“Achievement unlocked”:

Improving Second Language Learning

with Educational Gamification

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Improving Second Language Learning
with Educational Gamification

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Abstract

The present study is concerned with the increasingly popular concept of *gamification*, and the research conducted in this field so far, with a special focus on its applications in education. Having language learning and the positive features of video games as starting points, the main aim of this paper is to explore the possibilities and outcomes of introducing game design elements in second language classrooms. Existing literature on gamification includes plenty of theoretical frameworks, but there is still insufficient empirical data linking game elements to specific learning outcomes. While there have been some promising results of educational gamification regarding behavioral and attitude changes which might be beneficial for second language learning, the existence of negative reactions to this approach encourages us to pay close attention to planning and context. Lastly, I shall investigate three popular language learning mobile applications and how they have successfully integrated some gamification elements.

**Keywords:** gamification, vocabulary learning, second language, educational gamification, language learning applications.
Resumen

El presente estudio trata el concepto popular de gamificación, y de la investigación llevada a cabo en este campo hasta ahora, con un enfoque especial en sus aplicaciones para la educación. Teniendo como punto de partida el aprendizaje de idiomas y las características positivas de los videojuegos, el objetivo principal del este trabajo es explorar las posibilidades y los resultados de introducir de elementos de diseño de juegos en las clases de enseñanza de segundo idioma. En la literatura existente sobre la gamificación todavía no hay datos empíricos suficientes que relacionen los elementos de los juegos con resultados específicos de aprendizaje. Si bien ha habido algunos resultados prometedores de gamificación educativa con respecto a los cambios de actitud que podrían ser beneficiosos para el aprendizaje de un segundo idioma, la existencia de reacciones negativas nos alienta a prestar más atención a la planificación y al contexto. Por último, investigaré tres aplicaciones populares y gratuitas de aprendizaje de idiomas y cómo han integrado con éxito algunos elementos de gamificación.

Palabras clave: gamificación, aprendizaje del vocabulario, segundo idioma, gamificación educativa, aplicaciones de aprendizaje de idiomas.
1. INTRODUCTION

‘Achievement unlocked’ - this is what players might see on the screen while playing their favorite video game, followed by the acknowledgment of whichever mission they have just completed. Such a message might be the extra push that they need in order to continue playing and eventually reach the ultimate goal. This is what games are meant to do – they combine fun with problem solving. But what happens when that initial feeling of surprise and excitement diminish, making room for boredom, exhaustion, or anxiety? The players might want to give up. To avoid such unwanted effects, video game designers have gradually developed strategies that “trick” the players into pursuing their goal. These strategies are called *game design elements* and they represent the foundation on which video games are created, evolving in time and attracting more and more members into the world of games.

Inspired by game designers, it is believed that the business people involved in digital media were among the first who saw the potential of game design elements outside video games (Deterding et al., 2011a) and started to come up with ways of integrating them in their platforms for commercial purposes, thinking that certain benefits might arise: attracting and engaging users, improving overall user experience, or promoting competition and goal-setting, while still being financially successful. In time, the practice became known as *gamification*. In a similar fashion, education has sought to enhance certain aspects with gamification, mainly learner behavior and attitude towards instruction, both formal and informal.

The present paper is concerned with educational gamification – what it is, how it works, what it is made of, what the benefits and drawbacks are, where it can be used.

In chapter 2, we summarize the most important strategies in second language learning and include a brief literature review with respect to this subject. With such concepts in mind, we will be able to make connections between language learning strategies and gamification.
Chapter 3 introduces the field of video games and the gaming community, and explores the details regarding their core elements and game design elements, divided into three categories: mechanics, dynamics and aesthetics. This classification is relevant in order to have a better understanding of gamification in the context of formal and informal learning.

In the fourth chapter, we give an overview of gamification in education, including some definitions, the results of previous research in this field, and what game design elements could be implemented in second language classrooms. Moreover, we will briefly examine the desired student behavior that gamification is meant to elicit.

The fifth chapter deals with game design elements in second language classrooms, and explores the roles and attributes of teachers and students. Considering the findings of previous research and observations from my own language teaching experience, I present diverse ways of how formal instruction can be gamified and the possible outcomes of this emerging practice.

In chapter 6 we investigate the gamification of informal learning environments by looking at three language learning mobile applications that have successfully integrated some game design elements, and have gained popularity and positive reviews for how they motivate a wide range of learners to practice their language skills. The analysis includes the game design elements present in each app, the learning strategies that those elements evoke, what type of audience the apps target, common features, unique aspects, user ratings and reviews.

Finally, we present the main conclusions of this investigation and of past research, evaluate the possible ways in which gamification can be included in second language learning in the future, discuss if the outcomes are worth the effort of implementing game design elements, and make suggestions for further research. Also, I briefly review the limitations of this paper and what I hope to improve or add related to this topic in the forthcoming years.

The decision of approaching the topic of gamification was guided by my intention to continue pursuing a career as an English teacher, and by my lifelong passion for video gaming as a hobby. Upon discovering the concept of gamification, I was intrigued to find out more about it and explore possibilities of adopting this practice into my own teaching methods in the future, as I see some potential for its success in language classrooms.
Being a gamer since early childhood, I have spent countless hours on the computer or various gaming consoles completing quests, fighting opponents and learning how to overcome obstacles, and I am familiarized with all aspects of video games that will be presented in this paper. I have also been part of online gaming communities throughout the years, and I have been lucky enough to have friends which share my interests and spend their time playing with or against me. Regarding genres, third-person action video games are a personal favorite, but I also enjoy playing first-person shooters, puzzle and strategy games. Recently, my attention has shifted to MOBA (multiplayer online battle arena) video games, which allow me to participate in missions with acquaintances.

Furthermore, I believe in the evolution of education supported by innovative ideas inspired from technology and the digital media. Unfortunately, the insufficient empirical data related to educational gamification makes it difficult to draw firm conclusions about the benefits and drawbacks of implementing this practice, so any suggestions or observations in this paper cannot be generalized.
2. LANGUAGE LEARNING STRATEGIES

The following chapter provides a brief summary of second language learning strategies, as those will appear later on in the analysis of gamification and language learning platforms. These types of applications adopt several strategies that aid memorization and acquisition. Even the basic use of such resources for acquiring further knowledge or for strengthening one’s language skills, can be regarded as a strategy, since learners do it consciously and with a definite purpose. Although, gamification does not seem to influence learning directly, but the outcomes of implementing this practice could be positive in nature.

The language learning process can either take place consciously, or in an unconscious manner; the latter has been conventionally referred to as ‘language acquisition’ because it describes the implicit language knowledge that a learner has developed subconsciously (Krashen, 1982). On the other hand, learning is the explicit language knowledge that comes as a result of formal instruction (Krashen, 1982). With this distinction in mind, researchers have tried to define and classify the steps that learners take in order to learn a language, steps which have become widely known as language learning strategies. While many definitions have appeared along the years, I chose to present one which comprises all the important elements that describe a strategy, as follows: ‘Learning strategies are steps taken by the learner to aid the acquisition, storage, and retrieval of information. Strategies are referred to as learning techniques, behaviors, or actions; or learning-to-learn, problem-solving, or study skills’ (Oxford & Crookall, 1989; Rigney, 1978).

In order to better understand how the learning process takes place, a brief review of learning strategies might be helpful. A very relevant and clear classification was proposed by Rubin (1981); the author emphasizes the strategies that affect learning directly and those that contribute to learning indirectly (Table 1.). However, this is just one perspective, and it is necessary to keep in mind that language learning strategies are closely related to other aspects, such as the learner’s age, goals or proficiency level, the context of instruction (formal or informal), and most importantly, the type of communicative skill. Each of the four language skills can be best developed with a certain strategy that might not be universal, but the best result are achieved with appropriate combination of a number of strategies.
In a complex research paper by Zhang & Lu (2015), it is stated that vocabulary learning is affected by a wider range of learning strategies, in comparison with the other language skills. The authors recognize the effectiveness of vocabulary learning strategies as these draw the students’ attention to how useful vocabulary knowledge is, by mentioning a few research papers with positive results regarding language performance as a result of learning strategies (see Fan, 2003; Grenfell and Harris, 1999).

