

Gamification Project in Japanese Higher Education for Spanish as a Foreign Language

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This paper discusses and highlights the use of Information and Communication Technologies (ICT); more precisely showing gamification as a motivational generator element, in a Japanese university context, for teaching Spanish as a foreign language. The method: the investigative approach is a mixed method (quantitative and qualitative). This quasi-experimental and cross-cutting design study was applied to two student groups (experimental and control groups). The working hypothesis is that as a result of the implementation of gamification strategies and techniques to a course through LMS (Blended Learning) for teaching Spanish, motivation and academic performance will increase among students. In conclusion: one of the main goals of this article is to frame and enclose the main mechanics of gamification, and apply them into our daily teaching. According to the data obtained, it is therefore apparent that we achieve a higher commitment and better involvement from our students.

Keywords: learning, gamification, Spanish as a foreign language, motivation, ICT

INTRODUCTION

Any educational process can be significantly more interesting and enriching if we apply approaches and techniques based on active methodologies in which the use of new technologies plays a decisive role (Castro, Guzmán and Casado, 2007). One of these new techniques is called gamification¹. The purpose of gamification is not to create games, but to apply game mechanisms to a context that is not playful in itself, such as education (Kapp, 2012; García-Casaus et al., 2020). According to numerous articles published in the last decades, our starting hypothesis is that, by using gamification as a teaching strategy, we believe that we will be able to motivate students and that they will learn in a fun, interesting and creative way.

In the same way, we consider that implementing gamification efficiently can be highly beneficial not only when it comes to awakening motivation, but also to maintain it over time, since this layer of play makes learning more stimulating (Observatorio de Innovación Educativa, 2016; González, 2016). In particular, our assumption is supported by a meta-analysis study of 65 games and more than 6000 people which concluded that games are an optimal way to deliver learning content, as they increased the ability to memorize and acquire knowledge by about 10% (Sitzmann, 2011). In this way, we intend to prepare tasks and introduce them in a stimulating way. These will be focused on goals that generate expectations of success and on processes that foster autonomy and self-esteem.

The coronavirus crisis is also of great importance. Undoubtedly, this pandemic has burst into and affected all spheres of our lives. Specifically, in the educational field, with the closing of face-to-face classrooms, many educational institutions have been forced to implement contingency measures to cope

with this situation by promoting the implementation of distance teaching-learning modalities. Although this challenge has not been free of doubts, uncertainties and mistakes, it has also provided a great opportunity to implement and/or incorporate educational innovation in our teaching practices as an enriching element in the educational process of our students. However, it was necessary to measure the impact of this type of teaching, to analyze and evaluate this type of methodologies that rely on the use of technological resources. Based on the results obtained, valid and reliable teaching guidelines can be established, and their dissemination is intended to provide an example that other teachers can use in their educational contexts.

This article aims to reflect the research project in a Japanese university context of teaching Spanish as a foreign language with the purpose of proposing alternatives for improvement, which enrich the teaching-learning experience, according to the new challenges of the 21st century. This study analyzes and describes the implementation process of an experience based on information and communication technologies and gamification, i.e., it is proposed to show an action research process to analyze and measure the effects of ICT integration and gamification in teaching Spanish as a foreign language.

Specifically, this project was implemented and developed in four stages: 1) analysis of real cases of gamified platforms aimed at teaching foreign languages and then comparison with other successful gamified cases applied to other educational fields and based on this; 2) creation of a gamified Spanish as a foreign language course in the virtual learning environment *Manaba*; 23) implementation of the gamified course in the *blending learning* modality during one semester of the school year and; 4) analysis and interpretation of the gamified experience impact through surveys, field notes and statistical analysis of the data obtained from an experimental group and a control group to which a final test was applied.

JUSTIFICATION

It is common knowledge that teaching-learning processes must be properly planned (Montes de Oca and Machado, 2011). For this reason, teaching methods must be adapted to our students (Ortiz, 2004). However, during the last decades, the educational context has been based on traditional methodologies (Robinson and Aronica, 2009; Gerver, 2010). Thus, Torres (2009)³ states that traditional didactics is aimed at copying and memorization by students, generating disinterest and demotivation. However, this way of conceiving education is being modified and the need of implementing new methodological proposals has given way to the use of gamification in the educational field (Kapp, 2012). This has a motivational element that leads to an emotional process capable of directing the student towards learning, allowing him/her to achieve the objectives set (Werbach and Hunter, 2012). As a consequence, numerous researches carried out regarding the effects of gamification on learners end up advising this experience aimed at any educational stage and learning field (González, 2015).

Works conducted by Hamari, Koivisto and Sarsa (2014) highlights the advantages of gamification by providing collaborative learning and increased participation and interaction among learners. They also indicate how the union of gamification and digital tools increases motivation, which always facilitates the fulfillment of teaching objectives. Following the same line, research by Zhijiang, Untch and Chasteen (2013) establishes that the union of digital tools with gamification allows learning to take place in the immediate environment of the student, for whom a daily use of social networks is common, as well as the exchange of information *online*.

PURPOSE OF THE STUDY

The main reason why we advocate for gamifying our didactic activities is to achieve a greater involvement and commitment of the learners. We aspire and hope that they will continue in the activities for longer; or what Zihermann and Cunningham (2011)⁴ called *the engagement loop*⁵. In this cycle the challenges are adapted to the player's skill and once the player completes a task he/she is rewarded for accepting a new challenge. Students who are committed to what they study, regardless of the obstacles, persist in their determination and effort, feeling satisfaction when they reach their achievements: they manifest what Csikszentmihalyi (1990) designated as a state of *flow*.

On the other hand, in gamified systems, progression is displayed at all times through an organization of points and levels. Thanks to this constant feedback about his/her performance, the student is more aware of his/her learning process, i.e., of the aspects that need to be improved or reinforced.

Finally, on the one hand, through the game spirit that invites risk-taking and conceives error as an important learning aspect and, on the other hand, through the adoption of a virtual identity by means of avatars, students can overcome their rejection of mistakes. Especially for the most shy students, the assimilation of gamified strategies can help them to adopt more uninhibited behaviors and, consequently, to participate more in class (Gee, 2007).

