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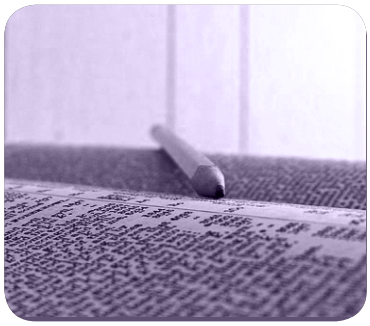

The use of gamification for vocabulary acquisition in the foreign language classroom: a case study in a secondary school

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THE USE OF GAMIFICATION FOR VOCABULARY ACQUISITION IN THE FOREIGN LANGUAGE CLASSROOM: A CASE STUDY IN A SECONDARY SCHOOL

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Resumen

Este estudio analiza el uso de la gamificación con fines educativos en un contexto de Educación Secundaria en España. Para ello, 47 estudiantes de 3º ESO de un colegio madrileño han sido sujetos de un estudio en el que se han analizado y comparado los resultados de implementar la gamificación en el aula de lengua inglesa a fin de facilitar el aprendizaje de vocabulario de los estudiantes con los resultados del aprendizaje en el aula tradicional (sin tecnología). Los resultados sugieren que, aunque ambos entornos de aprendizaje (tecnológico y no-tecnológico) son eficaces a la hora de promover el aprendizaje de términos léxicos en lengua extranjera, en el entorno tecnológico los estudiantes obtienen mejores resultados, sobre todos aquellos con un nivel de competencia menor en la lengua extranjera.

Palabras clave: tecnología educativa, gamificación, adquisición de vocabulario, motivación

Abstract

This paper analyses the use of gamification for teaching purposes in the context of a Spanish Secondary school. In order to do so, 47 students of 3rd ESO from a Madrilenian school have been subjects to a study in which the results of the implementation of gamification in the English language classroom to facilitate the students' acquisition of vocabulary have been analysed and compared to the learning results of a traditional lesson (without technology). The results suggest that, even though both learning environments (technological and non-technological) improve the acquisition of lexical items in the foreign language, the technological lesson makes the students obtain higher grades, especially those students who have a lower level of competence in the foreign language.

Key words: Technology-enhanced Language Learning, gamification, acquisition of vocabulary, motivation

Table of contents

1. Introduction

The methodologies followed to teach a foreign language have changed and evolved along the years according to the linguistic approach that was on the rise at the moment, as well as to satisfy each generation of students' necessities. From the Grammar-Translation method to the Communicative Approach, the focus of the language classroom has shifted from form to meaning (Richards and Roggers, 1986). The message has become more important than how it is transmitted, and the activities used to learn the language have varied depending on this too. Therefore, when the focus was on form, exact translations and drills were used to learn by repetition, whereas more communicative activities such as role-plays became popular when the communicative skills were given more importance to be practiced in the classroom (Richards and Roggers, 1986, p. 51, 76).

Nowadays, once the communicative approach is spread among the educational system making clear what to teach and in what order (meaning before form), the question to be answered is how teachers can engage students to their lessons and make them learn. The reason for engaging tools to be needed is that society has changed along history too, and the needs and interests of nowadays teenagers do not fit anymore an educational system that has not changed along with society. In Prensky's words, "today's students are no longer the people our educational system was designed to teach" (2001a, p. 1).

One of the solutions some teachers have advocated for is methodological eclecticism, since each methodology can benefit different students depending on their learning styles and needs (Bell, 2007, p. 136). Another solution proposed is to introduce to the classroom something that is essential in nowadays students' lives and use it for teaching purposes: technology (Prensky, 2001a). Different studies have proven that implementing the use of technology in the classroom imply an improvement in students' learning and motivation (Stepp-Greany, 2002; Taj, Ali, Sipra and Amhad, 2017)

Unfortunately, the use of technology in the classroom is not widely spread in Spain yet (Pintor, Gargantilla Madera, Herreros Ruiz-Valdepeñas and López del Hierro, 2014). In fact, the technological device that is less used is the one to which teenagers are more connected now: their smartphone (Garmendia, Jiménez, Casado and Mascheroni, 2016). The reasons for not using it are various but all of them are related to a misuse of these devices that evolves into detrimental behaviours (Garmendia, 2016).

Nevertheless, its use can also bring new approaches to the classroom such as gamification. This term refers to the use of techniques and elements found in games to create a competitive environment in which learning and motivation are prompted (Kapp, 2012).

This study intends to research if the implementation of gamification is indeed beneficial to students' language acquisition, in particular to the acquisition of vocabulary, as well as to their level of motivation. In order to do so, a total of 47 participants attended two lessons in which vocabulary related to the same topic was taught. The difference between these lessons was that the first one was non-technological, whereas gamification was implemented in the second one by the use of the smartphones to do some activities with the response systems named *Kahoot!* and *Socrative.*

This paper is divided in four main parts. Firstly, a more specific justification for the project is given in section 2, where the research questions for this study are stated. Then, in section 3, gamification is put in context within the use of technology for learning purposes. How teaching methodologies have evolved towards this point is explained, as well as a full description of gamification is given. Moreover, the two response systems that were used in this project are also described in this section. The methodology followed for the study can be found in section 4. Finally, the results are discussed in section 5. This discussion is divided in two parts in order to answer the different research questions: on the one hand, the effects of gamification in acquisition of vocabulary; and on the other hand, the students' perception of motivation when using gamification and its relationship to the statistical results about language acquisition.

2. Justification

The decision to study the use of gamification within the English classroom for the acquisition of vocabulary is due to previous observation of the lessons dedicated to this linguistic field. During my internship at the end of November and beginning of December, the students' lack of interest in this type of lessons was clear. After reflecting on the plausible reasons, I reached the conclusion that the situation may change if a motivating element was introduced into these lessons.

Due to the importance of new technologies nowadays and their impact on students' lives, gamification seemed to be an element that could facilitate an improvement on the students' acquisition of lexical items. Therefore, after researching this topic, the decision to use *Kahoot!* and *Socrative* was made. The reasons why these response

systems are considered gamification tools can be found in sections 3.3.1. and 3.3.2. respectively. The study aims to answer the following research questions:

RQ1. Does the use of gamification tools in the foreign language classroom result in an improvement on the students' acquisition of English vocabulary?

RQ2. If there is an improvement, is such improvement more noticeable in the higher level or in the lower level group?

RQ3. If there is an improvement, could it be related to the students' perceptions regarding higher motivation when using the technology?

In order to provide answers to these research questions, we shall start by presenting a theoretical background on the development of teaching methodologies in general and technology-enhanced language learning (TELL) and gamification in particular, as well as discussing the possibilities the use of technology can offer when teaching a foreign language.

3. Theoretical framework

3.1. Language teaching methodologies

Language teaching methodologies have evolved and varied along history as a consequence of the changes that have taken place in the linguistic field as well as of the needs of the students (Richards and Roggers, 1986). During the 18th century, when modern languages started to be taught in schools, they were done so following the same methodologies that were used to teach Latin: mainly the Grammar-Translation Method. During the almost a century that this method was on the rise, reading and writing were considered the more important skills to master since the main goal of learning such language was to have access to information in other languages. Thus, lists of isolated lexical tokens and sentences in which this vocabulary was used were translated; practicing here the grammar structures as well (op. cit., p. 3-4). The fact that this methodology was not based on any linguistic literature and the increase of interest in oral skills for communicating with people from other countries made a change in the methodologies to follow when teaching a language. As communication was now the main goal, reading and writing became secondary skills and students learned this second language either in the same way they had learned their mother tongue – by being exposed to it – (Direct Method) or through imitation, repetition and memorization (Audiolingual Method) (op. cit., p. 9, 53).