The learning strategies described so far fall into the hands of the learner. In the formal instruction of a second language, the teachers can advise and support the students as to which strategies to choose and combine, but they cannot impose any of those in the classroom. What the teachers can do, however, is select a teaching approach which best suits the students’ goals and the classroom dynamics, or even offer a range of resources, thus giving each student the opportunity to choose which materials and activities they prefer and think it is useful.

In a literature review by Ellis (2005), three pedagogic approaches to language learning are identified: oral-situational, notional-functional, and task-based. Each approach has its own path, as well as advantages and drawbacks, but for the time being we shall focus on strategies.

<table>
<thead>
<tr>
<th>Affect learning directly</th>
<th>Strategy</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarification</td>
<td>Asking for examples, explanations</td>
<td></td>
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<tr>
<td>Monitoring</td>
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<td>Memorization</td>
<td>Repetition</td>
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<tr>
<td>Inductive inference</td>
<td>Guessing meaning from context</td>
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<tr>
<td>Deductive reasoning</td>
<td>Compare a word in the native language to target language</td>
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<tr>
<td>Practice</td>
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| Contribute to learning indirectly              |                     |
| Creating opportunities for practice           | Talking to native speakers of target language |
| Productive tricks                             | Use of formulaic language |

**Table 1.** Classification and examples of language learning strategies, according to *Rubin (1981).*
3. VIDEO GAMES

The video game industry is one of the fastest growing economic sectors of the decade. Video games are games that are usually designed for and played on platforms such as computers, mobile phones or gaming consoles. They can be classified into casual, serious and educational games, depending on the purposes for which they are created. Serious games refer to games that are made for delivering learning material or information usually related to an academic or professional syllabus or program, having entertainment as a secondary purpose (Deterding, 2011a). Educational games, on the other hand, are developed primarily for educating or training. Among children, teenagers and young adults, gaming is a popular leisure activity, an opportunity to establish social networks, and even a source of income.

3.1. Core elements of games

Some of the main characteristics shared by video games across genres and types, well pointed out by McGonigal (2011), are the following: goals, rules, feedback and participation. Games have other elements as well, but those mentioned are considered to be defining, and I believe they are also relevant with respect to the topic of gamified education which will be discussed in a future section. Usually, video games include features like interactivity, challenges, virtual environments, graphics, and quantifiable outcomes (winning or losing), but those have not been tied to gamification.

Goals are the main objectives of the game; in other words, the specific aim of the player that drives him or her throughout the game. Goals can be divided into short-term (for example, completing a set of missions) and long-term goals (such as finishing the game). Having organized and well-defined objectives helps the player acknowledge that their efforts are not pointless. To illustrate this point, I give the example of Batman: Arkham City, a 2011 video game in the action genre. Along the storyline, players control the popular superhero Batman and help him fight crime around the fictional city of ‘Gotham’. A short-term goal for the player could be saving a character in order to progress to the next mission (Fig. 1). As for long-term goals,
players are encouraged to search for question mark symbols all around the virtual city and gather all the *Riddler Trophies*, a collectible item, and thus earn specific rewards (Fig. 2). Completion of this goal is not crucial to the storyline, but it motivates the player to engage in play for an extensive time.

**Rules** are a defining attribute of any kind of game, be it video game or even something as simple as hangman and tic-tac-toe. Rules determine what is allowed and what is forbidden during gameplay, so they must be formulated as clear as possible. A well-made set of rules sets the pace at the beginning of the game, and traces the paths that a player can take in order to achieve the desired goal. Fig. 3 represents a set of rules and objectives for a game mode called ‘Brawl’ in *Heroes of the Storm*, a 2015 multiplayer online game with various battle grounds. Rules also describe the gameplay itself, so that the players can adapt their strategies and combat methods (for instance, the rule ‘*Every hero has one life per round.*’ suggests that a more defensive and careful approach is preferred, so that the opponents don’t outnumber the allied team if one member dies.)

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**Fig. 1.** Screenshot from the 2011 video game *Batman: Arkham City*, depicting *short-term goals* as main objectives for the current mission. Progression through the game depends on the completion of these short-term goals. (Retrieved 05-05-2018)

**Fig. 2.** Screenshot from the 2011 video game *Batman: Arkham City*, depicting *long-term goals* as a collection of *trophies* gathered along the entire storyline of the game. Each *checkmark* represents a found trophy, and each opened *padlock* marks a collected reward. (Retrieved 05-05-2018)
Feedback is essential for progress. Typically, feedback in video games is immediate, frequent and used as positive reinforcement. If a player receives clear and targeted feedback when failing a mission or action, he or she can make progress by understanding the past mistakes and overcoming them. Moreover, feedback is a key trigger of motivation: if a player is committed to a goal and receives feedback that he or she has to make more effort in order to achieve it, that player will be motivated to meet the required standards rather than lose interest and abandon the quest (Garris et al., 2002). For example, as shown in Fig. 4, Candy Crush Saga players are explicitly informed about what they have achieved (‘Get 145000 points’) and what they have failed to do (‘Remove jelly’) in a feedback window at the end of a level.

Participation is always voluntary in games, meaning that the players decide to enter and exit the game at their convenience, and that they accept all the rules and goals that the game proposes. By not feeling forced to participate, players have the opportunity to develop intrinsic motivation, learn how to manage their time when solving the specific tasks proposed by the game, and become self-dependent.
3.2. Game mechanics, dynamics and aesthetics (MDA)

The MDA framework, which stands for mechanics, dynamics and aesthetics, is a framework developed by game designers at the beginning of the 2000s. It refers to a set of game components that are part of a particular design, used to elicit a certain behavior from the player (Hunicke et al., 2004). Classifying the specifics of game design into the previously mentioned three categories has been adopted in several studies (Muntean, 2011; Richter et al., 2015; Mora et al., 2015), and can be easily explained by answering the following questions:

What is the basic structure of the game made of?

How do the components work together?

What does the game use to influence the player’s behavior and attitude towards elements such as participation, the proposed goals, the rules, etc.?

In the following sections, each concept is briefly described.

3.2.1. Game mechanics

Mechanics are the elements through which the players interact with the game. To put it differently, they are the ‘decisions that designers—those who wish to gamify a non-game context—make to specify the goals, the rules, the setting, the context, the types of interactions, and the boundaries’ (Robson et al., 2015, p. 414). The most common game mechanics, and the ones which can be or have been used to gamify a language learning environment, are points, levels, leaderboards, badges, a feedback system, and quests, to name a few.

Points are units that can be accumulated by performing certain actions throughout the game, and they are usually used to measure the player’s progression, often described as XP (experience points). Point-generating activities include completing quests, being social, achieving mastery levels, etc. One important benefit of using a point system is that it shows the player that their efforts are directly linked to performance and results, motivating him to continue playing (von Ahn & Dabbish, 2008). An example of a progression system based on XP is
displayed in Fig. 5, where a player can clearly see how much XP is needed in order to pass to the next level in the popular multiplayer online game League of Legends.

*Levels* are stages which players gain by completing tasks. A fixed amount of points or a certain action is required to level up, and that amount of points is progressively larger, or the activities needed to accumulate points at higher levels get increasingly difficult. Leveling systems support progression, motivation and engagement (Yildrim, 2017). Levels are also used as a way of quantifying outcomes; in some games, if you win, you gain points to level up. In Fig. 6, an image from the online video game Heroes of the Storm, the player can see his or her current level (189) and the position he or she holds in two ranking leagues, Hero and Team, being in the fifth level of the Gold tier.

