its structure were highly motivating and pushed them to master material. While this study did not examine the effects of game-enhanced motivation on language acquisition, future research should examine the connection between an extrinsic motivational force coupled with mastery learning and language acquisition.

Engagement in language learning is an area that has grown with rapid interest in recent years (Reinders & Nakamura, 2022). Research has found that engagement is crucial for meaningful learning, learning efficiency, academic achievement (Dornyei, 2019; Hiver et al., 2021a; Hiver et al., 2021b; Lei et al., 2018; Woodruff, 2021), but it depends on a number of situational and individual factors, such as motivation (Reinders & Nakamura, 2022). Motivation and engagement are intrinsically connected as motivated learning behavior can influence task engagement (Sadoughi & Hejazi, 2022). Similar to motivation, engagement was a theme that emerged from the data as a result of the game and game structured course. Aspects of engagements, such as task engagement and/or psychological components affecting engagement, were not examined in this study, and future research should investigate how a course structured as a game, influences these different areas of engagement.

Furthermore, in the definitions of both motivation and engagement, there is mention of goal-directed activity. Motivation is defined as "the process whereby goal-directed activity is instigated and sustained" (Schunk et al., 2008, p. 4). Engagement is defined as "the active, goal directed, flexible, constructive, persistent, and focused interactions with the social and physical environments (Furrer & Skinner, 2003, p. 149 as cited in Sadoughi & Hejazi, 2022). Research has shown that goals from AGT influence motivation (Cury et al., 2006; Elliot, 1999; Elliot & Church, 1997; Elliot & Murayama, 2008) and engagement (Cho et al., 2019; Datu et al., 2022; McGregor & Elliot, 2002; Phan, 2014). As such, the intersection of motivation, engagement, goals, and games is an area that warrants future research.

Gamification and the Theory of Gamified Learning

The classroom gamification aspect of this project can be attributed to the Theory of Gamified Learning. This theory states that there are two main pathways between game elements and learning and says:

> For gamification to be successful, it must successfully alter an intermediary learner behavior or learner attitude. That behavior or attitude must then itself cause changes in learning directly (as a mediating process) or it must strengthen the effectiveness of existing instructional content (as a moderating process)" (Landers, 2014, p. 14).

In the present study, learners perceived a shift in motivation and engagement, which are both behaviors and attitudes, and they are both proven to increase learning outcomes. Therefore, this particular form of gamification could be considered a mediating process. It could also be considered a moderating process as it strengthened effective existing instructional content. However, more research should be done in this particular area especially as this theory emphasizes game elements.

Moreover, one study examined goal orientation, focusing on mastery, performance approach and performance avoidance goals, and The Theory of Gamified Learning (Garcia-Marquez et al., 2021). This study found that goal orientation was a suggested moderator between game attributes and learners' behaviors and attitudes (e.g. self-efficacy) and may

lessen negative effects from performance avoidance goal orientations, which further upholds the potential connection between goals and full course gamification.

There are not many studies that have used the Theory of Gamified Learning as a theoretical framework (Garcia-Marquez et al., 2021; Sanchez et al., 2020). The studies that have used the framework to examine game elements and moderating and mediating processes into learning contexts have found that gamification increased interaction, motivation, and satisfaction, shifted attitudes, and improved learning outcomes and performance (Armstrong & Landers, 2017; Landers & Landers, 2014; Nair & Mathew, 2021; Smith, 2017).

PEDAGOGICAL IMPLICATIONS

The benefit of full course gamification is it can be implemented for any course as no content is changed. This allows faculty to bring a new pedagogical organizing course principle within their classrooms to engage, motivate and assist students in mastering the material. Since no content is changed, it is easy to train instructors or graduate teaching assistants to implement and maintain this organizing principle. Furthermore, it is important for faculty to connect the theme throughout the course so as to fully entrench the students in the culture of the game.

When implementing a full course gamification, it is important to frame grading as an opportunity to gain points and level-up. This way the focus for students, as highlighted by the data, is on learning the material and lowering levels of stress. As educators, it is important to acknowledge our impact on the student experience and how pedagogical structures influence students' mastery of material. To help with students' hesitancy when it comes to a new grading system with a focus on mastery and not performance, it is important to add checkpoints so that students are better able to relate their points to the traditional grading system with which they are socialized. Ultimately, reframing how grades are presented to students is an important component of gamification because the focus should be on mastery of the material.

LIMITATIONS

This study is not without its limitations. It only examines the context of the L2 university classroom and more specifically intermediate Spanish courses, and therefore, future research should investigate the generalizability of these results across languages, curricula, and disciplines. Furthermore, the research was conducted at one university, which also speaks to the generalizability of the results. Future research should explore the context of full course gamification at different institutions. Additionally, this study did not explore other data points such as specific L2 gains, and future research should examine this area further.

CONCLUSION

The purpose of this study was to understand students' experiences and perceptions of full course gamification and found an intersection of lower stress levels, increased motivation and engagement, and a focus on mastery learning coupled with performance factors in full course gamification in the L2 classroom. The results of this study indicate that full L2 course gamification fosters goals and goal setting, provides an environment for multiple goal orientations, and encourages mastery learning and adaptive behaviors, which can all influence

L2 acquisition and learning. Future research is necessary to fully develop full course gamification and to understand acquisition and learning processes that are influenced by L2 course gamification

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