This desire for facilitating communication led to the Communicative Approach rising up in the late 1960's. This methodological approach has communicative competence as its ultimate goal, so it focusses more on meaning than on form (Richards and Roggers, 1986, p. 70). In other words, the information in the message being understood becomes more important than the form of the message being grammatically correct. According to Finocchiaro and Brumfit (1983), this method implements the communicative skills within a contextualization for that communication to take place and the students will be motivated to participate by the teachers.

Other methodologies were developed from then to now, such as the Total Physical Response, Suggestopedia and the Silent Way. Yet, not one of these methodologies incorporates the use of technology. Therefore, they look for motivating the students but not through the use of certain devices that have become a crucial part of youngsters' lives.

Nowadays teenagers spend enormous amounts of their life time surrounded by technology and using it, as they have lived with it their entire lives (Prensky, 2001a). This is why they have been named *digital natives* (op. cit., p.1). In fact, according to Garmendia et al. (2016), 63% Spanish tweens and teenagers between 9 and 16 years old own a smartphone, 36% a tablet, 28% a gaming console and 26% a laptop. Depending on their age, a greater amount of them use them more often. For instance, 75% teenagers between 13-14 years old use their smartphone on a daily basis, whereas this percentage rises to 90% among those who are 15-16 years old (op. cit., p. 18). This increase in the use of technology on a daily basis is not related to when they started using it. On the contrary, the youngest participants in their study claimed to have started having access to the Internet and their first smartphone at an earlier age than the older participants. Regarding the use of the Internet, those participants who are now 9-10 years old claimed to have been around the age of 7 when they used it for the first time compared to the age of 10 of those who are now turning 16 (op. cit., p. 21). As far as owning a smartphone, the youngest participants claimed to get their first one when turning 9, whereas the oldest group confessed to have owned a smartphone around the age of 13 (op. cit., p. 21).

What these figures show is that technology is becoming a part of the younger generations' daily routine and they become customers of such products at earlier ages every year. In fact, this exposition to technology and media has had an impact on how this new generation of students work. They are used to process information as fast as it is exposed to them, they are good at multi-tasking, and they are more prone to visual

learning (Prensky, 2001a, p. 2). According to this author, someone's cognitive processes vary depending on their previous experiences and the context that surrounds them. In this study, he presents the findings from different studies that suggest that there are changes in brain plasticity due to external factors and contextualization, even though there is still a lot to be researched in this field. Thus, a change in methodology and curriculum are claimed to be necessary for these new generations in order to fit their needs and interests (op. cit., p.4). The integration of technology into the teaching methods could motivate the students and prompt learning, as authors such as Brown (cited in Figueroa, 2015, p. 33) demonstrated motivation to be an important factor to foster knowledge acquisition.

Therefore, the introduction of technology in the classrooms could have a positive influence in the students' motivation and learning. Yet, barely a few teachers are implementing its use with a didactic purpose, so the majority of students are still taught under the parameters of more traditional methodologies (Shyamlee, 2012). Even though the latter have still success as far as language acquisition is concerned (op. cit., p. 151), this study investigates if the implementation of one type of technology – gamification – can be beneficial for foreign language learning.

3.2. Technology-enhanced Language Learning

The use of technology for teaching and learning – also known as TELL – is the most important characteristic of the methodology known as Blended Learning (Sharma, 2010). Yet, this methodology's definition has varied along time and it can be used to refer to the use of technology for distance-learning or the introduction of technology within a context of face-to-face learning (op. cit., p. 456). Obviously, the technology that is available nowadays clearly facilitates distance teaching and also learning through, for instance, the use of chats, video conferences or educational videos. According to Gordon and Baber (2005), this is one of the clearest advantages of implementing technology in teaching. Moreover, the possibility of implementing *flipped classrooms*, (i.e. students prepare all the content to cover at home and then this content is revised and put in practice inside the classroom), is much easier to prepare thanks to the use of technology since the range of materials the students can use at home is wider (op. cit., p. 8).

All these materials can either be collected from the Internet or they can be created by the teacher. In both cases, the use of technology is beneficial. If they are taken from the Internet, the teacher will have a gigantic amount of materials to choose from; while if they are made by the teacher these materials will be modelled to fit those specific

students' needs better (op. cit., p. 24). Moreover, technology can also be used to facilitate interaction with native speakers of the foreign language through online pen-pals or virtual collaboration (Vinagre, 2010; Vinagre, 2016; Vinagre, 2017), but mainly to arouse the students' motivation as it has been previously mentioned.

The context of an action influences enormously the building of someone's motivation to face such action (Järvelä, 2001, p.5). Therefore, creating a learning context that promotes active participation and engages students' interest can increase such motivation towards the learning process. Taking into account that English language has become a compulsory subject in many educational contexts, the students may not feel engaged in these lessons as those people who take English classes to accomplish concrete goals, such as passing an external examination or getting a better job (Bazo, 1995, p. 58). Even though these goals can also be reached after attending compulsory English classes, they may not be extrinsically motivational for the students. Extrinsic motivation is the one that makes you "engage in an activity as a means to an end" (Pintrich and Schunk, 2002, p. 245). Furthermore, if the lessons are not prepared to be interesting and enjoyable for the students, they may not provide intrinsic motivation either, which is the type of motivation that makes you do something only because you like it (op. cit., p. 245). Thus, in order to motivate students to learn, teachers should introduce elements that interest the students, either in the form of content or by using a different methodology (Bazo, 1995, p. 58). As Prensky (2001) and Garmendia et al. (2016) note, nowadays students have a strong relationship with technology. Therefore, its use within the teaching context could have important benefits for learning.

Stepp-Greany (2002) carried out a descriptive study of students of Spanish as a Second Language and their perceptions of a course in which a face-to-face session per week was changed to a technological lesson in an ICT lab. The technologies used in these weekly sessions were CDs, online activities, having an e-mail pen-pal and a discussion in an online blog (op. cit., 2002, p. 168). A total of 358 students completed a questionnaire after the course, in which 71% agreed that they had dedicated more time to the subject due to the use of technology. Regarding each skill, 65.9% participants claimed to have improved their listening skills in Spanish language due to practicing them with technology, whereas 63.4% claimed the same concerning reading skills. Writing skills were those that scored the lowest as far as improvement due to technology is concerned, even though it was still half of the participants who claimed technology to have been beneficial. Oral skills were not measured as the technology used did not allow practicing them. In relation to motivation, 66% participants claimed that the use of technology made the module more interesting.

This study is a clear example that the implementation of technology in the classrooms can have a positive effect on students' self-confidence and abilities, as well as in their motivation towards the subject, being the former a consequence of the latter. Nevertheless, this study was done fifteen years ago and technology has greatly evolved in two senses, regarding the devices that have been developed and the uses that technology has been given in the educational context.

During the past decades TELL has also experienced the introduction of mobile phones, later smartphones, to the list of devices that could be used for learning purposes. The use of mobile phones for such goal is known as Mobile Assisted Language Learning (MALL), a term that was coined by Chickering and Ehrmann in 1996 (Taj et al., 2017, p. 263). Similarly to the goal of this study, vocabulary acquisition has also been the main goal in other studies when applying MALL inside a classroom and this was also the case in Taj et al.'s study (2017). For their study, the messenger platform known as *Whatsapp* was used to provide the students with vocabulary cards previous to a reading class in which they would see those words in context; and *Hot Potatoes* was used to review those lexical tokens through quizzes afterwards (op. cit., 2013, p. 265). According to their results, there was a significant difference between the scores of the participants in the control group and those in the experimental group. The results from the pre-test sat by both groups before the experiment showed that both groups had a similar previous knowledge about the vocabulary items to revise in the following lessons. Moreover, a Levene's test demonstrated that the variants were similar, so the results could not be due to differences in the individual characteristics of the participants.