![Fig. 5. Screenshot from the online video game League of Legends, depicting player level 47 and the current 1401 XP earned out of the 3456 XP necessary to pass to the next level. (Retrieved 28-05-2018)](image)

![Fig. 6. Screenshot from the online video game Heroes of the Storm, depicting the player’s current level and league ranking. (Retrieved 7-06-2018)](image)

*Leaderboards* are boards which display players’ performance ranked by levels, total amount of points, or achievements. These ranking systems can be a way for players to view their status compared to the others (Hanus & Fox, 2015), assess their own performance in the game and challenge themselves to do better or spend more time and effort on quests (Landers, 2014). An example of a global leaderboard is shown in Fig. 9, where players of the 2017 online video game Fortnite are placed according to the total number of wins, from highest to lowest. Even though leaderboards are a universal method of acknowledging performance, it is used mostly in
video games which quantify achievements (for instance, if a large amount of XP is directly linked to mastery), and less in those which rely on the player to complete a story.

**Badges** are a feedback mechanism that awards players for their achievements. Badges are usually related to status or reputation, and they help with setting clear goals as they reward very specific activities (Richter et al., 2015). Fig. 7 shows the badges and points that the player has earned while making achievements in *Diablo III*, a 2012 action role-playing video game. Each requirement is stated clearly (for example, ‘Pick up 10,000,000 gold.’) so that the players can link their actions to specific rewards. The badges are the square images displayed on the left side.

![Fig. 7. Screenshot depicting the menu of Achievements and their corresponding badges in the video game Diablo III.](image)

In addition, points are gained (far right column) and the total is displayed at the top of the screen (2500).

(Retrieved 03-05-2018)

**Quests** describe any activity proposed by the game which generates a type of reward (points, progression, badges, in-game currency, etc.). See Fig. 8 for two examples of daily quests in the multiplayer online video game *Heroes of the Storm*, which are added on a daily basis and differ as much as possible. The image also displays another type of quest related to progression. All quests are presented with their corresponding reward (for instance, the first quest awards 600 gold coins which is the in-game currency), a very common feature in video games of all genres.
Feedback is one of the most important mechanics, a core element of games as discussed in a previous section.

3.2.2. Game dynamics

Dynamics are the “tools” that combine mechanics in order to create game aesthetics; as opposed to mechanics, game dynamics are behaviors and actions that appear to players as they participate in the game (Robson et al., 2015).

Points and levels are the essence of progression. In most video games, a certain amount of points is necessary to pass onto the next level, and sometimes there are additional requirements as well. By monitoring progression, the players can also assess their performance, becoming motivated to do better or play more often in order to achieve their goals.

Players are attracted by video games with interesting stories to tell. A story provides context, meaning that it gives the players an entire experience and shows them that their efforts

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**Fig. 8.** Screenshot from the online video game *Heroes of the Storm*, depicting quests and their rewards. (Retrieved 28-05-2018)

**Fig. 9.** Screenshot depicting a leaderboard from the online video game *Fortnite*. The rank represents the position of the player, according to the total number of games won (displayed in the far right column). (Retrieved 7-06-2018)
are relevant (Kapp, 2012). By making a player the main character of the story (the ‘hero’), that player is inclined to participate and becomes motivated to solve problems and ultimately achieve their main goal. An example of storytelling is shown in Fig. 10: in the 2017 video game *Star Wars Battlefront II*, the players choose between characters Han and Chewbacca to defeat enemy troops on the planet ‘Tatooine’. As McGonigal (2011) points out, and what actual members of the gaming community such as myself would confirm, is that people play games voluntarily and are really devoted to completing quests, learning, exploring and ultimately, winning.

Video games offer *rewards* for the players’ efforts, which represent extrinsic motivation (Richter et al., 2015). External rewards and incentives continually reinforce a certain behavior, but as long as those are provided. DuBravac (2012) highlights three problems with reward systems: *exhaustion, extinction*, and *the moral hazard of game play*. When rewards are obtained too often and too easily, players become exhausted. Extinction occurs when rewards become unavailable or too difficult to obtain. Lastly, the moral hazard of game play is that the player fails to associate an activity with a result that is meaningful to them (DuBravac, 2012). The outcome is the same in all three cases: the player loses motivation and abandons the game. Fig. 11 displays an example of reward given in the 2017 video game *Star Wars Battlefront II*: if the players complete the goal (‘Defeat 2500 enemies in Arcade.’), they are rewarded with in-game currency (*1000 credits*); the players can also track their progress, helping them to stay focused.

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**Fig. 10.** Screenshot from the video game *S. W. Battlefront II*, depicting the story: the players are Han and Chewbacca and must defeat the troops. *(Retrieved 9-06-2018)*

**Fig. 11.** Screenshot from the video game *S.W. Battlefront II*, depicting a goal, progress and the expected reward (*1000 credits*). *(Retrieved 9-06-2018)*
The “Freedom to Fail” dynamic is quite specific to video games, as they usually offer players more than one chance to perform an action, or do not punish the players severely for failing their trials. Many games allow multiple tries in the form of lives. ‘Freedom to fail’ is a way of providing positive failure feedback, which reinforces the player’s sense of agency and drive towards the goal (McGonigal, 2011).

From a social point of view, multiplayer video games encourage cooperation between players with similar goals in order for them to collectively solve emerging problems. On the other hand, competition is seen as intrinsic motivation (Muntean, 2011) and it elicits different types of behavior depending on the player: those who are goal-oriented might be highly motivated by competition, while players who are categorized as explorers or socializers are less interested in being competitive (Zicherman & Cunningham, 2011).

3.2.3. Game aesthetics

The MDA framework defines aesthetics as the ‘desirable emotional responses evoked in the player’ (Hunicke et al., 2004, p. 2). Apart from fun, players seek to experience more within a game and depending on the type and genre, designers make use of the following aesthetics, to name a few: fantasy, curiosity, discovery, mystery, control, fellowship, self-expression.

3.3. Gamers and the gaming community

There are certain practices tightly connected to being a video gamer. Apart from simply buying and playing games, many members of the video gaming community access forums to discuss strategies, help other players who encounter difficulties, exchange ideas, review games, express opinions, trade items, etc. Gamers are believed to be social mostly online, since the time spent playing games is indoors and they connect with other players via the web. But it is not uncommon for video gamers to have LAN parties, a setting where several players with their computers or consoles share the same local area network connection and play the same multiplayer video game together.
Another popular activity for video gamers is searching YouTube for *gameplays*, which are recorded videos of someone playing a game and sometimes commenting upon it, so that other players can follow the steps taken in the respective story. This is especially common for games of the puzzle and strategy genres, where there are certain obstacles to overcome.

The competitive aspect is also very important in the gaming community; popular video game developers often organize and sponsor competitions or tournaments for both casual and professional players, a practice referred to as *eSports* (‘electronic sports’). With the help of live video streaming, fans can watch these events from all around the world as they happen, and be part of a global discussion about the performance of participants. This is an opportunity for competitors to get prizes and rewards, while gaining popularity among other players who get inspired by their strategies and playing styles.
4. GAMIFICATION

4.1. Background

Even though games stand at the root of gamification, these two concepts do not denote the same thing. The term *gamification* has become widespread around the year 2010, and the most recognized definition so far describes gamification as ‘the use of game design elements in non-game contexts’ (Deterding, 2011a, p. 9). An important contribution to this definition is made by Landers (2014), who argues that the gamification of learning is ‘the implementation of learning-related game attributes outside the context of a game’ (Landers, 2014, p. 757). An honest mistake would be to think that educational gamification means introducing games into a classroom, as additional tools to traditional learning; a practice better known as *game-based learning* (GBL).

Additionally, serious games are also often used to convey information and content. This type of games is defined as ‘complete games for non-entertainment purposes’ (Deterding, 2011b). While it can be considered a branch of gamification practices, serious games are ‘designed using game mechanics and game thinking to educate individuals in a specific content domain’ (Kapp, 2012).

What is very important to keep in mind is that gamification implies the use of game design elements in order to facilitate learning by means of encouraging a target behavior that supports learning, and not by directly providing necessary input in a different manner. In other words, if a student has a certain behavior or attitude, he is more likely to learn more and retain information better (Gardner & MacIntyre, 1993), and gamification is ultimately aimed at motivating and engaging learners, while maintaining a positive attitude throughout the learning process.