STATE OF THE QUESTION

School motivation is a general process by which behavior is initiated and directed toward the achievement of a goal. This process involves both cognitive and affective variables: cognitive, concerning thinking skills and instrumental behaviors for achieving the proposed goals; affective, comprising elements such as self-esteem and self-concept (Alcalay and Antonijevic, 1987).

However, in our teaching reality, teaching Spanish as a foreign language in a Japanese university context, sometimes, negative or passive attitudes about learning Spanish can be perceived (García Álvarez, 2015), seeing its study as a simple hobby or lacking in usefulness apart from the credits that can be obtained in the studies (Sanz Yagüe, 2013), lack of familiarization with a type of methodologies that require a more proactive, interactive, participatory and communicative attitude, among other problems (Cobo, 1999; García, 2009; Trujillo, 2013; Recuero, 2020). This leads us to ask ourselves: can the use of ICTs in the teaching-learning process be motivating? What kind of ICT-based methodologies can best promote motivation? Accordingly, this study focuses on the research process of integrating ICT and gamification in our university educational environment. For this purpose, we use the conceptual framework developed by Prieto (2014):

1. Fogg's (2009) behavioral model helps us to determine the elements necessary to cause a behavioral change through the inclusion of triggers (challenges) that foster the user's perception that he/she is capable of achieving it.
2. Using Csikszentmihalyi's (2008) state of flow, the aim is to transmit positive emotions of their own learning to the students through the gamified elements. In this way, we try to keep the student in a pleasant state of concentration by balancing the difficulty of the challenges posed and the learners' ability.
3. Interaction stages. According to Kim (2011), there are three to be considered: 1) for novices, onboarding; 2) once they already use the system regularly, habit creation; and 3) mastery for experts. In short, the better the skills, the greater the challenge.
4. Resolution of tasks. Users receive feedback at all times, e.g., via the progress bar. The student is given a leading role. This can create content through interaction with the system (Prieto, 2014). The student's progression is materialized in mastery levels. At each level, certain dynamics are learnt, specific skills are used and new ones are gradually developed (Prieto, 2014).
5. Motivation. The fact of merging the elements that integrate and give rise to the game, while addressing the complexities that involve players, rules, goals and motivation, is a difficult task that is sometimes blurred in the horizon of attempts at gamified projects (Werbach and Hunter, 2012); gamification is based on the premise that the game has to be fun and that users have to perceive it that way, because that way they will play again (Werbach and Hunter, 2012).

Conceptualization of Gamification Term

The omnipresence of new technologies in the spheres of everyday life is an indisputable fact, moreover, this occurs at "(...) the fastest rate of social penetration in history" (Reig, 2012, p.11). The world of education has been no exception to this phenomenon: teachers and researchers have considered the possibilities of integrating them as efficiently as possible into their teaching practices, since, as Margaret Mead stated, this

is because: ⁶The times have come when we must teach our children what no one knew yesterday and prepare the schools for what no one knows even today.⁷

In this new learning ecosystem⁸, emotions are the sparks that cause curiosity and maintain interest and attention, and therefore learning. In Mora's words, "emotions, in short, are the most important basis on which all learning processes are based" (2013, p.66). This motivational factor is consistent with playful dynamics that enhance skills and knowledge, and reinforce positive behaviors and attitudes in non-game or purely recreational contexts. It is at this point where the concept of gamification comes into play as the object of study and analysis of this work, focusing on a digital environment and in an educational environment of Spanish as a foreign language (ELE) university education.

To this end, in this section we will proceed to review the most significant existing literature and attempt to delimit and clarify this term, as mentioned above, within the field of education⁹. For this purpose, first of all, we will start from the definition of Werbach and Hunter (2012) in which they allude to the use of techniques and components in contexts that are not properly playful in themselves. Kapp (2012) provides a definition that complements and clarifies the previous one. It suggests that gamification is the application of game mechanics, aesthetics and strategies to motivate students, encourage learning and solve problems. Finally, after reviewing several definitions of the term, we are going to propose a new definition that includes the previous ones, fits the training scenario and serves as a reference:

Technique that the teacher employs in the design of a learning activity (analog or digital) by introducing game elements (badges, time limit, scores, etc.) and their thinking (challenges, competition, etc.) in order to enrich that learning experience, direct and/or modify the behavior of students in the classroom (Foncubieta and Rodríguez, 2014: 2).

As we can appreciate the attempt to define the term gamification can involve quite a few difficulties. We have not started from any unchanging or dogmatic definition, but we intend to approach this phenomenon from a flexible and well-founded perspective about what is or is not gamification and what to do -or not to do-, taking as a reference the educational context, in our case Spanish as a foreign language.

Game-Based Strategies: What Is and What Is Not Gamification?

As we have previously seen, gamification is closely linked to the concept of gaming and, currently, it is a methodological trend that is increasingly used in the educational context. It arises as a result of the evolution of new information and communication technologies and the application of video games in other non-recreational areas, such as education (Rodríguez and Santiago, 2015).

Thus, it can be deduced that the game has a great presence in the teaching field, so there are numerous methodological strategies related to the game and that can be confused with gamification. Therefore, we must differentiate between them.

Gamification is not part of a *serious game*, as it takes into consideration the learning outcome and is not so focused on the process. Gamification, on the other hand, involves a planning process and aims to trigger a change in learners' behaviors while making them more motivated to achieve the goal of the activity (Rodríguez & Santiago, 2015).

When we talk about gamification, we often confuse this term with game-based learning. However, there are several differences between them that distinguish them from each other. Thus, one of the most significant differences is related to their use, given that in game-based learning, games or video games are used for pedagogical or didactic purposes, while in gamification the mechanics of the game or video game (points, badges, *rankings*, rules, etc.) are used in non-game environments, such as the educational environment (Goiri, 2015). For example, grades in gamification are represented by levels, whereby a learner will have obtained a specific grade when he/she reaches a certain pre-established level (Goiri, 2015).