As it has been previously said, "WhatsApp is a free to download messenger app for smartphones" (WebWise, 2017). This platform allows its users to send instant messages to other users though Internet. As far as *Hot Potatoes* is concerned, it is a free downloadable software with which quizzes and other online activities can be created (Taj, et al., 2017, p. 265). This system can be considered a gamification tool, since it fits the description given by Kapp (2012, p. 10) as we shall see in the following section.

The use that has been given to this type of gaming platforms for learning purposes has become one of the newest trends to be implemented in education as it adds more motivational elements to those already found in the studies that analyse the effects of MALL. Therefore, this innovative approach could imply a further improvement in students' language learning process.

3.3. Gamification

The term *gamification,* also known as *gaming*, comes from the word *game.* The latter is defined as “an activity or sport usually involving skill, knowledge, or chance, in which you follow fixed rules and try to win against an opponent or solve a puzzle” (Collins, 2009, p. 650). Koster (as cited in Kapp, 2012, p. 7) adds three other important aspects that define a game: it can be abstract, it provides feedback to the players and playing provokes emotions in the players.

As defined 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”. Therefore, for something to be considered gamification it has to present a challenge to overcome – maybe in different steps or levels – by interacting with the platform or other players, following certain rules similar to those of a normal game (Wood and Reiners, 2015). Moreover, it has to prompt the player’s attention and motivation towards the activity, which has a learning goal. Furthermore, the three aspects that Koster added to the definition of *game* are also relevant when talking about gamification. First of all, the use of gamification can be related to a type of learning that is not manipulative – in the sense of creating experience with the material. Moreover, the gamification tools must provide feedback to students for them to learn from both their mistakes and the correct answers; they are also believed to raise students’ motivation due to the competitive and/or cooperative uses of such tools (Kapp, 2012; Wood and Reiners, 2015).

Hot Potatoes presents these characteristics so it can be seen as an instrument of gamification. Nonetheless, the level of technology implied in each gaming system can vary. Therefore, we can use the term gamification to describe a type of software used to create quizzes and also an application of augmented reality (AR) such as the one in Mentira (Godwin-Jones, 2016). The latter system allows the students of a Spanish course to learn and put into practice their knowledge of Spanish pragmatics in a neighbourhood of Albuquerque, New Mexico. In this case, the students had to go to different places in this neighbourhood and, through the use of quick response (QR) codes, they encountered questions and social situation in which they had to interact with digital characters. Depending on how they acted, basing their acts and answers in pragmatics, those encounters would end up with different results. This type of technology not only implied a better understanding and consciousness of Spanish pragmatics, but it also caused an increase in the students’ motivation to continue learning (op. cit., p.12). The use of AR for learning purposes has become a much discussed topic, either through the creation of new systems or the use of others, such

as Pokemon Go, which became a trend between teenagers when it came out in 2016 and some teachers are already looking at its benefits if used for language learning (op. cit., p.10).

It is true that gamification does not imply by itself that the activities are done with technology. For instance, a board game can fit Kapp's definition of gamification as well, as far as it meets the characteristics previously stated. Nonetheless, this study is based on the use of technological gaming systems. The main reason to choose this type of gamification is the strong relationship that current teenagers have created with technology as already mentioned. Studies such as Van den Beemt, Akkerman and Simons's (2010) show that a high number of teenagers use technology with gaming purposes. In this study, the answers to a questionnaire showed that not even one participant out of a total of 178 declared not to use the Internet at least once a week (op. cit., 2010, p. 1161). Yet, not all students used it for the same purposes. According to their answers, participants were divided into four types of users: traditionalists, gamers, networkers and producers. The first group was characterized by the use of mainly systems to carry out basic tasks, such as sending an email or searching for information. Gamers were those participants who used gaming systems or PC games; whereas networkers did more use of social media sites (op. cit., p. 1163). Finally, producers were those participants who either produced Internet material in sites such as blogs or made use of products from the net. From the 178 participants, 36% were described as gamers even though participants in every group participated in activities that characterize the other groups. Moreover, the group of gamers was one of the groups that had a higher number of Secondary Education students, namely 54.7%.

Even though this study was done in Germany seven years ago, its findings strongly support the use of gamification as a methodology that can contribute to students' learning especially since the technological developments that have taken place during this decade can only increase the number of users of this type of systems. In fact, a recent study that took place in Spain showed that the use of the Internet for gaming purposes had increased between 2010 and 2015 (Garmendia et al., 2016, p. 24). While in 2010 32% participants of the study claimed to play online games once a week, this figure grew to 48% in 2015. It is also relevant to mention that this type of activity was one of the only four – out of a total of ten – that had increased during this five-years time span. According to these authors, the other three activities were using video and music display platforms (i.e. *Youtube*), looking for information on the Internet to do the homework and blogging. Even though this report does not have such a detailed classification of the participants as that by Van den Beemt et al. (2010), findings by

Garmendia et al. (2016) also show an increase in the use of technology for gaming. Therefore, the implementation of gamification within the Spanish classrooms may have some positive effects in the learning process if the games resemble those they play at home.

Yet, it is true that the use of this technology is not widely spread in Spanish schools (Pintor et al., 2014). Nonetheless, some studies regarding the use of this technology for teaching purposes are starting to be developed in our country. For instance, the participants in Pintor et al.'s study evaluated the use of the response system *Kahoot!* as a highly useful instrument for their learning (2014, p. 326). Taking into account the gaming elements that this type of response systems have (see sections 3.3.1. and 3.3.2.), it is likely that, if *Kahoot!* did not have similar characteristics to those shown by the gaming tools used by participants in Van de Beemt et al.'s (2010) and Garmendia et al.'s (2016) reports, there would have been more variability in the answers to the questionnaire of the former study. In other words, the high rate of satisfaction with this type of technology in Pintor et al.'s (2014) study suggests that the majority of the participants – if not all – are used to these gaming systems and recognize their characteristics easily. Therefore, the amount of so-called gamers is supposed to increase the closer we get to younger people who are considered digital natives (Prensky, 2001a).

As far as the delivery of feedback is concerned, this characteristic is necessary to make the activity learning-profitable. In the words of Wood and Reiners (2015, p. 3039) "gamification is not about turning routine activities into a game; but to redesign work processes with game mechanisms for a fun and enjoyable experience". Therefore, the main purpose of gamification is not just to have fun but it has a profitable goal such as learning. This is done through the stimulation of participation by engaging the students in an activity they are motivated to participate in due to the close relationship young people have with games and technology (Figueroa, 2015; Siegel, 2015). Moreover, this motivation and consequent participation is also fostered by the use of feedback. Feedback does not only tell the player which mistake he has made and what the correct answer or solution was, but it also tells him how he is performing in the entire game – as for example with a scoreboard in which he can read his position in relation to other players (Sigle, 2015). According to Dweck (as cited in Sigle, 2015, p. 192), to get recognition for personal efforts promotes growth mindsets. These mindsets are defined as those in which trial-and-errors are seen as the source of someone's own abilities, so your abilities can be improved by taking into account the feedback received afterwards. Then, feedback is required for the learning process to take place since

students learn and improve from both their success and their mistakes. According to Hunicke (as cited in Kapp, 2012, pp. 36-37), in order to be useful feedback has to be:

- Tactile: it is easily noticeable
- Inviting: the players look forward to receiving it
- Repeatable: it is received every time a goal is achieved
- Coherent: its relationship with the parameters of the game is clear and realistic
- Continuous: it is received throughout the entire game
- Emergent: it fits within the dynamics of the game, so it is expected and it does not distract the players
- Balanced: even though it is provided continuously, it is not given overwhelmingly in order not to cause negative feelings in the players
- Fresh: it interests the players either for its content, form or unexpected changes

Moreover, the use of scoreboards to show someone's progress does not only work as summary of the feedback given along the whole game but it also has a social aspect: you do not only see your position but it is also shown to the rest of the players (Kapp, 2012, p. 34). According to this author, providing feedback in the form of points or other rewards that allows participants to compare their progress creates an environment of competition that engages the player into continuing to play. Yet, gaining this type of rewards cannot be seen as the goal of the entire game, but only as a tool to prompt certain motivational behaviours that are beneficial for learning. This challenge may be the most difficult one to overcome when implementing gamification for the first time in a classroom, since students may have a different goal for the activity: winning the game instead of learning.