Another definition of gamification worth mentioning is proposed by Kapp (2012, p. 10): ‘*Gamification* is using game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning, and solve problems.’ The author also believes that
educational gamification can be effective because it uses the same elements that promote learning in traditional approaches (for instance, assigning rewards and encouraging cooperation between students) and adding a novel perspective that increases engagement (Kapp, 2012).

Gamification has also received a fair amount of criticism along the years, either related to its effectiveness, the motivations behind its development or its elements. A study by Landers (2014) mentions that gamification in certain learning and training contexts did not have any significant positive influence due to the fact that some game design elements were adopted in isolation, instead of being combined and adapted in a meaningful manner. For similar reasons, Yildrim (2017) found that students’ overall performance was not increased by gamified teaching practices that included only a number of game design elements without any additional planning, in several investigations.

4.2. Game elements in second language classrooms

Before further exploring the concept of educational gamification, it is important to make a distinction between formal and informal learning. The former describes learning in an official setting, usually a classroom, while the latter includes all kinds of learning practices, which are more independent, creative and self-paced. There are various reasons for choosing informal instruction, such as using a language learning application: the learner does not have time to attend a class, he or she might find it too difficult to participate in group activities, or the costs might be too high, to name a few. While both environments can be gamified, there are various ways in which this occurs. Gamified apps are designed to accommodate a wide range of learners and styles, while in language classrooms the game design elements must be chosen and combined differently for each situation.

There should be a lot of careful planning when deciding to gamify a classroom, as it has been shown that just adding game mechanics to traditional teaching practices might not be sufficient or may be even harmful to the learners’ motivation, engagement and performance. In a study by Hanus & Fox (2014), results showed that the motivation, empowerment and satisfaction
of students in a gamified class were lower than in the conventional class. However, a reason for this result could be the fact that the students were required to earn all the badges as part of the final grade, thus giving the learners a feeling of being controlled and obligated to do work which in other settings would be optional. According to the cognitive evaluation theory (Deci & Ryan, 1985), such external factors can influence the learner’s motivation, which in turn can affect learning.

When learning a second language, students could greatly benefit from a suitable learning environment and real opportunities to practice their language skills. In addition, teachers need to make sure that the learners are motivated and engaged enough to maintain a state of flow. In order to accommodate both sides, emerging technologies offer different solutions. As additional support to formal instruction, there are online learning platforms (e.g. DuoLingo, Busuu), games (e.g. Digital Dialects) and other resources (e.g. LinguaFolio Online) available, which promote learner autonomy and motivation towards mastery.

One of the ways in which technology supports learning is through the increasingly popular practice of gamifying the classroom. According to Muntean (2011), extrinsic and intrinsic motivations combine in order to evoke certain behaviors which, in turn, improve learning. Extrinsic rewards are part of the game mechanics previously discussed and are very often used in gamified environments.

### 4.3. Desired behavior

Perhaps the most empirically explored outcome of gamification is the increase or decrease in student motivation. Through the correct implementation of certain game design elements which support extrinsic motivation, the student could become intrinsically motivated as well. Although extrinsic rewards such as points, badges, or high positions in a ranking system, have been found to decrease the motivation to participate if they are not well implemented, they could be more helpful in a system that mirrors the students’ achievements, self-confidence and feelings of success (Decker & Lawley, 2013).
Motivation

There are two types of motivation in education psychology, as formulated by Deci & Ryan (1985): extrinsic and intrinsic. Students are intrinsically motivated by tasks that they find challenging, because they get a feeling of empowerment and self-efficacy upon completing that task. Rewards that are more tangible, like badges and points, are believed to increase extrinsic motivation.

Special care should be taken by teachers when deciding to use gamification for extrinsic and intrinsic motivation. While game mechanics like points, leaderboards and badges are systems which motivate students extrinsically, these might be effective only in certain situations and should not be considered universal. A study by Hanus & Fox (2015), showed a decline in students’ motivation due to unsuitable rewards in the experiment conducted by them.

Engagement

Another aim of educational gamification is increasing and supporting student engagement. By encouraging learners to participate in all sorts of activities both inside and outside the classroom, incidental learning takes place on one hand, and language skills are strengthened on the other.

Teachers should be very careful and aware when deciding what levels of competition they want to promote, as the students will certainly respond differently to it; some might be motivated to participate in competitive activities, while some might be indifferent or even scared to try. In a study by de-Marcos et al. (2014), the results of their experiment with undergraduates showed that the students of a class where game design elements were introduced had lower participation scores than those in a social networking class. This outcome suggests that competition was more important than cooperation in the gamified class, making students less engaged in activities involving sharing or working together, but this could be considered a result of insufficient planning or unsuccessful combinations of game design elements.
5. GAME DESIGN ELEMENTS IN THE CLASSROOM

In this chapter, I shall discuss the roles of the student and the teacher in a gamified classroom, in accordance with what has been described so far. The following presentation is a theoretical view, based on the results of the scarce empirical data about educational gamification outcomes.

5.1. Teachers as game masters

The gamification of a classroom falls into the hands of the teacher. The term game master has been chosen here because it usually describes the person who is in charge of support, organization and moderation in multiplayer video games. However, we can also consider teachers to be game designers, since they choose which game elements to use and how to combine them properly in order to achieve the desired results in a classroom. But for the moment, the phrase game master will be used because teachers are also part of the gamified classroom experience.

If it were to be inspired by actual video games, a teacher should elaborate a story, integrate the characters, clearly state the goal and the rules, ensure and monitor progression, provide immediate and targeted feedback, and create quests for students to complete. However, the main responsibility of the teacher is to deliver learning material; in the second language classroom, this means providing comprehensible input and creating opportunities for production. Ideally, all language skills (reading, writing, speaking and listening) should be improved with the aid of activities, materials and interaction.

Before elaborating on how teachers could implement game design elements into the classroom, it is essential to mention once more that the purpose of educational gamification is not to improve learning directly, but to positively influence the students’ behavior or attitude towards certain aspects of learning (Landers, 2014). In other words, gamification is an additional
strategy to formal instruction. Unfortunately, not much is known about which combinations of game elements are most effective, and why they have the outcomes that have been observed. The teacher is the one responsible with identifying which game mechanics would have the most success in eliciting the targeted behavior, and which can be realistically introduced in the classroom by considering the specifics of the students (age, language level, personalities, goals, etc.), while also trying to find creative ways of combining them with second language instruction.

An important task of a second language teacher is to manage the learning content appropriately, so that it is suitable for the students’ ages, language levels, and even interests, if possible. Apart from simply choosing which lessons or activities to assign to each class, the teacher could structure the information into levels, in a story-like manner, providing students with the necessary tools for completing tasks, or quests, later on as the difficulty or complexity of content increases. Naturally, the teacher should set realistic goals for the students, in accordance with their level of proficiency.

With respect to the leveling requirements, it would be advisable that teachers assign points to activities which are considered less interesting, or which students won’t normally do on their own. Assigning extrinsic rewards for compulsory or interesting activities has been found to affect motivation negatively, while accomplishing difficult tasks is an intrinsic reward on its own and gives the students a feeling of pride, keeping them motivated for future assignments (Hanus & Fox, 2014). As a solution, points or badges could be awarded as bonuses (for examples, see Table 1). In addition, the teacher could encourage students by periodically assigning surprise awards for simple tasks; for example, students could get 10 XP for simply attending class on a certain day, or participating in a general discussion in class.

As previously discussed, feedback in video games is usually immediate, targeted and constructive. It is not uncommon for a player to fail a certain level in a game and read ‘Try again!’ or ‘Nice try!’ instead of something less motivating such as ‘You failed’ or ‘Not good enough’. However, it might be very challenging and quite impossible for the teacher to give immediate and personalized feedback to each member of a class, due to time concerns and a great workload. What the teacher could do is encourage certain attitudes, motivate students by
allowing the *Freedom to Fail* and not punishing mistakes. The most important aspect of feedback is that the students must know and understand their goals, the rules established in the classroom, the value of their efforts, the reasons why something is considered a mistake and how to avoid doing it in the future.