Through gamification it is intended that the learner participates by meeting certain standards to achieve a reward¹⁰, while game-based learning has a specific didactic objective (Goiri, 2015). In addition, motivation is also one of the aspects that make them different since, in game-based learning, the fact of playing is already rewarding and pleasurable for the students. However, in gamification, motivation is not

an intrinsic action (Kapp, 2012; García-Casaus *et al.*, 2020). With it, the aim is to modify behaviors through a reward system, so there are many attempts and the possibility of losing is not presented as a valid option or alternative¹¹.

On the other hand, within the educational context, it is cheaper and easier to organize a gamified methodological proposal than to create a game-based learning environment, as the latter is more expensive and difficult to develop (Rodríguez and Santiago, 2015).

Finally, learning is reflected and crystallized in the number of achievements and levels reached, while in game-based learning participants have to complete the objectives proposed in the game (Marczewski, 2015).

Gamified System Elements

Gamification in the education field is of great interest. It is intended as a powerful tool for directing or modifying student behavior in the classroom through an act of engagement (Deterding, 2011). In other words, it is not so much a matter of motivating as of making the student responsible for carrying out a learning activity and, thus, fighting boredom, combating the feeling of difficulty and mitigating the lack of attention in order to develop and enhance their autonomy.

Authors such as Deterding (2011; 2012) and García-Casaus *et al.* (2020) consider gamification to be very positive because it encourages concentration, attention and effort, while having fun at the same time. And the game that is fun is the one that gets the player involved, the one that demands maximum attention and rewards his/her effort.

Werbach and Hunter (2012) indicate that gamified systems are grouped into 3 levels and are structured as follows:

- (1) Dynamics are the implicit structures of the game in which emotions are found. Neuroscience has shown that the essential element in learning is emotion, narrative, progression, constraints and relationships (Carballo Márquez, 2017). Within these structures we highlight the following: constraints or commitments; emotions (curiosity, competitiveness, frustration, happiness); narrative (a coherent and continuous story); progression (the player's growth and progress); relationships (social interactions that generate feelings of acceptance, altruism, status).
- (2) Mechanics are basic processes that progress the action (the game) and engage the student in the learning objectives. These include: challenges (activities or obstacles that the player must overcome to reach the goal; they require effort); competition (one player or team wins, the other loses); cooperation (working together to reach a common goal); feedback (information on the player's progress); rewards (reward for an activity performed or an achievement).
- (3) The components are specific implementations of the dynamics and mechanics, i.e., they are the particular elements of the game. Among them we highlight: achievements (defined objectives); avatars (visual representation of the character adopted by the player); badges or emblems (visual representation of an achievement); collections (sets of emblems or items that can be gathered); unlocking content (only available when certain objectives are reached); levels (steps or scales defined in a player's progression); *ranking* or leaderboard (visual representation of progression); points (numerical representation of in-game progression); quests (predefined challenges with objectives and rewards); teams (groups of players working together towards a common goal); virtual goods (reward system that allows the player to differentiate him/herself from the rest. For example: medals or coins) and gifts (opportunity to share resources with others).

Finally, we conclude this section by mentioning Werbach and Hunter (2012) in their defense of the use of gamification. These authors support this resource mainly for three reasons: a) the individual is involved in carrying out a certain activity; b) the subject makes a continuous effort over time and; c) positive results are obtained.

MOTIVATION

Intrinsic and Extrinsic Motivation

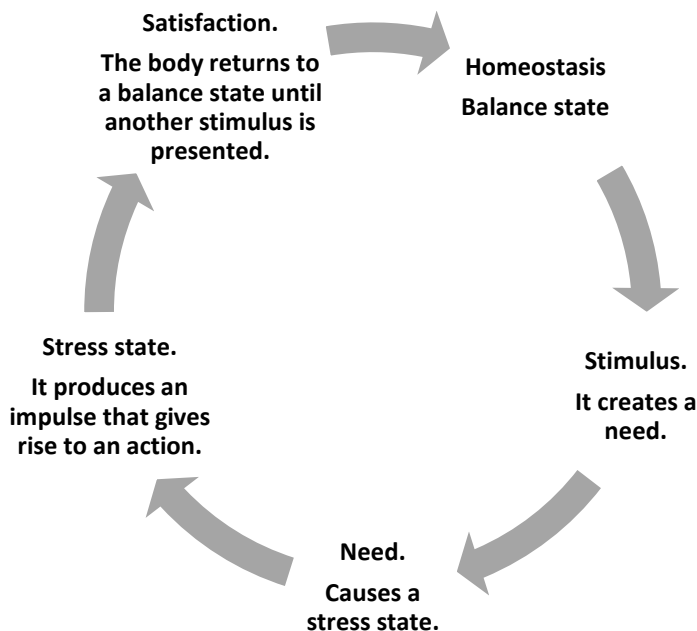
In accordance with Conde and Borrás (2015), intrinsic motivation is that in which the individual performs an activity purely for personal satisfaction. Therefore, intrinsic motivation drives human beings to want to overcome obstacles, challenges and quests. When achievement and mastery are reached, it makes the person feel confident and capable of him/herself.

According to Soriano (2001), intrinsic motivation is based on a series of small psychological needs such as self-determination, effectiveness or curiosity that are inherently responsible for human behavior. In accordance with Soriano (2001), games promote intrinsic motivation and this provokes in the person the desire to face challenges and try new experiences, which, when satisfied, can supply the person's own psychological needs. This motivation, as the author states, stimulates the human being to want to overcome challenges, while extrinsic motivation stimulates the desire to receive tangible rewards, so that intrinsically motivated people will perform activities for the pure pleasure of doing them (Soriano, 2001).

Motivation as a Driving Force for Action

Motivation is the driving force of human beings, what inspires and stimulates them to perform some action, to satisfy some need or to fulfill objectives, dreams, longings or goals (Naranjo, 2009). Hence its importance, without motivation we would not be able to do anything. Motivation is what allows someone to achieve what he or she wants; a motivated person achieves his or her goals while an unmotivated person will not do anything to satisfy his or her need (Naranjo, 2009). We highlight its elements (the motivators) and a process (the motivational cycle) that we are going to describe. While motivators are all those things and situations that are going to change, the attitude and behavior of human beings - rewards, incentives and congratulations - can be understood as a process aimed at satisfying their needs (motivational cycle), hence the importance of knowing this procedure step by step (Mary, 2006).