Yet, Dellos (2015) saw that when implementing gamification in the classroom –he used *Kahoot!*, the same gaming tool we have used – the fact that the students' success was being recognized openly by peers and teachers through this type of scoreboards increased their self-confidence and prompted learning. Therefore, this use of feedback not only has cognitive effects but also emotional, the latter playing a crucial role on their motivation and further participation in the lessons and the consequent acquisition of the content (op. cit., p. 51). Thus, even if students may have a different goal in mind when participating in a gaming activity, the results regarding their learning seems to still be positive since being in the top position of a scoreboard imply that you have answered or solved the task correctly, which is a sign of learning.

Apart from feedback being a motivating element, there are other characteristics of gamification that prompts the players' motivation. One of these other elements is time.

> As soon as [the] timer appears in the upper corner of an instructional video game screen and starts to count down [… players] jump into action, and begin to undertake the tasks needed to accomplish the level or game's goal (Kapp, 2012, p. 32).

According to this author, having time restrictions makes the players act quickly – even more if fulfilling the task in a shorter time is translated in gaining certain rewards. Therefore, time motivates the players into the game.

Still, the most motivating element that some gamification activities have is the introduction of technology as a tool to promote learning. Due to the constant external influence of technology, current students' cognitive processes differ from those of people who are considered *digital immigrants* (Prensky, 2001b, p. 4). Moreover, the use of technology such as smartphones for didactic purposes is very likely to attract their attention, make the students interested and encourage participation in the activities that are carried out with such a device (Cutter, 2015: 10).

The introduction of technology in the form of response systems in a classroom started with the use of clickers which are remote controls that allow players to answer different questions in real-time (Pintor et al., 2014, p. 323). Yet, they have been overcome by the use of personal technological devices such as mobile phones. According to Garmendia et al. (2016, p. 17), mobile phones are the technological device that Spanish youngsters use the most. This could be due to the fact that it is the device the majority of participants claimed to own: 91% females and 88% males between 13 and 16 years old (op. cit., p. 19).

Nevertheless, the use of such technological device is not widely spread in Spanish schools. In fact, 84% youngsters are forbidden to use their smartphones in the school grounds (Garmendia et al., 2016). Of the remaining 16%, 15% claim to be able to use it under certain rules and for concrete purposes, whereas only 1% has total freedom on how and what they use them for (op. cit., p. 90). Regarding the purpose that the mobile phone is given inside the classrooms, only 5% participants said to use it as a learning tool every week (op. cit., p. 94).

These authors do not mention reasons for prohibiting or restricting the use of mobile phones in the classroom. Yet, from their study it can be deduced that the most plausible reasons for restricting their use are related to misuse, mainly cyberbullying and addiction. Face-to-face bullying seems to be the most common type of bullying that

Spanish students suffer form, with 25% participants claiming to have lived this experience last year; although cyberbullying still counts its victims (12%) (Garmendia et al., 2016, p. 54). According to Boyd (as cited in Garmendia et al., 2016, p. 54), cyberbullying may be more harmful for the victim due to the anonymity of the bully and the wide range of people that can participate in it due to this anonymity and the high use of social media by teenagers nowadays.

As far as addiction to mobile phones is concerned, Garmendia's et al. (2016) study shows that 55% of participants checked their smartphones constantly looking for new notifications, this being the most common action seen in the participants that shows an addiction to this technology (p. 75). Yet, they did not considered addiction unless the student presented two or more addictive behaviours, such as looking for notifications constantly or getting stressed if they do not have their mobile phone close to them. Taking into account this perspective of analysis, 48% of participants in the study showed such behaviour, of which 65% were between 15 and 16 years old. In fact, this situation was encountered when proposing this research project to the school: they specifically asked not to implement gamification in 4th ESO since some students presented this kind of addictive behaviours towards their smartphones. Even though this group had not been selected for this study due to differences in schedules, the implementing gamification in their group would have required to take specific measures in order to address these students' behaviours.

Thus, the fact that some students may be addicted to the use of these devices is something that must make a teacher reconsider the implementation of gamification through the use of smartphones. Still, there are other technological devices that can be used, such as laptops and tablets. Furthermore, if this problem has not arisen in a group, the other major problem –use of the device to cyberbully a peer – can be solved by selecting the adequate gaming tools or response systems. For instance, the two applications that were used in this project, which are *Kahoot!* and *Socrative*, are systems that need of students' identification in order to track down their participation. Therefore, it is easier for the teacher to check that every student is using their device only for learning purposes.

Once these problems are addressed and taking into account the literature that arguments in favour of the implementation of gamification in the classrooms, there should not be any other problem to prevent the teacher form encouraging students' motivation and learning through this methodological approach. In the following two sections, the response systems that were used for this project are described and an

explanation is provided regarding how to use them and why they can be considered gamification instruments.

3.3.1. *Kahoot!*

This application is a response system that offers different modes of quizzes once you register: quiz, jumble, discussion, and survey (Dellos, 2015, p. 49). For this project we used the quiz mode. The user can either choose one of the possibilities and design it personally – in this case design a quiz – or choose one that has already been created from the public pool that is offered on the website. Once the quiz is prepared, it has to be played on a projector. Then, the students are given a PIN number they can introduce in their electronic devices to start playing. This PIN varies from one turn to another. Students can play using any device with Internet access such as computer, tablet or smartphone. For this study participants used their personal smartphones, yet the option to use other devices such as the computers in a multimedia lab can be useful if the students the activity is designed for do not own a device.

After introducing the PIN number, students have to introduce a nickname. This requirement helps the teacher not only to track down the students' responses but also to check that everyone is using their electronic device for this purpose. Due to the security measures that many schools are taking against cyberbullying, this type of track helps to introduce technology in the class without taking the risk of this kind of abuse to happening during the activity.

Once every student has introduced a nickname, the teacher presses "Start" and the questions start appearing on the whiteboard the image is projected onto (Figure 1). For each question an image or video can be added. According to Dellos (2015, p. 50), adding a video or an audio file can enliven the activity. Yet, for learning purposes the video or image should have a clearly illustrative goal.

The number of answers can vary from two to four; each of them having a limit of 60 characters. The answers are always given by the teacher in the form of a multiple-choice quiz. The students only have to choose the answer they believe to be correct. The answers are displayed with a colour and a symbol that also appear in the electronic device used by the students – as can be seen below – for them to answer.