5.2. **Students as players**

The decision to use the word *player* instead of *gamer* is motivated by the fact that the former is a specific term used in video games (*Player 1, Player 2*, etc.), and it refers to the entity performing the actions inside the game, just like a student does in a classroom. The term *gamer* simply describes a person who plays a lot of games. In this case, reality seems a lot like video games in the sense that each student has its own identity, and can even have a certain role in the classroom, much like a character has in an MMORPG (*massive multiplayer online role-playing game*). If the teacher uses the storytelling technique to formulate a context and provide a purpose, each student can be a hero of that story if they complete the necessary quests.

Students should feel encouraged to be socially active and participate in pair or group activities. The reality is that not all players react positively to competition, but negative attitudes can be avoided by combining cooperation and competition. While students work together to solve a problem, they share ideas and thoughts, their joint effort is valued and they take pride in their creation or solution. Competing with others while being part of a group where everyone has a common goal could make the student feel less threatened, less anxious and more encouraged to contribute to the team.

In the gamified classroom, the student feels in control of his or her own learning. This means that players should have a sense of autonomy and competence derived from the intrinsic motivation caused by game design elements (Ryan et al., 2006). By keeping track of their points, badges, current levels, etc., the students have a clear idea about where they stand, what they must do to advance, what must be improved and so on. To do this, several platforms have been created, including *ClassDojo*, an online class management application which facilitates
communication between teachers and students. In addition to tracking progression, students can also receive feedback on their assignments or performance, which might improve learning (Kapp, 2012).

A very important issue with the psychology of learning is that the students’ feelings and emotions must be taken into consideration, as these factors influence the learning process greatly. Whether it is confidence, empathy, motivation, pride, introversion, frustration or anxiety, these affective components relate to second language acquisition. According to the Affective Filter Hypothesis (Krashen, 1981), a student should have low anxiety, high motivation and high self-confidence in order for the learning process to be as effective as possible. Krashen argues that these traits affect learning on a subconscious level, while I believe that feelings like frustration and introversion might have a negative impact on conscious learning. Gamification is a potential solution to this issue by attenuating the mental block which prevents some students from making full use of input. Adding a gamified vocabulary learning resource to traditional instruction has been shown to improve students’ confidence, motivation and interest in learning (Abrams & Walsh, 2014). It is believed that gamification techniques which provoke positive emotions in students, also increase motivation and facilitate learning (Sailer et al., 2013).

What has been observed through research is that positive feelings ultimately influence motivation, which is an important aspect of language learning. As it is difficult to find a universal method of eliciting the same desired behaviors because every student responds to external factors differently, there is still a long way to go regarding an ideal gamification framework. This is why most of the studies presented so far suggest that it is better to accommodate multiple game design elements within a gamified classroom, rather than choosing just a few. A student who feels confident, relieved from pressure, motivated and comfortable with the environment, already has the potential to level up and get a high spot on the leaderboard. On a more serious note, positive emotions could help students have a better performance; it is the teacher’s responsibility to maintain a suitable environment for learning when providing input (Krashen, 1981).

With second language learning, it is important for the students to know that their efforts are valued inside as well as outside the classroom. Setting clear and realistic goals is helpful in
the classroom, but what about when students are in a real situation and forced to use their language skills spontaneously? With gamification, extra tasks that involve practicing the target language can be assigned for additional points or badges. Such tasks should not be compulsory, but might bring certain in-class bonuses and, at the same time, will ensure that students get additional input or opportunities for production. Examples of extra tasks and bonuses are proposed in Table 2. If the teacher keeps track of these activities and gives them a predetermined value, while also delivering feedback that is personalized and constructive, the students might be motivated and feel that their efforts pay off in the classroom, as well as outside.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Bonus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check out and read a book in English from the library</td>
<td>20 XP (experience points)</td>
</tr>
<tr>
<td>Submit a 1-page review in English of a movie you saw recently</td>
<td>1 extra point on a quiz</td>
</tr>
<tr>
<td>Speak only in English at your next tutoring session</td>
<td>1 extra day for submitting a piece of homework</td>
</tr>
</tbody>
</table>

*Table 2. Suggestions for optional activities which can be awarded with in-class bonuses.*

Moreover, giving extrinsic incentives for tasks that students would not normally do on their own or which they might find boring is believed to increase motivation and engagement, even though these might diminish over time (Hanus & Fox, 2014). Teachers should incorporate the element of surprise, a frequent aesthetic found in video games, by continually updating tasks and requirements but keeping in mind that these should not distract students from the main goals.

To conclude, it should be mentioned that in order for gamification to be effective in the classroom, not only should game design elements be chosen and combined appropriately, but the plan should be followed through, as well. If the goals of a gamified classroom are established for a semester or a year, then the teacher should make sure that the approach is not abandoned before the end of the timeframe. In addition, considering that saturation or loss of motivation in students could easily occur, gamification should not be implemented for long periods of time, or at least it should be changed periodically so that it is updated to fit the students’ needs and interests.
6. GAMIFIED MOBILE APPLICATIONS

In this chapter, I shall present three very popular and free mobile applications which have successfully combined game design elements with language learning strategies: Duolingo, Memrise and Clozemaster. Before deciding which applications to include in this analysis, I explored the ‘Education’ category in two of the most used digital distribution platforms, the App Store and Google Play. From what the stores displayed, I chose two of the most downloaded and best rated language learning apps, Duolingo and Memrise, also because I had previously used both of them for learning languages. Other popular options that were discarded due to lack of game design elements include Babbel, Rosetta Stone and busuu. The third app, Clozemaster, was found in the ‘Similar’ section of the searches I conducted on App Store and Google Play, and I decided to include it due to its description as ‘gamified language learning through mass exposure to vocabulary in context’¹, which seemed appropriate for the present investigation.

In the previous chapter, I have discussed several aspects related to gamification in formal education, with a focus on the roles of teachers and students. In order to develop an overview of gamification in informal learning, it is relevant to underline the popularity and usages of language learning apps, and investigate how learners benefit from their features.

Language learning platforms like the ones mentioned earlier have the ambitious objective of accommodating a wide range of people, each with their own personal learning goals and styles. By bringing several second language learning strategies and game mechanics, dynamics, and aesthetics to a mobile app which is accessible and optimized, developers hope to increase motivation and engagement in learning activities on one hand, and to gain financial resources through advertisement or paid content, on the other hand. Some characteristics which all the chosen applications share are voluntary participation (every learner can access the app whenever they please), personalized goals (Fig. 18), immediate and targeted feedback (Fig. 13) and clear rules. As discussed in Chapter 3, these are the core elements found in most video games which can be found in gamified environments as well.

I have chosen Duolingo, Memrise and Clozemaster specifically (all of which have web versions, as well) due to increased popularity among language learners and because I believe they are relevant examples of educational gamification; they are not games, but language learning platforms that include a different number of game design elements. Such apps can be used as a supplementary source of input, or an opportunity to practice and consolidate information learned via formal instruction, but also as the main tool of an independent learner.

From a methodological point of view, I have personally used all three platforms for both purposes mentioned, in order to assess their features, and I have also gathered information about other users and their experiences, with the aim of giving a brief analysis of the three gamified language learning applications.

My personal experience with the apps is spread along 18 months and is comprised as follows: approximately 40 hours total on Duolingo (30 hours learning Spanish from English, 10 hours learning Mandarin Chinese from English), approximately 20 hours total on Memrise (learning Mandarin Chinese from English), and approximately 10 hours total on Clozemaster (learning Spanish from English). In all three cases, I have followed the order of the lessons as recommended by each application, and I have completed every type of exercise at least twice.

Regarding the other users’ experience, the data has been gathered from ratings and reviews posted on the two main digital stores for mobile applications – App Store and Google Play. To illustrate the popularity and effectiveness of the three applications, I will present their average rating scores on both platforms and display some written reviews that include users’ opinions, experience, thoughts or recommendations, with respect to the app, its game design elements and learning outcomes. I have read roughly 500 reviews, but chose the most relevant and reliable ones to present towards the end of the present chapter.