FIGURE 1
MARY'S MOTIVATIONAL CYCLE (2006)¹²



Flow Theory

Flow theory, flow state or *flow*, (Csikszentmihalyi, 1975) is a theory that is defined as a mental state in which the person is totally immersed during the performance of an activity. This theory attempts to explain the pleasurable sensation that a person experiences during the performance of a particular action, with no greater reward than the pure pleasure of performing it. This depends on motivation and skill, and entails total involvement and concentration on achieving the task in the most satisfactory way possible (Borras, 2015). Therefore, the gamified activity must have a difficulty level so that, in this way, the student can overcome it because, if the activity is too difficult, the student will become demotivated, will cause anxiety and will not complete the activity. On the contrary, if it is excessively easy, the learner will get bored and will not want to continue -flow state- (Borras, 2015). Following this author, for flow to be generated: the activity must be challenging, it must not be too complicated, the goals must be designed as clearly as possible, and it is necessary for the user to receive feedback (Borras, 2015).

The engagement level that gamification achieves with gamified activities can be measured from the following factors (Borras, 2015):

- 1) *Recency*. The period that elapses since a user makes use of or interacts with the system.
- 2) *Frequency*. Regularity in which the student returns to use the system.
- 3) *Duration*. Time the student spends in the activity.
- 4) *Virality*. The way in which information is transmitted in the system from user to user.
- 5) *Scoring*. Voting system, which reflects what users think regarding the activity.

Relationship Between Gamification and Motivation

In the process of gamification, motivation is the driving force that leads the player to fulfill his/her objective; without motivation new problems emerge such as negative attitude, conformism, lack of commitment, disinterest among others, that is why motivation in gamification is essential (Astin, 1984; Gonzalez, 2016). For the user, participation and the fact of creating experiences and that these are interesting are important (González, 2016). Through the use of mechanics and dynamics, both intrinsic and extrinsic motivation can be achieved while achieving the planned objective (González, 2016).

As it has been noted, motivation is one of the main characteristics of the human being to perform any action, so within gamification it is also a relevant factor, so it is necessary to describe it. Students (or players) are required to participate in the activity and continue to play and, in turn, enjoy what they are doing; however, as González (2016, p. 6) states, "gamification despite seeming like a game involves work and fun". It should not be forgotten that in order to gamify it is necessary to know the right way to motivate the right people at the right time. At the same time, it should not go unnoticed that the purpose of our teaching cannot be reduced to a pastime, but must be in line with linguistic, communicative and cultural learning principles, which in our case represents Spanish as the target language.

METHODOLOGY

Research Context

This research project was conducted in a Japanese university context of Spanish as a foreign language teaching with the purpose of proposing improvement alternatives that would enrich the teaching-learning experience, in accordance with the new challenges of the 21st century. This study analyzes and reports the implementation process of an experience based on information and communication technologies and gamification; in other words, it analyzes and measures the effects of integrating ICT and gamification in teaching Spanish as a foreign language. Both the design and implementation of this gamified training course mediated by a virtual environment (Manaba) has been designed with Japanese students at Ryukoku University (Japan) in mind. The implementation took place during the second semester of the 2020-2021 school year: from September to January. It was carried out in two classes of Spanish for beginners as a compulsory second foreign language.¹³ These classes have a teaching load of 90 minutes and a total of 30 sessions per semester twice a week.¹⁴

An *ad hoc* survey was created for the educational context we intended to analyze and study, although without relying on any prior evidence. Among other reasons, we have not found any standardized test that meets our needs or that reflects the object of study that we intended to address: Spanish as a foreign language learning in a Japanese university context using a hybrid modality course, or more commonly known by its Anglo-Saxon terminology of *Blended Learning*, through a virtual learning environment *Manaba* gamified through the use of external resources such as *Google Drive*, *Kahoot* and *Quizlet*. The reliability and accuracy of the items that make up the survey are based on the bibliographic literature studied, on the idiosyncratic characteristics in which our teaching practices are developed and on the statistical results that confirm their validity (Corbetta, 2007).

Problem Statement

To the problems arising from the lack of motivation we must add the fact that gamification, although it is on the lips of many and is being applied to areas of a very different nature, is not without confusion, both in terms of the establishment of its theoretical concepts and in determining the consequences and effects of its application. It seems to us, however, that its application in educational contexts could produce good results while promoting the development of autonomy and responsibility of students (Juan Lázaro, 2008).

Research Objectives

According to Sampieri, Fernández and Baptista (2010), the objectives are the guidelines for the study and they indicate what the research aims to achieve. Below, we will detail them as clearly as possible. General objectives:

1. From a hybrid learning framework that integrates the use of ICT and gamification in a Spanish as a foreign language course, the aim is to improve the teaching-learning processes by creating or transforming traditional educational content through gamified strategies that enhance the motivational elements of learning, key aspects for improving performance. We intend to know and measure the impact in our work context of the educational potential that gamification can offer us.
2. To set up an active teaching methodology that integrates ICT as a reflection of a technological society with the aim of empowering students and placing them at the center of their own learning process inside and outside the classroom.

In order to achieve the general objectives, we have set more specific ones:

1. To value the possibilities of gamification to generate commitment and motivation in students.
2. To know different elements and resources to gamify the classroom.
3. To establish channels of communication and interaction that foster a positive psycho-affective climate.
4. To know and apply a didactic proposal for implementing gamification in a teaching and learning process.
5. To know the motivation and involvement level of students in order to determine the modifications to be introduced in pedagogical approaches and teaching practices as a means to combat the lack of motivation.
6. To determine and assess the benefits of the experience of implementing gamified mechanics in classroom experiences.

Research Questions

The main research questions arising from the objectives described in the previous section are as follows:

- What elements or techniques should be incorporated into teaching practice to encourage motivation?
- How would we integrate a type of active methodology in line with the use of ICT to enhance and enrich the teaching-learning process in our teaching practice?
- Will we obtain better academic results as a consequence of the integration of this active gamified methodology?