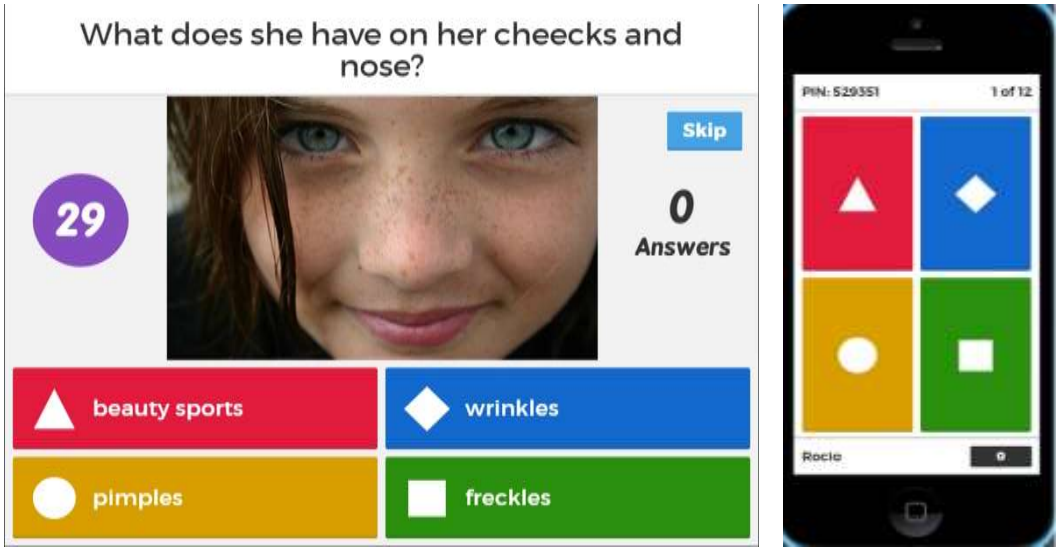

Figure 1: Question and answers displayed by *Kahoot!*

Once every student has answered, the system provides the correct answer together with the number of students that selected each one of the options (Figure 2). Through this immediate feedback not only can the students learn the correct answer but the teacher is also aware of the main difficulties the students are having with the content that is being taught or revised using this platform (Dellos, 2015, p. 50).

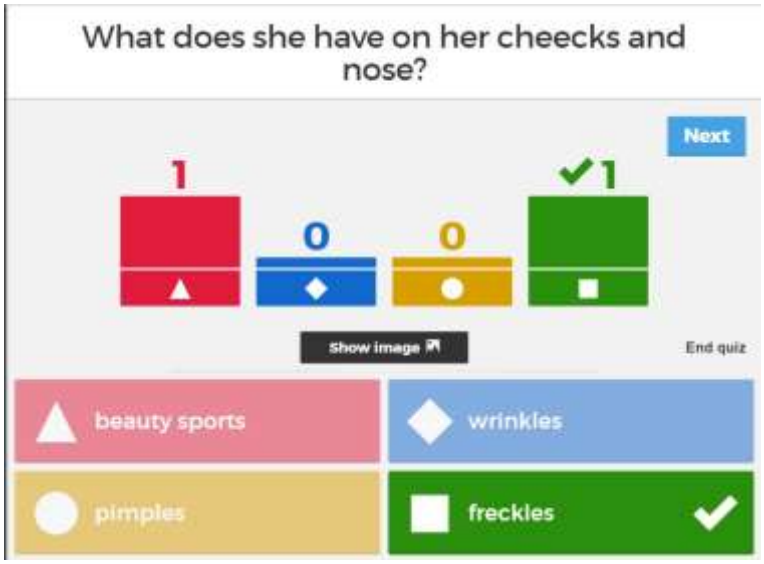

Figure 2: View of selected answers

The time for answering can also be regulated by the teacher when preparing the game. The time gaps that can be chosen are: 5, 10, 20, 30, 60, 90, and 120 seconds. These two elements – correct answer and time of response – are taken into account when dividing up the points among the students who got the answer right (Dellos, 2015, p. 50). Therefore, answering correctly is not the only thing that matters; but answering fast is also important. By contemplating the time of response as a variable for the reward the activity diverges even more from the traditional multiple choice exercises that can

be found in English textbooks. This gaming version does not only imply the introduction of technology to the lesson, which is a motivating implementation, but it is also motivating for its format. The activity becomes a competition in which students try to win points and end up in the list of top five participants that appears after each question is answered (see Figure 3)

Figure 3: Screenshot of scoreboard with highest ranking participants

As can be seen above, this system displays all the characteristics that are needed to be considered a gamification tool according to Kapp (2012, pp.10-12). It allows the teacher to create an indefinite amount of quizzes to challenge the students' knowledge following the aesthetics of a game, as well as certain rules (i.e. only one answer in a specific lapse of time). Moreover, the possibility of showing how you are doing to the rest of the class is also another motivating factor. Furthermore, the counting of students at the beginning of the game, as well as tracking their participation in each question, allows this application to be easily and safely introduced in the classrooms. Finally, the fact that feedback is provided to the students after each question for both learning (correct question) and motivating (scoreboard) purposes also contributes to prompt learning through motivation.

3.3.2. *Socrative*

Socrative is another type of response system that can be used for teaching purposes (Figueroa Flores, 2015, p. 50). As it happens with *Kahoot!*, there is a webpage where the teacher has to register before creating the quizzes. Nonetheless, in *Socrative* there is not any public pool of quizzes for the teacher to use. Therefore, all the materials must be created by the teacher. Yet, even though the teacher's obligation to prepare the quizzes may seem as a reason not to introduce this system into the classroom, the fact that the activities are of your own authorship can also be perceived as an advantage. According to Gordon and Baber (2005, p. 23), using activities that have not

been prepared by the teacher may create problems like not being suited for the level of the students. Moreover, when referring to language activities, it is necessary to understand that students may have different interpretations of what the right answer is since “language is notoriously fuzzy” (Gordon and Baber, 2005, p. 24). Therefore, presenting an activity that has not been prepared by the teacher can lead to misunderstandings and conflict. In this respect, *Socrative* allows for the teachers to be creative, at the same time if provides them with the opportunity to design materials that can suit their students’ needs and profiles.

Once the quizzes are created, they can be displayed in two different modes. The main difference between the two modes is the students’ grouping; in normal quiz mode for individual work or in *Space Race* mode for group work. The latter was the chosen mode for this project, in order to motivate the students to work in groups – in contrast to working individually as they had done with *Kahoot!.* Moreover, the way of displaying the feedback in this mode seemed to be more motivating as it creates a more competitive environment: each team is represented by a rocket – or other token if preferred – and the rockets race forward depending on the number of right answers each group gets (Figure 4).

Figure 4: Feedback on students’ progress in *Socrative*

This feedback is projected onto the board, where every team can see it. Even though this is the only feedback shown to the entire class, each group receives individual feedback about their answers on their phones, from where they also read the questions. The variety of questions is another characteristic that differs *Socrative* from *Kahoot!.* Whereas the latter can be used only for multiple choice questions, the former can display either multiple choice questions or open questions in which the students have to elaborate the answer. In order to make this activity different from the ones

performed with *Kahoot!* in this project, the questions in this activity were open (Figure 5).