Duolingo is one of the most famous gamified language learning apps of the last years. It was developed in the US and launched in 2011. Recognized as iPhone App of the Year in 2013 and Google’s Best of the Best in 2013 and 2014 for their educational value, Duolingo takes pride in having over two hundred million users worldwide, according to their own website. The app is mostly free to download and use on iOS, Android and Windows Mobile, relying on occasional

2 Description available at: https://www.duolingo.com/press
ads and in-app purchases for earning funds. The users can buy specific currency ("gems") with real money if they wish to unlock additional chapters of learning material.

Upon accessing the app, the first step a user takes is choosing which language he or she wants to learn, as well as their first language. Unfortunately, most choices are for English speakers, with limited options for other languages, but it is still a helpful feature. For example, a native speaker of Spanish has 8 second language options, while a native Romanian can only learn English. Another shortcoming of the app is that it is mainly designed for beginners, leaving out users who have a higher language level and might want to practice, as they could possibly consider the content of Duolingo boring. The application uses progression, XP, badges, leaderboards, daily quests, and a club system designed for socializing with other users who share the same language interest and in-game level.

Duolingo is easy to use: learners can practice writing, reading, listening and speaking in the target language, while receiving immediate feedback about their performance. Each lesson has a number of exercises that combine any of the four language skills, many of which are based on translating from the first language to the target language or vice versa. The sentences used in these exercises are communicative, but users have reported encountering some strange constructions (for example, I have come across the sentence: ‘My cat speaks English.’). Other types of exercises include matching words with their translation (which is an opportunity for the learner to use deductive reasoning), recording a sentence spoken in the target language, and typing a sentence provided via audio input (dictation). After each completed exercise, the app displays targeted feedback: if the answer is wrong, it provides the correct solution (Fig. 13), an error correction method similar to the recast technique often used in second language teaching. The user’s progress bar within the lesson does not fill unless a correct answer to an exercise has been provided. Duolingo includes several other learning strategies such as repetition (which aids memorization), target words used in different contexts, and communication with other learners, although it lacks opportunities for users to interact with native speakers.

The platform structures its lessons by theme and orders them by complexity, from the most common and easy words or phrases to increasingly more difficult. The progression system ensures that users first complete some lessons before moving on to other, but it does give the
opportunity to revisit them for additional practice, or to skip them after completing a quiz, if the users feel like they have already mastered the content. A downside regarding the educational content is that grammar aspects are not explained at length (for example, when a certain verb tense should be used instead of another). Also, the app tracks the user’s progress only generally, displaying the current level and the total amount of XP in the Leaderboard section (Fig. 12).

Duolingo is aimed at accommodating a range of user needs: students who wish to practice a second language in addition to the activities carried out in the educational institution, adults who start learning a language for personal reasons, immigrants who need help integrating in a new country, etc. The game elements, as discussed on a number of previous occasions, are used for keeping learners engaged, and for motivating them to access the app on a daily basis, to complete the goal, to learn items from a wide range of topics and to strengthen their language skills as often as possible. Additionally, the learner can set a daily reminder which the app displays on the device screen at the specified hour every day to notify the user about practicing.

Fig. 12. The Profile section of Duolingo, displaying Achievements as Badges, the Leaderboard and the users’ corresponding total XP. (Retrieved 16-05-2018)

Fig. 13. Screenshot depicting an exercise and error correction feedback in Duolingo. (Retrieved 16-05-2018)
As expected, the most widespread language studied on Duolingo is English. The users of the app have different learning goals; for example, the recent flow of immigrants in some countries has increased the number of people learning that country’s official language. To accommodate this type of learners, the exercises in the app include useful and frequent words and phrases to use on a daily basis. Moreover, as each learner has different emotions and attitudes, Duolingo aims at creating an accessible learning environment which is universally effective and still fun, through its user-friendly interface.

**Memrise** is another language learning application that has recorded success in recent years, being awarded with the *Best App* title at the 2017 *Google Play Awards* and a number of other titles offered by *Apple* at an international level, according to their website. It was developed in the US by a ‘Grand Master of Memory’ and a neuroscientist specialized in the science of memory, and launched in 2010. The app is free to download on mobile devices, but there is a premium account option which unlocks a series of additional features in exchange for a monthly fee. Memrise takes pride in its content which the company claims is developed by expert linguists, in the video lessons taught by native speakers and in the *chatbots* that ensure authentic communication opportunities.

This second application features game mechanics such as *levels*, *XP*, *leaderboards*, *daily quests* and *feedback*. The lessons are themed and ordered by difficulty, each lesson having a different number of items to learn. A very interesting dynamic in Memrise is *storytelling*: the chapters represent celestial bodies (e.g. planets, moons) and the learner takes on the role of a space explorer in a rocket travelling from planet to planet. This progression technique encourages the user to pass through all the lessons, and symbolizes the learning process as a voyage of discovery. Fig. 15 displays the character, the current amount of XP, the player’s level and the amount of XP needed to pass on to the next level.

Every lesson starts with presenting flashcards with the words or phrases in the target language as well as in the first language chosen by the user, followed by several exercises. The first rounds of exercises are for practicing reading and writing, and the consequent ones for listening and speaking. Each item has three levels of achievement; the last stage means mastery.

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3 Information available at: https://www.memrise.com/
and it is offered when the user has correctly used an item on several occasions in the exercises. The app often adds quick review sessions between lessons. Each completed exercise is rewarded with a certain amount of XP.

A downside of Memrise could be the lack of detailed grammar explanations and exercises, in the free account version. As the goal of this app is to help learners memorize and retain information, according to the strategies which it uses, it seems more appropriate for learning and strengthening vocabulary, rather than grammar.

In order to ensure that the users get a feeling of autonomy, having the ability to customize the experience, set their own pace, and monitor their progress, Memrise displays some useful information to the learners: the number of words learned, levels completed, words that need reviewing, the number of items in each lesson (Fig. 14). In Fig. 14, the app also predicts what that learner of Mandarin Chinese should be able to do upon completing all the necessary lessons: ‘Introduce yourself, get around China, and learn a bunch of useful colloquial Chinese expressions.’ These could be seen as long-term goals for the learner.

![Mandarin Chinese 1](image1)

**Fig. 14. Progress menu in Memrise, displaying a summary of learning material** (Retrieved 17-05-2018)

![Level 8](image2)

**Fig. 15. Screenshot depicting user’s level (8), character and XP (56.824/64k) in Memrise.**

(Retrieved 17-05-2018)
Memrise makes good use of repetition and practice, even more so than Duolingo, in order to aid memorization. Although it lacks exercises that give the learner opportunities to infer the meaning of a word from context (a learning strategy known as *inductive inference*) or chances to monitor his or her own production, the app includes production tricks that contribute to learning; for example, the app does not teach only words, but also formulaic sequences that are aimed at increasing spoken fluency. With all these aspects considered, it seems that Memrise is designed for learners that want to build a strong vocabulary and improve communication skills.

The paid premium account feature unlocks a wide range of interactive resources and additional learning materials, for any of the available languages. For practicing pronunciation, users can watch videos of natives speaking, or record themselves repeating a spoken phrase in the target language. For practicing grammar, there is a *Grammarbot* feature: users chat with a bot which types sentences with a missing word (that belongs to a topic, such as articles, verb tenses, etc.) and they have to reply by choosing the correct answer out of several options. The *Chatbot*, on the other hand, is designed to help improve communication skills; the bot introduces different topics for discussion or simply asks the user to spell out certain words in the target language.

The third choice for a gamified language learning app is **Clozemaster**, developed and launched in 2017 by a small independent company. According to their website\(^4\), Clozemaster is designed to represent the next step in learning after completing programs in apps for beginners like Duolingo and Memrise. While it is still being improved and optimized, the app is gaining popularity among language learners. The app is free to download and use, but it does have a paid premium account option that unlocks some benefits such as customizable learning, creating of a ‘favorite words’ list and additional stats for the user’s progression. One drawback of the app, mentioned by a number of users, is the limitation of features in the free version.