- Will we obtain positive attitudes towards Spanish as a foreign language learning as a result of the integration of this active gamified methodology?

Research Hypotheses

- **Hypothesis related to digital competence:** *to improve students' attitude towards the use of technology for learning and to develop digital competence.*
- **Hypothesis related to motivation:** *to improve intrinsic and extrinsic motivation. To value effort fosters a spirit of self-improvement and improves self-esteem, which will influence intrinsic motivation.*
- **Hypothesis related to engagement:** *getting students to improve their academic results. To help students track their progress and engage in personal reflection.*

Finally, it should be noted that since we are dealing with a sample containing a small number of informants in a single context (case study), our predictive assessment and generalizability are subject to the limitations of our research.

DATA COLLECTION INSTRUMENTS

Surveys

To test the objectives and hypotheses set forth in this work, an ¹⁵*ad hoc* survey of closed multiple-choice questions with a five-point Likert response system (5-Strongly agree; 2- Agree; 3- neither agree nor disagree; 2- Disagree; 1- Strongly disagree; 1- totally disagree) was developed, in which 11 variables were considered at the end of the educational experience ¹⁶through the application of *Google* forms. We chose to use the Likert scale because it is an easy-to-construct measurement tool with which we can offer the survey respondent the possibility of adjusting his or her opinion. This tool allows us to measure attitudes and to know the conformity degree of the surveyed person with any statement we propose, no matter how complex it may be (Hernández et al., 2001). It is very useful for the surveyed to qualify or specify his/her opinion, capturing the level of intensity of his/her feeling of acceptance or rejection of the statement (Hernández et al., 2001). We have opted for the five-level item system in order to collect a wide and representative range of responses. However, we risk that with a 5-level scale, survey respondents will tend to avoid the more extreme options, which will result in poor response variability.

The items presented to the students are as follows:

- Item 1. I have found the XP and levels useful.
- Item 2. The level achieved (from novice to master) is a good representation of your effort in this Spanish course.
- Item 3. It has motivated me to see in the form of points (XP) everything I was doing to practice Spanish in class (homework, tutorials, class work, participation).
- Item 4. I have found the tasks done in class useful.
- Item 5. It has motivated me to be able to see my position in relation to the rest of the colleagues.
- Item 6. The forums as a space for working and communicating with colleagues have been very useful to me.
- Item 7. The presentation of the contents was clear and orderly.
- Item 8. The presentation of the contents was attractive.
- Item 9. It has increased my motivation to use the platform.
- Item 10. It has improved my attitude in class by using the platform.
- Item 11. My participation has increased as a result of the platform's activities.

Remark

We have used participant observation, as a form of qualitative research, to better understand our groups of students in their cultural environment. Based on Denscombe (2014) and Cohen et al. (2000), we conducted a structured and systematic observation that generated data derived from teacher observations in the classroom, conversations and electronic communication through forums, messages and/or e-mails.

Test

It was decided to take the results of the G1 and G2 grades of the final test¹⁷, which is given to all first year groups of Spanish as a second foreign language, in order to carry out the statistical study. On this opportunity, the possibility of conducting an initial pretest was rejected in order to preserve the ecological validity, that is, we believe that if we had conducted an initial pretest we would have altered the behavior of the students, since it is not usual in this educational context -Ryukoku University- to conduct a test of these characteristics at the beginning of the course¹⁸. On the other hand, we start from a pre-established program that must be implemented in the 15 sessions that the term lasts, therefore the loss of a session could have put in danger that the groups to which we are submitting this study would not receive training on an aspect of the syllabus and would cause a situation in which they would start with a disadvantage in the test with respect to others, to which must be added the relevant permissions by the students, other teachers and the institution for altering the established educational program.

Finally, we maintained content and construct validity, making sure that there are no problems in the items, by applying Cronbach's reliability coefficient.

PROCEDURE

First, we proceeded to a literature search on new innovative methodologies in education, focused on gamification, in order to find the theoretical foundations and develop the theoretical constructs on which this research is based. Secondly, we proceeded to analyze the functionality of this research. Subsequently, we proceeded to analyze the gamification functionality - real cases of platforms and - real cases of platforms and/or gamified - to determine the components on which it relies, the advantages and disadvantages¹⁹. This observation and diagnostic phase took place in the first semester (academic year 2020-2021), at which time ICT began to be integrated into the teaching process: the two groups worked with the *Manaba* platform. As a third step, after thinking about ways to add a gaming layer to the virtual learning environment (VLE) to enhance the learning process, a gamified project was designed on the Manaba platform to be applied to one of the two groups.

During the last phase, the action plan was executed by implementing the gamified course in a group that was subjected to this variable, while the control group continued working on the *Manaba* platform without gamification. In this gamified platform, students received points (XP) for a series of actions such as: a) attending class; b) homework; c) performing extra tasks (for example, answering a classmate's question about grammar posed in the forum provided for this purpose); d) participating in the forums; e) helping classmates -answering doubts, etc.-; f) mid-term tests; g) final test.

PHASES

The phases of this study are described below. Subsequently, we will describe their corresponding research instruments:

- Phase 1 (January 2020 - June 2020): successful gamified applications are analyzed to be used as a reference when designing our course.²⁰
- Phase 2 (April 2020 - September 2020): until the beginning of the course (end of September) the gamified course is designed, creating activities with the external applications *Classdojo*, *Educaplay*, *Google Drive*, *Quizlet* and *Kahoot*. They are integrated by means of resources, links or activities on the Manaba platform that refer to external applications.

- Phase 3 (September 2020- January 2021): implementation of the course. In a quasi-experimental context between two groups of similar characteristics (number of students and language level). A non-probabilistic statistical sampling was applied: convenience sampling. One group, the experimental one, was subjected to the intervening variable, while the other group worked on the same contents on the platform, but with different types of activities and without the social aspect of the game. To ensure the reliability of this experiment and to test the equivalence of these two groups, we applied the *Student's t-test*²¹.
- Phase 4: completion of the satisfaction survey and analysis of statistical tests.
- Phase 5: analysis and evaluation of the data obtained and reflection on the results obtained.