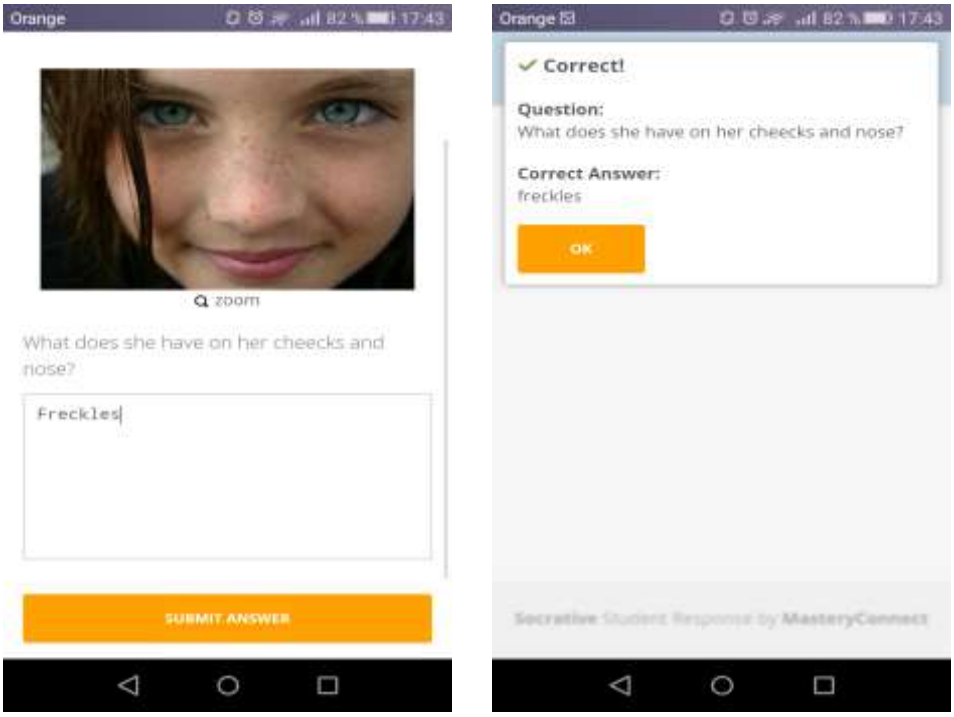

Figure 5: Questions and feedback displayed on *Socrative*

Another difference found between this system and *Kahoot!* is that the latter tracks and rewards time of response. *Socrative*, on the contrary, does not have a time limit for either each question or the whole quiz unless a fee is paid. Therefore, each group can start at different times and they do not have to wait for the others to answer the question before they receive their own feedback and continue with the quiz. This is due to the fact that, as it has been mentioned, both questions and answers appear on the students' electronic devices instead of being projected on the whiteboard.

Despite the differences that can be observed between both systems, *Socrative* can also be considered a gamification system. The reasons are the following: firstly, it has a learning purpose within the aesthetic framework of a challenging and competitive game. Moreover, it provides the two types of feedback needed: educational and motivational. Even though in this case time of answer is not counted explicitly, the quicker a team answers the questions correctly the quicker the space rocket will race forward. Nonetheless, answering the questions correctly is what really counts, since if two teams have got everything right their corresponding rockets will end up in the same position in spite of how much time they have taken to answer. Yet, time can still be taken under consideration if this is so desired, since the teacher only needs to control who reaches the "finish line" the fastest.

4. Methodology

4.1. School context

The school in which this innovation project has been carried out is a state-supported private school in Colmenar Viejo, Madrid. This school was opened 35 years ago, its first school year being 1981-1982. The school covers all education stages: from Kindergarten to Sixth-Form Education, being the latter the only completely private section. Student typology of this school corresponds to middle and upper-middle class students, who live either in Colmenar Viejo or surrounding cities and towns such as Tres Cantos, Soto del Real or Manzanares del Real. Even though being a state-supported private school for which students' families do not have to pay, the socio-economic status that has been mentioned is required for expenses like the uniform (formal and Physical Education tracksuit). This year, only 2% of the students in the school are foreigners, out of a total of 567 students. From these, 177 are in Secondary Education and 69 are enrolled in Sixth-Form Education.

Throughout the last 35 years some technical improvements have been made, such as introducing of projectors into the classrooms. Nonetheless, these changes have not been applied to the entire building not all classrooms have the same facilities. In fact, the two groups of participants for this project attended English lessons in different rooms: one with these technological facilities and one that lacks them. This situation clearly influences how the lessons are organized and how activities are carried out. The teacher who has technology within the classroom uses it to display the online version of the textbook for the students to follow the lesson better. Moreover, she sometimes plays videos to complement the didactic units. The teacher who lacks this technology has to use the paper version of the textbook and cannot take advantage of some of the audio and video resources supplied by the publisher. Nonetheless, these differences did not affect any of the lessons that are included in this project.

As far as the lessons that were observed are concerned, the teacher who has a projector uses it only to show the book to the students. Therefore, there were not any differences on how the observed lessons were carried out regarding the use of the technology. Yet, for the introduction of gamification in the lessons the classrooms that were used had the technology available so that both groups could participate in this project.

Regarding the school policy, the use of technological devices such as mobile phones is forbidden in the school. Therefore, although some students bring them to the school, they must not use them in the classroom, the corridors or the playground. If a student

uses it, the device will be seized by the teachers and it will be given to the head-mistress, who will give it back to the student's parents. This procedure is part of an anti-bullying and anti-cyberbullying plan. Therefore, the use of smartphones for this project had to be discussed with the school administration. To participate in this project, the students' parents had to sign a consent form (see Appendix 1). The purpose of the project, the mobile apps to be used and the date when the students would be working with gamification were also explained in this form. If a student did not have this form signed, they still attended the lesson and participated in the activities but they were not allowed to use either their own smartphone or their partners'.

4.2. Participants

All the participants belong to 3rd year of Secondary Education. The reason for choosing this year was circumstantial: 1st and 2nd years are not taught by my school tutor; students from 4th year were skipping classes due to a working programme in which they had to do internships in town companies; and Sixth-Form Education students were on a school trip. Yet, the activities from this project could have been adapted for any of these groups and it would be interesting to look for any possible differences in the results depending on the students' age.

Third year of Secondary Education is formed by 54 students equally divided into two groups. These groups are formed at the beginning of the course by the school psychologist, who tries to create a balance between the two groups as far as cognitive abilities and personalities are concerned. These groups are streamed for English according to their language level. This division is based on their grades: below 6 is considered low level of competence in the foreign language, whereas students with a 6 or above are considered to have a high level. Nonetheless, each case is studied individually so the students' learning styles and needs are also considered.

These two streamed groups already organized by the school for English were the ones the data were collected from. From now on these groups will be referred as higher level group (HLG) and lower level group (LLG). Apart from the difference between a non-gaming class and the use of gamification, the data will also be analysed in terms of the effectiveness of this organization since one of the research questions in this study refers to whether there are any differences in the improvement of participants in each of the groups when introducing gamification in the classroom.

Then, from a total of 54 students, 37 participants belong to the HLG whereas 17 are from the LLG. Yet, there were some students who did not participate in all the sessions and stages of the study, so their data were dismissed before the analysis. Therefore,

we collected the data from a total of 47 participants: 33 from the HLG and 14 from the LLG. These groups are taught at the same time by two different teachers in two different classrooms. The planning of the unit was reorganized so that we could introduce the vocabulary lesson in both groups.

As it has been previously explained, one of the English classrooms does not have any technological facilities. This room is where the LLG is taught, although the choice of room is not related to the students' level of competence in the foreign language but to the allocation of rooms to specific teachers. For the use of gamification in the lessons, the rooms were changed when needed so both groups could participate in the study.

As far as the participants' profiles are concerned, they are between 14 and 15 years old in both groups. In the HLG there are 17 boys and 16 girls; whereas in the LLG there are 10 boys and 4 girls. They are all Spanish with the exception of one student in the LLG who is from Bolivia.