Clozemaster differs from the other two applications in several ways. Firstly, it uses only cloze tests as exercises, so the learners can rely on context to either guess or deduct the missing word. This is a very common type of exercise in second language learning and assessment. Secondly, it groups the exercises into sets depending on the frequency of words in the respective

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\(^4\) Information available at: https://www.clozemaster.com/about
language. Thirdly, the sentences are imported from a free massive online database called Tatoeba, which comprises complete sentences and their translations in hundreds of languages.

The application includes game design elements such as XP, levels, leaderboards, and even its graphical interface is inspired by 8-bit arcade video games. The user first chooses his or her first language and second language. Clozemaster supports learning words in context; it does not include lessons or explanations, but it provides four types of cloze deletion exercises (Fig. 17), meaning sentences in the chosen second language, with a missing a target word which the learner must fill in or pick between four given options. The sentences are grouped into Random, Most Common Words, and Grammar Challenges which include themed exercises (e.g. Indefinite Articles, Verbs, etc.). The ‘Most Common Words’ section is divided into subgroups depending on word frequency: 1 to 100 most common, 101 to 500, 501 to 1000 and so on. This classification brings to mind Nation’s (1990) perspective on teaching and learning vocabulary by taking into consideration word frequency. The app can also be regarded as a source of written and spoken input consisting of authentic sentences, as the app provides listening exercises paired with vocabulary practice (Fig. 16).

Fig. 16. Screenshot from Clozemaster depicting the ‘cloze listening’ type of exercise, where the user must type in the missing word after hearing the sentence. (Retrieved 15-05-2018)

Fig. 17. Screenshot depicting the four types of exercises in the 10,000 Most Common Words mode. (Retrieved 15-05-2018)
Clozemaster tracks users’ progress, a statistic of correct answers given, leaderboard position, reviewed items, daily goal completion streak, and words marked as ‘favorite’. Even though it is not as ‘playful’ as the other two apps, Clozemaster improves learning by building a strong vocabulary on one hand, and practicing lexical categories in context on the other hand. Another noteworthy difference between this app and the other two is that Clozemaster seems designed for learners with a certain degree of proficiency in the selected second language, as it might be too difficult for beginners at the very start of their journey. This might also explain the absence of explicit lessons or tutorials.

6.1. Revision and discussion

A brief review of the three applications is comprised in Table 3. The table displays the main game design elements, some aspects related to second language learning and other relevant features. As presented in this chapter, all three gamified apps are aimed at improving the language learning experience for users of different proficiency levels, but especially for beginners. Although all platforms use about the same learning techniques (repetition, matching translations, providing context for certain items, highlighting difficult words and phrases, organizing the learning material by theme and difficulty, etc.), Clozemaster is the only one that is less ‘playful’. In other words, this app might appear more serious in the sense that it lacks elements exploited by game designers to attract and engage users, such as images, colors, a story, or a character. The purpose of a character is to be a companion to the user, like Duolingo’s owl who represents the mentor that delivers all the information, and Memrise’s astronaut Ziggy who tracks the learner’s progress visually. It is important not to forget about the ‘fun’ dimension, as this is a defining characteristic of games of all types. The user/player begins a mission of learning and overcoming obstacles, while still enjoying the entire experience.

The Freedom to Fail dynamic is present in all three applications, but in different ways. In Duolingo, the green progress bar decreases upon making a mistake, but the player is not forced to abandon the chapter. In Memrise, failing an exercise does not deduct points, but the progress bar fills up much slower than in the case of giving a correct answer. Lastly, Clozemaster requires
ten correct answers in order to declare the chapter completed, showing the number of mistakes made but not punishing the user for any of those. The common feature of this game dynamic across all apps, which differs a bit from video games in general, is that the learner is given as many chances to get a right answer as he needs. Except for the case of Duolingo, the user does not suffer any drawbacks from making mistakes and can repeat the exercise or move to another one in order to complete the lesson. In education, there is no such thing as failure in learning, as every experience counts more or less, whether it is simply practice or understanding what type of errors learners make and why.

<table>
<thead>
<tr>
<th>Features</th>
<th>App</th>
<th>Duolingo</th>
<th>Memrise</th>
<th>Clozemaster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Languages Available</td>
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<td>Social dimension</td>
<td></td>
<td>Clubs</td>
<td>Chatbot</td>
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</tr>
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<td>✓</td>
<td>✗</td>
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<tr>
<td>Grammar exercises</td>
<td></td>
<td>✓</td>
<td>✗</td>
<td>✓</td>
</tr>
</tbody>
</table>

Table 3. Summary of the three gamified language learning mobile applications: Duolingo, Memrise and Clozemaster.

Local* refers to leaderboards among your connections that use the same app.

As far as goals are concerned, all three apps allow the learner to customize their daily experience. Setting a clear goal motivates the learner to access the app on a daily basis and maintain a steady flow of learning or practicing, in order to facilitate memorization. Fig. 18 (a, b,
c) show the *Daily Goal* menu on all three platforms. Achieving the daily goal could make the user feel accomplished and autonomous.

**Fig. 18.** Screenshots depicting **daily goals** specific to each application. (Retrieved 10-06-2018)

| a. *Memrise* allows users to set a target **number of words** to learn (5, 15 or 30). | b. *Duolingo* allows users to set a target **amount of XP** to earn, by levels of progressive difficulty. | c. *Clozemaster* allows the users to set a target **amount of XP** to earn, by levels of progressive difficulty. |

Speaking of popularity and user experience, each app has provoked different reactions. All the following ratings were collected on the 29th and 30th of May, 2018, from the digital stores available for *iOS* and *Android*. On the US *App Store*, *Duolingo* has earned an average rating of 4.7 out of 5, from around 184.000 votes, while *Memrise* is rated 4.8 / 5, from a much lower amount of ratings, that is, approximately 57.000 in the US. Being a much newer app, *Clozemaster* has been rated by a very small number of users, deeming the results unreliable. On *Google Play*, *Duolingo* is rated 4.7 / 5, from the votes of approximately 6 million users worldwide. The same 4.7 score is given to *Memrise*, from a total of about 1 million users, while *Clozemaster* is rated 4.6 / 5 from the votes of around 360 users, in the same *Android* app store. Unfortunately, there is no way of knowing if the users have evaluated the applications from a design point of view, or if they have assessed the educational benefits of using any of the three platforms. We could consider that these user scores reflect an overall assessment.
For the purpose of investigating if and how the users have learned anything by accessing the three applications, from their own perspective, it could be relevant to take a look at some of the written reviews that they have posted. Compared to the ratings, reviews contain targeted information regarding the design and educational content of the applications, thus giving us a clear view on user experience. A selection of illustrative reviews can be consulted in Annex 1.

As the average rating scores also reflect, users are fairly pleased with the three apps. Most of the negative feedback is related either to software errors or to the costs of premium accounts. In the case of Duolingo, some users have mentioned experiencing loss of motivation, due to the repetitive nature of the material (for example, a word appearing too many times in the same context) and the failure of daily practice reminders. In the case of Memrise, users are most displeased with the limited access of the free account, and with a recent update that deleted a number of language options. As for Clozemaster, some issues were found with respect to the performance of the app, as it sometimes displayed some erroneous translations. This might be explained by the fact that the app is quite new and it requires more time and feedback to become optimized. One user rated the app 2 / 5 with the following comment:

‘I am italian and I teach Italian, so I'm always looking for new apps that might help my students improve. The idea of the app is nice, but as I was testing it in Italian i realised there are a lot of mistakes in the translations, at least from Spanish, and that would be only confusing for my students.’