ANALYSIS OF RESULTS

Next, from a statistical point of view, we approach²², analyze, report and interpret the data obtained from the students of Ryukoku University (Japan) composed of a population of 33 people who were exposed to the gamified strategies and dynamics during the second quarter of the 2020-2021 academic year. Students age range from 18 to 21 years old. All of them received a minimum of one semester of compulsory Spanish (45 teaching hours). Similarly, all participants make regular use of digital tools in their daily lives. This familiarity with new technologies gave them an advantage regarding the use of gamified applications, which redounded to their academic benefit. The learning curve was not steep and familiarization with the platform and different applications used was relatively quick. In any case, throughout the course, anyone who had any doubts or problems was promptly helped by means of a forum set up for this purpose or by e-mail.

For the results interpretation, we consider as positive the set of evaluations corresponding to a high level of agreement (3.5 and 5 points in the questionnaire). The *Cronbach's alpha* test offers a result of coefficient .95, which constitutes a high level of consistency or reliability of the questionnaire.

TABLE 1
PERCENTAGE OF RESPONSES BY LEVEL OF SATISFACTION

	1	%	2	%	3	%	4	%	5	%	Total	%
	(n)		(n)		(n)		(n)		(n)			
Item 1.	1	3.03	6	18.18	11	33.33	12	36.36	3	9.1	33	100
Item 2.	0	0.00	3	9.09	5	15.15	19	57.58	6	18.2	33	100
Item 2.	2	6.06	1	3.03	11	33.33	12	36.36	7	21.2	33	100
Item 4.	0	0.00	3	9.09	9	27.27	17	51.52	4	12.1	33	100
Item 5.	2	6.06	4	12.12	11	33.33	14	42.42	2	6.1	33	100
Item 6.	2	6.06	1	3.03	13	39.39	11	33.33	6	18.2	33	100
Item 7.	1	3.03	2	6.06	6	18.18	19	57.58	5	15.2	33	100
Item 8.	0	0.00	4	12.12	15	45.45	12	36.36	2	6.1	33	100
Item 9.	0	0.00	3	9.09	10	30.30	19	57.58	1	3.0	33	100
Item 10.	0	0.00	4	12.12	15	45.45	12	36.36	2	6.1	33	100
Item 11.	1	3.03	2	6.06	6	18.18	18	54.55	6	18.2	33	100

Note: Number of participants (n). Total number of participants: n= 33.

The mean of all the items exceeds 3 points while the median reaches 4 points, except for questions 1, 5, 8 and 10. We considered the cut-off point represented with a mean value equal to or greater than 3.5 ($\bar{x} \geq 3.5$), since it represents more than 50% of the responses located between ranges 4 and 5 on the Likert scale. The standard deviation is small in all questions, which indicates a great uniformity in the data obtained. This fluctuates between the minimum dispersion value of 0.80 for item 4 to the maximum value of 1.04 for item 3 by only 0.24 points.

TABLE 2
MEAN, STANDARD DEVIATION AND MEDIAN VALUES

	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10	Item 11
MEAN	3.3	3.8	3.6	3.7	3.3	3.5	3.8	3.4	3.5	3.4	3.8
STDV	0.97	0.82	1.04	0.80	0.97	1.02	0.89	0.77	0.70	0.77	0.91
MC	3	4	4	4	3	4	4	3	4	3	4

Note: Standard deviation (STDV): Median (MC).

Even though all the correlation coefficients between variables are positive, and despite the fact that the value around .62 is statistically significant, for this study we have highlighted and chosen those that reflect values above .75 as they imply a considerable positive correlation (Hernández-Sampieri, Fernández-Collado and Baptista-Lucio, 2010).

TABLE 3
PEARSON CORRELATIONS

	Item 1.	Item 2.	Item 2.	Item 4.	Item 5.	Item 6.	Item 7.	Item 8.	Item 9.	Item 10.	Item 11.
Item 1.	1.00	0.67	0.86	0.83	0.81	0.60	0.54	0.46	0.65	0.46	0.59
Item 2.	0.67	1.00	0.72	0.80	0.74	0.68	0.66	0.47	0.51	0.37	0.60
Item 2.	0.86	0.72	1.00	0.83	0.83	0.73	0.63	0.51	0.73	0.47	0.59
Item 4.	0.83	0.80	0.83	1.00	0.87	0.74	0.69	0.64	0.70	0.34	0.65
Item 5.	0.81	0.74	0.83	0.87	1.00	0.82	0.75	0.62	0.78	0.42	0.66
Item 6.	0.60	0.68	0.73	0.74	0.82	1.00	0.75	0.64	0.65	0.29	0.61
Item 7.	0.54	0.66	0.63	0.69	0.75	0.75	1.00	0.75	0.80	0.61	0.72
Item 8.	0.46	0.47	0.51	0.64	0.62	0.64	0.75	1.00	0.64	0.34	0.45
Item 9.	0.65	0.51	0.73	0.70	0.78	0.65	0.80	0.64	1.00	0.64	0.70
Item 10.	0.46	0.37	0.47	0.34	0.42	0.29	0.61	0.34	0.64	1.00	0.71
Item 11.	0.59	0.60	0.59	0.65	0.66	0.61	0.72	0.45	0.70	0.71	1.00

Note: a) Pearson's r. Sign. (2 tailed); b) 95% confidence level; c) alpha level 0.05 ($p \leq 0.05$); d) Participants 33 (n=33).

A very significant number of questions show a high degree of linear association between the two quantitative variables showing the positive relationship between the variables analyzed and quantifying this with statistically significant values.

The highest correlation levels (0.87) are between item 1 ("item 1: I have found the XP and levels useful") and 3 ("item 3: It has motivated me to see in the form of points (XP) everything I was doing to practice Spanish in class, homework, tutorials, class work, participation"), on the one hand, and between item 4 ("item 4: I have found the tasks done in class useful") and 5 ("item 5: It has motivated me to be able to see my position in relation to the rest of the colleagues").