It is important to mention that in the HLG there are two participants who are highly gifted; whereas in the LLG there are seven students with diverse special educational needs: one has ADHD, five have dyslexia and another one suffers from both disorders. The teacher who oversees the LLG provides her students with more time for each activity in order to benefit those who have any of the previously mentioned special educational needs. This is the only measure that is taken since the school psychologist does not consider any other adaptation needed. Nevertheless, this adjustment was not followed in the lesson in which gamification was introduced in order to balance both groups as much as possible.

4.3. Lesson context

Since one of the aims of this study was to analyse if the use of gamification in the foreign language classroom results in an improvement on the students' acquisition of English vocabulary, data were collected from two different learning contexts. The first context was a non-technological vocabulary face-to-face lesson. This was taught by the school teachers following their own methodology. The methodology chosen for English is the one advised in the textbook. Therefore, they taught the twelve vocabulary items from the selected unit (Unit 6: Image and Identity) through the activities provided in the book. These twelve words were: piercing, beads, chain, nail varnish, moustache, beard, tattoo, hair dye, ring, lipstick, dreadlocks, sideburns" (Wetz, 2016, p. 48). As it has been previously explained, one of the teachers uses the projector just to show the electronic version of the book. Therefore, there is not a real use of technology integrated in any of these two teachers' methodology.

Right before the lesson started, students sat a pre-test about the vocabulary they were going to see in the lesson in order to have proof of any previous knowledge they could have about those words. This pre-test (see Appendix 2) was composed of two questions: a crossword they had to fill in by deducing the words from their definitions, and a fill-in-the-gap exercise in which they had to use the words from the previous exercise to complete twelve sentences. Two days after the lesson, they sat a post-test with the same activities even though the format varied a little: they had to write the correct words to each definition – now without a crossword – and the sentences from the second exercise were different, but included exactly the same vocabulary (see Appendix 3).

On the day after sitting the post-test, the participants attended a lesson taught by me. Gamification was introduced in this lesson to teach another twelve lexical items. These items did not appear in the textbook but were chosen for being related to the topic of body image and decorations too. They were: contact lenses, scar, pimple, freckles, beauty spot, wrinkles, stubble, goatee, fringe, wig, highlights and mohican.

The procedure for this lesson was the same as for the non-technological one. Right before the lesson started, students sat a pre-test to see if they had previous knowledge of these lexical items (see Appendix 4). There were two exercises: a crossword and a fill-in-the-gap exercise with incomplete sentences. After doing the pre-test, students attended a lesson in which *Kahoot!* and *Socrative* were used to teach that vocabulary. Two days after this class, they sat a post-test to analyse the participants' acquisition of those lexical items. Once again, the exercises of the post-test were two (see Appendix 5): one in which they had to give the correct word for each definition and a fill-in-the-gap exercise to complete different sentences to those presented in the pre-test. Therefore, the format of the pre-tests and post-tests for both lessons (non-technological and technological) were the same. The only difference was the vocabulary tested in each one, depending on whether the tests had been designed for the non-technological or the technological lesson.

4.3.1. Non-technological lesson

Even though this lesson was taught by two different teachers – one to the HLG and another one to the LLG -, both groups carried out the following activities:

ACTIVITY	AIM OF THE ACTIVITY	TIME
Start thinking	Students have an open discussion with the teacher about the topic of body image and	5'

	decoration.	
How do you say this in Spanish?	The teacher asks for the Spanish translation of the vocabulary of the unit. If the students do not know it, she provides the right translation. Students write it down on their textbooks or notebooks.	5’
Which word fits?	Students do a multiple choice exercise from the book. The teacher corrects it orally.	15’
What was the word?	The teacher gives the definitions of the lexical tokens seen along the lesson. Students have to say aloud which word the definition matches with.	10’

Table 1. Tasks performed by the HLG and LLG during the observed lessons

As it has been explained above, the students had to sit a pre-test (see Appendix 2) right before the lesson started. The pre-test lasted 10 minutes and the lesson had an approximate duration of 35 minutes.

The activity *Start thinking* consisted of open questions made by the teacher to the students. The questions could be addressed either to a specific student or to the whole class. Examples of these questions are: “What do you think of piercings?”. Moreover, they also referred to the pictures from the book with questions such as “What do you think of the girl’s make up? Do you like it? […] Why/Why not?”. Then, they translated the vocabulary that appeared in the book and did the multiple choice exercise. A copy of the book page with the vocabulary, the pictures and the multiple choice exercise can be found in Appendix 6.

As far as the activity *What does this word mean?* is concerned, the teacher read aloud definitions for the words seen in the lesson and the students had to guess to which word they were referring to. The teachers would rarely ask a student to give his own definition for his classmates to guess. This was only done twice as a classroom management tool, since the students who were asked to give a definition were misbehaving. Therefore, their attention was drawn back to the lesson by asking them to provide a definition for any of the words seen in class.

4.3.2. Technological lesson

In this lesson gamification was introduced for teaching new vocabulary. As it has been explained, 12 new lexical items were collected for them to be taught to the participants. Nonetheless, these new words were taught through the use of *Kahoot!* and *Socrative*.

As it has been previously stated (see section 4.1.), the classrooms do not have the same technological facilities. Whereas one of the English classrooms has a projector, the other does not. For the introduction of gamification, that type of facilities was required to show the questions, answers and rankings on the whiteboard through the projector. Therefore, this lesson was taught in classrooms that had this technology available.

Similarly to the procedure used for data collection in non-technological lesson, the students sat a pre-test (see Appendix 4) about the vocabulary they were going to be taught in the technological lesson right before it was taught. Results would allow us to discover whether there was any previous knowledge on the topic. This pre-test lasted 10 minutes as well.

ACTIVITY	GAMIFICATION TOOL	AIM OF THE ACTIVITY	TIME
What is it?	*Kahoot!*	The teacher explains how *Kahoot!* works. Then, students have a first go in which they have to choose word that fits best with the definition and photo shown on the whiteboard. After each question, the teacher checks that every student has understood the meaning of the word.	10’
Which word fits?	*Kahoot!*	The students do a multiple choice activity, in which they have to fill in the gaps of a sentence with one of the four possible words given.	10’
What was the word?	*Socrative*	The teacher explains how *Socrative* works. Students are given definitions and they have to write the word they define.	15’

Table 2. Tasks performed with both gamification tools

Firstly, I provided an explanation on how to use the first app that was going to be used: *Kahoot!*. In the first activity, questions with pictures were projected onto the white board (i.e. “What is she putting on?” for a picture of a girl putting on contact lenses). They were given four options for each question, and they had to choose the right answer in a 30 seconds time lapse. The entire collection of questions can be found in Appendix 7.

A try-out game was implemented first for students to practice. The questions were related to the vocabulary already seen in the non-technological lesson.

Even though feedback was given by *Kahoot!* after answering each question, the meaning of the word was explained orally.

The second activity, *Which word fits?,* is a technological version of the multiple choice exercise from the book students had to do during the non-technological class. In this activity, the students had to choose the best option to complete a sentence. Therefore, the questions were reformulated. For instance, in order to elicit the word *contact lenses* students were now given the sentence "You can wear glasses or…" instead of "What is she putting on?". The possible answers were the same as in the previous activity, but their order was changed. Furthermore, students had less time to answer each question: 10 seconds instead of 30. These questions can be also found in Appendix 7.