Most of the users have expressed their satisfaction towards the interfaces of all three platforms, some even explicitly mentioning the positive effect of gamification on engagement and sustained fun while learning. The combination of repetitive practice, audio and visual materials, and structured content was found quite useful by many learners, especially regarding growing and strengthening vocabulary, and improving communication skills. From the reviews inspected, there was no preference for using any of the three applications as a main tool for learning a language, or as an additional opportunity to practice.
The efficiency of gamified language learning apps, such as the ones presented, is still disputed; as with many strategies, they might work for some and not for other learners. Eventually, the user’s experience is influenced by his or her motivations and feelings. If the application seems optimized, engaging and useful enough to the learners, then they are more likely to access it and develop a positive attitude towards it. As previously discussed, high motivation and positive feelings improve the learning process. However, it should be kept in mind that this sort of gamified platforms could be more effective as additional resources to traditional instruction, depending on the learner’s goals. As technology advances, more and more websites and mobile applications will appear, with the purpose of helping learners and discovering innovative ways of teaching second languages, while maintaining a financially successful business.
7. CONCLUSION

After an in-depth analysis of video games and game design elements, and considering some second language learning strategies, we were able to understand the concept of gamification and its applications in formal and informal learning environments. Apart from the core elements of video games (goals, rules, feedback and participation), the other important components of game design are categorized into game mechanics, dynamics and aesthetics, comprising the MDA framework. Some of these elements can be and have been used in classrooms, or have been implemented in language learning mobile applications.

Although gamified education hasn’t been directly linked to increased performance, there are certain outcomes which have been observed when gamification was used as a means to influence a certain behavior related to learning: fostering motivation (Sailer et al., 2013), eliciting a positive attitude towards lessons (Yildirim, 2017), or increasing the feeling of agency (Stott & Neustaedter, 2013). Among the scarce empirical data available so far, there are also negative results of introducing some game design elements in classrooms (see Hanus & Fox, 2015), meaning that careful planning and further research are the keys to discovering meaningful combinations of game components that could positively impact language learning.

Regarding the mobile applications analyzed, users have expressed their general satisfaction with learning strategies and gamified environments as well. The game designed elements included by the developers were aimed at attracting users, and creating a fun and motivating platform, while helping learners set clear goals and track their progress. There are many applications and platforms created for the purpose of learning a language, so before deciding which one is best, learners should get informed about each one, read the user reviews and the official information, and then test them. Different apps are suitable for each person’s different learning style and preferences, so I would suggest picking a platform which seems most appealing in order to be inclined to access it on a daily basis. In my case, Memrise is the app which I enjoyed using the most and it made learning Mandarin Chinese a pleasant experience due to its interface and game design elements.
On a more personal note, I believe that gamification has the potential to change some aspects of formal instruction. As technology advances and the use of digital resources becomes more widespread, it would become easier for teachers to manage their students’ progress and offer them multimodal resources for practice that could strengthen language skills. One apparently overlooked advantage of gamification is, in my view, that it could aid teachers with the organization of students, goals, materials, assessment methods and results, attendance, performance, activities, and so on, assisted by digital resources. Additionally, the *fun* component should not be overlooked; an entertaining environment would definitely seem appealing to students, and the novelty of a gamified approach to learning could capture their interest, even if for a short period of time.

As expected, gamifying the classroom brings about a number of issues. Firstly, I would draw attention to the difficulties that teachers might encounter when deciding to implement some game design elements into their teaching methods. They might have to decide how many elements to include, which ones would evoke the desired reactions, what would the students be most pleased with, etc. Secondly, one of the biggest risks a teacher assumes is that gamification may not work in the chosen classroom; the students might respond negatively, they might be indifferent or even less engaged in activities than in a traditional language class. As a recommendation for language teachers who might want to try gamification, I suggest developing a plan that would accommodate the students’ goals and preferences, while not overcomplicating it by adding too many game design elements.

This paper presents certain limitations. Unfortunately, there is insufficient data due to the difficulty of conducting experiments regarding educational gamification. Physiological aspects like intrinsic motivation, satisfaction, empowerment, or agency highly depend on each student independently. In order to assess the effectiveness of gamification, connections should be established between certain game design elements and increased performance and/or positive attitudes or learning-related behavior. In the future, I would like to be able to conduct my own investigation regarding the link between personalized, immediate feedback as a game mechanic in education, and student empowerment.
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**Video Games:**

Blizzarad Entertainment, Inc. (2012) *Diablo III* [PC game]
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Epic Games, Inc. (2017) *Fortnite* [PC game]
King Digital Entertainment Ltd (2012) *Candy Crush Saga* [mobile game]
Riot Games, Inc. (2009) *League of Legends* [PC game]
Rocksteady Studios Limited (2011) *Batman: Arkham City* [PC game]
Websites:

Annex 1: User reviews

This section contains a selection of screenshots of written reviews posted on the App Store (for devices that support iOS operating system) and Google Play (for devices that support Android operating system) by users of the three gamified language learning applications: Duolingo, Memrise and Clozemaster. The users’ names and pictures have been blurred to maintain anonymity. Screenshots were taken by me on the 8th of June, 2018.

**Duolingo**

It’s great to help regular practice but it lacks a knowledge base where you can look things up or easily find grammar, vocabulary and idiom. It’s often a bit boring and gets in a loop. Occasionally it exhibits a few limitations on English usage, but any shortcomings are far outweighed but it’s ease of use.

**Surprisingly good**

I started learning German through this app only a week ago, and already I’m making significant strides in the language. I find it much more effective than dealing with a human teacher, since I’m not tempted to mess around as I would with a person. :-) My only complaint is that sometimes I don’t understand some of the insane grammatical rules, and it would be nice if they included detailed explanations.

Update: I am on a 253 day streak of daily lessons, and I can now usually communicate passably well in German, although I still make plenty of mistakes.

I used this app back in highschool when life was less busy and I could focus on studies. Now that I’m a bit older with less time, I appreciate how effective Duolingo is presenting Spanish in small bits each day to where I’m consistently learning despite my schedule. The app also incorporates images, reading, writing, and speaking/listening to each lesson make sure you absorb the material no matter how you learn best. As a real cake topper, Duolingo gives you the chance to earn extra lessons and other features by collecting 'lingots' which you receive after various progress points in your lessons. It’s a rewarding concept and makes learning a new language fun. In total, the app is easy to use, flexible, and fun.
Memrise

This is helpful, fun, and keeps me motivated while learning Korean. It is challenging in a good way! In the free version at least, there’s no explanation of grammar or cultural information. I hope that will be added in the future for free users like myself to understand the language more as a whole. I am using this app along with studying from grammar books and watching Korean dramas. Every bit helps! 😊

I’ve been using various apps for almost a year now in order to learn a couple of languages, and this is definitely my favorite one! I only started using this one a few months ago, but I feel like the variety of exercises it offers inside such a playful environment really bolsters your learning of a language. I’m currently using German and Japanese.

From what I tried. This seems like it could be a good learning tool, however, most of the app’s features are behind a ridiculously high pay wall. I’m not sure how the devs expect me to drop that kind of cash without trying out samples all the features first. 60 bucks a year subscription? Just on faith that the full app will be good? Gimmie a break.

Clozemaster

Clozemaster is a fine way of keeping a language in my mind on a regular basis. I find that continued listening snowballs into a powerful learning experience as the language takes stronger root in my memory. Also, it helps me expand my vocabulary and range of expression through new sentences and repeated exposure to grammar in an organic way. This tool is a mainstay of my daily Czech and French routine.
The Best Resource for Vocabulary

I've tried many resources in my life as an aspiring polyglot. I speak 4 languages and I wish Clozemaster existed when I first started learning.

It's "Amazing". Truly, you won't find anything that throws you right into the context of a language in a more gentle way. Since you need the "cloze" word to fully understand the sentence, your brain prioritizes the absorption of the words taught, in contrast to flash card methods of learning.

Now that I have Clozemaster, I’ll never struggle with vocabulary again. And it’s fun!

As a side note: realize that Clozemaster probably isn’t best for absolute day one beginners in a language. And it should be used as a complement to other resources for language learning. You want a balance.

As someone with a 1450-day streak on Duolingo and 7 million experience points on Memrise, I hate to admit... Clozemaster is probably the best language learning app right now. Sure, it’s not like it’s five times more effective than other apps, but I’ve been using it for over a month and I’ve see a considerable improvement in my Dutch. I can recommend it to anyone looking for something fun and effective. There are dozens of languages to choose from, so you can be pretty sure to find even more obscure combinations.