Regarding the thematic area of experience points (XP) and levels represented by items 1, 2 and 3, while there is a positive response of almost 76% acceptance of those who perceive that this system reflects their level of progression, the same cannot be said regarding the perception of its usefulness. Among these, only 43% of the surveyed participants perceive them as useful. In addition, the level of rejection reaches 18%,

one of the highest (negative) figures in this survey. Possibly this is due to the lack of information provided on this educational methodology change and all the consequences it entails on the part of teachers and students as the main agents of change. We will need to place more emphasis on this going forward.

One of the biggest hits seems to be the tasks (item 4) they were asked to do on the platform. The variety and classification of activities has been positively reflected by 63% of the students, while only 9% of the students expressed their rejection. Most of these students match those who were lagging behind in the course and were barely entering the EVA. 33% were indifferent. This invites us to explore the reasons for their response by means of techniques more conducive to these purposes, such as the qualitative technique of the interview. The leaderboard (item 5) was one of the most controversial aspects with 18% of rejection and 33% of indifference, so it is necessary to rethink the design of a system that reflects more aspects than the purely academic ones and create other tables that also show other skills or competences: for example, tables that reflect the best partner, the most hardworking, the most active.

Regarding the assessment of the platform (items 6, 7 and 8), we have high acceptance rates in terms of the work in the forums (61%) and the perception of the contents in a clear and orderly manner (73%), which invites us to continue in this way. However, an overwhelming 45% find the interface indifferent while 12% do not find it attractive at all, these data invite to rethink the redesign of the interface in a more attractive way²³.

Concerning the aspects related to attitude (items 9, 10 and 11), we obtain information that reiterates the motivational effect of the platform and the gamification techniques used in it; 60% affirm that their motivation has increased and 73% state that their participation has increased due to the use of the platform. On the contrary, the data seem to show that the attitude towards the subject has not improved; 45% say it remains the same, while 12% say it is negative. These responses together with the one where students stated that the use of the platform has not had any impact on improving their motivation (30%) encourages us to go deeper into the reasons in the future, again, through interviews, open-ended questions or focus groups.

The last phase involved applying the *Student's t-test* (for two independent groups: experimental group (G1) and control group (G2). Both with a normal distribution and homogeneous variance. G1 has a sample of 33 participants (n=33), while in G2, 31 samples were taken (n=31). A mean score of 77.18 points was obtained in G1 and 69.52 in G2 out of a total of 100 points in the final test. We start from the following hypothesis:

$$\begin{aligned} H_0 &= \text{No difference in means.} & p &\geq .05 \\ H_1 &= \text{There are differences between means.} & p &\leq .05 \end{aligned}$$

When establishing the statistical test we obtain a value: p (two tailed) $.046 < .05$, i.e. $p < .05$. Therefore, we reject the null hypothesis (if p -value $< \alpha$, we reject H_0), being able to state that the differences between the means are not mere chance and that there is a statistical difference between them. In other words, we state the relationship between the introduction of gamified techniques and academic enrichment. We accept the greater positive effect that the introduction of gamified techniques has on academic performance and results in comparison with other types of methodology in which this technique was not used in this research. However, the scope of our results cannot be extrapolated as they are based on a very limited non-probabilistic sample in which it has not been possible to isolate other variables that could have affected and influenced the final result.

TABLE 4
TWO-SAMPLE T-TEST ASSUMING EQUAL VARIANCES

	G1	G2
Mean	77.18	69.51
Variance	138.46	321.39
Remarks	33	31
Grouped variance	226.97	
Hypothetical mean difference	0	
Degrees of freedom	62	
P(T<=t) two-tailed	0.046	

In order to conclude this section, it is necessary to report about the effect size observed in the sample (*Effect Size* according to the Anglo-Saxon literature), so that we can estimate the scope of our statistical findings and determine whether they are relevant to the domain we are investigating. For this purpose, *Cohen's d-size* test was applied and we obtained as a result $d = 0.5088$ (i.e. $d = .50$), which, according to Cohen (1992), gives us a medium effect size²⁴. This indicates that the difference between the two groups, caused by the intervention of the variable under study -introduction of gamified techniques in a Spanish as a foreign language course- constitutes a mean standard deviation. In other words, this means that 69% of the experimental group has higher results than the mean of the control group.

DISCUSSION

The data indicate that students have a high level of satisfaction with the methodology applied in this course. The students considered that the gamification-based techno-pedagogical design was positive for their learning, and with it they obtained better academic results than with other types of methodologies in which techniques based on and taken from games were not implemented. As McGonigal (2011) previously stated, the fact of placing students in situations where overcoming obstacles is a constant denominator and, on the other hand, the fact of providing a flow of positive feedback, every time we overcome these challenges, constantly encourages motivation, fosters recognition and encourages them to continue playing (studying). We can conclude that the results provide evidence regarding the effectiveness of this gamification proposal in several aspects of the Spanish language learning experience in this Japanese university context.

The use of the gamified platform, thanks to its ICT integration, developed students' digital competence and improved their motivation. The students identified different elements related to the use of ICT that had a positive effect on their motivation: the use of real and diverse materials, the possibility of repeating the exercises and thus being able to get even more points, the ability to access the resources from home, the fact of receiving personalized feedback, and the ease of use of the system.

The effects of the platform's use on exposure to Spanish in and out of the classroom were enhanced by the use of ICTs. The tasks allowed students to watch videos at home and work with them at their own pace. Similarly, thanks to the platform's use, students' attitudes have improved and they have developed greater autonomy in formal and informal learning.

Based on the results obtained in this first monitoring, we can state that this research has yielded promising results. Gamification can be a highly effective tool for improvement, regardless of the learning method used. We have measured its effects and among them we find an increase in motivation, perceiving learning as stimulating and entertaining. Similarly, contact with the target language has been obtained, allowing the students a certain autonomy in the achievement of their goals and appropriation of resources, which can have a positive impact on their image and on the development of metacognitive and motivational strategies -variety and type of activities, study time-. The gamified design has also had a considerable

impact on increasing student interaction both inside and outside the classroom -use of forums-. Finally, we can state that the introduction of gamified strategies has had a statistically significant effect. This has been reflected in an improvement in the academic results of the experimental group in contrast to the control group, despite the small number of participants in the sample.

On the other hand, everything seems to indicate that the most competitive elements are rejected by the students - leaderboards - and their elimination will be considered for the next versions. It is also advisable to improve the interface to make it more visually appealing and more user-friendly, i.e. more intuitive to use. It is recommended to continue providing constant feedback through the progression bars, but in a more personalized and detailed way. Similarly, there is a need to delve into the reasons why the attitude towards the subject has not improved or has worsened in some of our students by means of qualitative techniques. The responses obtained with these techniques could provide us with a better and deeper understanding of the participants' attitudes and behaviors towards certain aspects of this study that are not apparent from the quantitative data.

LIMITATIONS

The first one is that the design of the research cannot guarantee the control of factors external to the teaching methodology itself that could have affected the results and the students' perceptions, since it is not an experiment. In any case, we consider the level of agreement in the responses to be relevant. This is supported by the different statistical tests carried out in the investigation process.

Another important aspect is the considerable amount of time and effort required to monitor the progress of the students, to follow up on the completion of the activities and to capture this information on the results of the gamified actions. This is because we had to perform these actions through external applications that are not²⁵ natural to our institution's Virtual Learning Environment. This fact has created much more work than we would have had if the *Manaba* platform had integrated gamified mechanisms.

As for the design of the platform, in future editions (courses) it is recommended to improve the interface -create a more visual, dynamic and attractive one- and, through the gamified elements, encourage students who have been more passive and negative with the platform to use it more regularly. Also in future editions, special emphasis should be placed on the first weeks of the course (*boarding*) so that no one misses out on the course through activities that are accessible to all and clear instructions.

On the other hand, being a sample with a reduced number of participants in a single context (case study), our predictive assessment and generalizability is subject to the limitations under which our research is carried out.

FUTURE RESEARCH LINES

Due to the addictive effect and the fact that the game gets people engaged, we, teaching professionals, are interested in knowing the reasons why it motivates and fosters the involvement of participants in such an effective way (Herrera, 2017). If we are able to delimit and determine, as precisely as possible, the mechanisms that ensure the player's commitment to the game and we are able to replicate these dynamics in our planning and teaching practice, we will be able to achieve greater commitment and involvement with our students.

Likewise, it would be very rewarding to complement this project with other future research work in other educational contexts in order to continue identifying improvements in the system. Thus, longitudinal studies could be carried out or a pre-test and post-test could be applied in order to determine the effects of the variables in an inter-group manner or the comparison of different independent groups in which each one introduces a specific variable that the others lack to compare them and determine, in the most concrete way possible, the effect of a specific gamified element.

Another possibility is to compare two gamified groups with different mechanics and dynamics, in order to narrow down which of them may be more appropriate and effective according to our pedagogical objectives, the profile of our students and the educational and sociocultural context in which we are

immersed. Finally, the analysis of correlations also offers interesting ways for studying the causal relationships that can be established in future research (see Table 3).

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ENDNOTES

1. Throughout this paper both terms are used indistinctly.
2. Learning management system (LMS) software used at Ryukoku University (Japan).
3. Quoted in Zepeda, Abascal and López (2016).
4. Pomata and Díaz Ayuga. Op. cit., p. 83.
5. Iterative loop of activity and reward.
6. Reig, D. Op. cit., 2012, p. 13.
7. In other words, we are living in a historical moment for which Zygmunt Bauman (2017) coined the term liquid society. By using this term, he described and conceptualized the phenomenon in which the transitory, volatile and provisional nature of society prevails, as opposed to the solidity and sustainability of the society of the generations that preceded us.
8. Understood as the creation of experiences that move away from lectures and focus on the learning process.
9. Shortly after starting this research, we came up against the first major obstacle, since we found several abstract and unclear definitions that overlap with each other and are presented with ambiguous terms on many occasions. Although, in all the literature reviewed, the participation of a player, motivation and commitment are described as fundamental aspects and a certain degree of freedom on the part of the user. Similarly, another common denominator is the presence of game mechanics, dynamics and components.
10. Even in activities that in principle require effort and may not be pleasurable for some, such as studying.
11. The possibilities of error and repetition are infinite until the desired objective is achieved.
12. Cf. in Francesca León, E. (s.f.). It shows the stages a person goes through until he/she is able to reach or meet his/her need.
13. It would be equivalent in some cases to level A1 and in others to level A2 established in the Common European Framework of Reference for Languages (CEFR) reflected in the Cervantes Institute's Curricular Plan (PCIC for its Spanish acronym).
14. Typically, the Japanese teacher is in charge of grammar and the native teacher is in charge of communication.
15. For the elaboration of this survey we relied on Marín-Díaz, Vega-Gea and Sampedro-Requena (2016), on Carrión-Salinas (2017) and on the particular context where this project is intended to be implemented, Ryukoku University.
16. The period for answering the online forms was open from January 11 until January 19, 2021 up to 18:00 (JST).
17. This type of standardized test belongs to the summative evaluation that takes place at the end of each semester and has a 50% average weight in the grade of the course. The grading scale for this test ranges from 0 to a total of 100 points, with a cut-off mark (pass) of 60 points.
18. Although this possibility is not ruled out in the future.
19. Specifically the educational platforms: Kahoot, Classdojo, Quizlet and Educaplay.
20. Specifically the following: Classdojo, Educaplay, Quizlet and Kahoot.
21. Statistical test in which the means of two independent samples are compared (Cohen, Manion and Morrison, 2000).
22. Microsoft Office 365 ProPlus Excel software was used to perform the statistical calculations.
23. In principle, this aspect is outside the sphere of our competence and intervention, because it depends on the LMS service provider, which is the platform administrator.
24. Values below .20 indicate an almost nonexistent effect, between .20 and .49, minimal, from .50 to .70, moderate, and those above .80 show a large one (Cohen, 1998).
25. For example, Kahoot, Clasdojo, Quizlet.

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