Finally, *Socrative* was introduced in the activity *What was the word?*. Students were told to organise themselves in groups and to use one smartphone per group. The name in Socrative for this type of activity is *Space Race*, since each group is represented by a rocket. The groups' rockets race forward whenever the group gets a correct answer. For this activity, students were given the questions with pictures from the first activity (*What is it?*); yet this time they did not have different options to select from in order to answer but they had to write the answer. The aim of this activity was not only to practice the vocabulary itself, but also the spelling. An example of this activity can be found in Appendix 8.

The post-test (see Appendix 5) was sat two days after the lesson and in the day between the technological lesson and the post-test, the teachers made the students write down on their notebooks the words and their meaning in Spanish.

4.4. Instruments for data collection

Since the main questions to answer in this project refer to whether the use of gamification may help improve the acquisition of vocabulary in the foreign language or not (RQ1. Does the use of gamification tools in the foreign language classroom result in an improvement on the students' acquisition of English vocabulary? and RQ2. If there is an improvement, is such improvement more noticeable in the higher level group or in the lower level group?), data were collected by means of two tests: a pre-test to discover any previous knowledge participants may have had on the issue of personal image and a post-test to find out whether there was an improvement after the lessons were taught both in the non-technological and technological environments.

These pre-tests and post-tests for both the non-technological and the technological lesson can be found in the Appendixes from 2 to 5. Both tests had the same format. The former had two questions: a crossword and a fill-in-the-gap exercise; whilst the latter had also two questions: one in which they had to give the correct word for each definition and another fill-in-the-gap exercise.

As far as motivation is concerned, there was an interest to discover whether there was a relation between the perceptions regarding higher motivation when using technology and an improvement in the acquisition of vocabulary when using such technology (RQ3. If there is an improvement, could it be related to the students' perceptions regarding higher motivation when using the technology?). In order to find answers to this research question, the participants had to fill in an anonymous questionnaire about the technological session, which can be found in Appendix 9. This questionnaire was given to the students after the post-test of the technological lesson, which they did two days after the lesson.

This questionnaire was based on the questionnaire used for the COLDEX Project, which analysed the results of implementing technology for the science subject (Information Society Technologies, 2005). The version used for our project, which had been previously tested, consisted of a total of 13 closed questions. The first 12 questions grade students' perception of their personal motivation when using gamification technologies in the lesson. These questions were graded in the Likert scale as follows: 1 – strongly disagree, 2 – disagree, 3 – agree, 4 – strongly agree. In the tested version of the questionnaire there was an answer corresponding to "I do not know". Yet, this possibility was eliminated from the final version as some students chose it too frequently in order to finish the questionnaire too quickly. This reasoning was explained to me by those students when they handed in the pilot version of the questionnaire. Therefore, since choosing 3 was not due to a misunderstanding or having problems understanding the questions, this answer was eliminated for the final questionnaire on gamification with the intention of collecting as many significant answers as possible.

The questions from the questionnaire covered personal satisfaction, participation, whether they found the activities easy or difficult, boring or fun; stress and interest in the introduction of gamification in the school methodology. Finally, the 13th question was a multiple choice question in which the participants had to decide which gamification tool they liked the most: none, *Kahoot!, Socrative* or both. This question was included in order to find out which type of activity students preferred given the

differences between both tools. As already described, with *Kahoot!* the students had to choose the right answer out of a pool of four, whereas with *Socrative* they had to write the correct answer to the question.

The entire collection of answers to the pre-tests and post-tests of the non-technological and technological lessons, as well as the answers to the questionnaires, can be found in the second collection of appendixes in the CD attached to the back cover of this paper.

4.5. Analysis

Before analysing the data, pre-tests and post-tests had to be corrected. Since there where 24 questions in each test, they were marked over 24 points. In order to mark objectively, another teacher and I marked them together and our interrater-reliability coefficient was tested through Cohen's Kappa reliability test showing a high level of agreement (94.44%).

Regarding data analysis, firstly it was necessary to know whether the distribution of the sample was normal. Therefore, all the data collected by the tests before and after the non-technological and technological sessions were tested for normality using the Shapiro-Wilk test. Depending on the p-value this test gives, the sample would be considered normal ($p > 0.05$) or non-normal ($p < 0.05$).

The p-value of both samples of data (non-technological and technological lesson) was 0.00 ($p < 0.05$). Therefore, the distribution in both samples was not normal. Consequently, a parametric t-test could not be applied in order to determine whether there were any significant differences between the pre-test and post-test results. This meant that a non-parametric test, a Mann-Whitney's U test was applied instead. This analysis was carried out first on the data provided by all participants in the two different settings (non-technological or technological) and then per group (HLG versus LLG). Results from these analyses should help us provide answers to RQ1 and RQ2.

As regards students' perception of motivation when using technology, the answers to the questionnaire were analysed using descriptive statistics (percentages, means and standard deviation) to be able to provide answers to RQ3.

5. Results and discussion

5.1. Gamification

5.1.1. Non-technological lesson vs. Technological Lesson

Results from the Mann Whitney's U test to data gathered from the post-tests in both technological and non-technological sessions showed that the p-value was 0.81 ($p > 0.05$) so there are no statistically significant differences between both types of lessons as far as the post-tests are concerned. That is to say, the students have obtained similar results in both learning environments. See Figure 6 below:

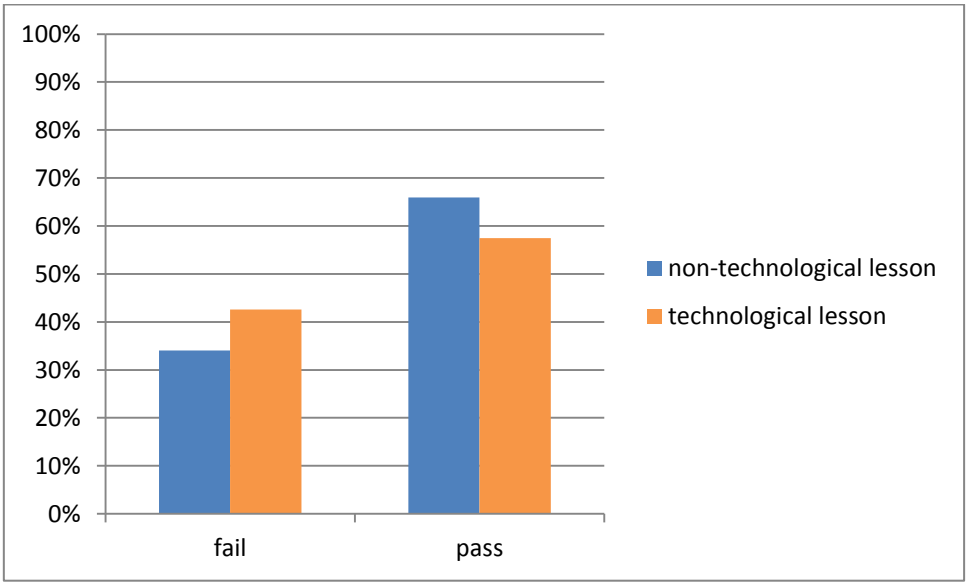

Figure 6: Totals of post-test results in the technological and non-technological lessons

Figure 6 shows how the amount of students failing or passing the two post-tests does not vary a lot. Those students who got less than 12 points in the post-test were considered to have failed it, whereas the participants that got either 12 or above 12 points passed it. As it can be seen in Figure 6, out of 47 students 31 (66%) passed the post-test of the non-technological lesson, whilst 27 students (57%) passed the post-test of the technological lesson.

These results could be read as the implementation of gamification being less useful for the acquisition of vocabulary than the non-technological methodology followed in this school. Nonetheless, if we focus only in those students who passed the post-tests we can see a difference between the types of passing grades. See Figure 7:

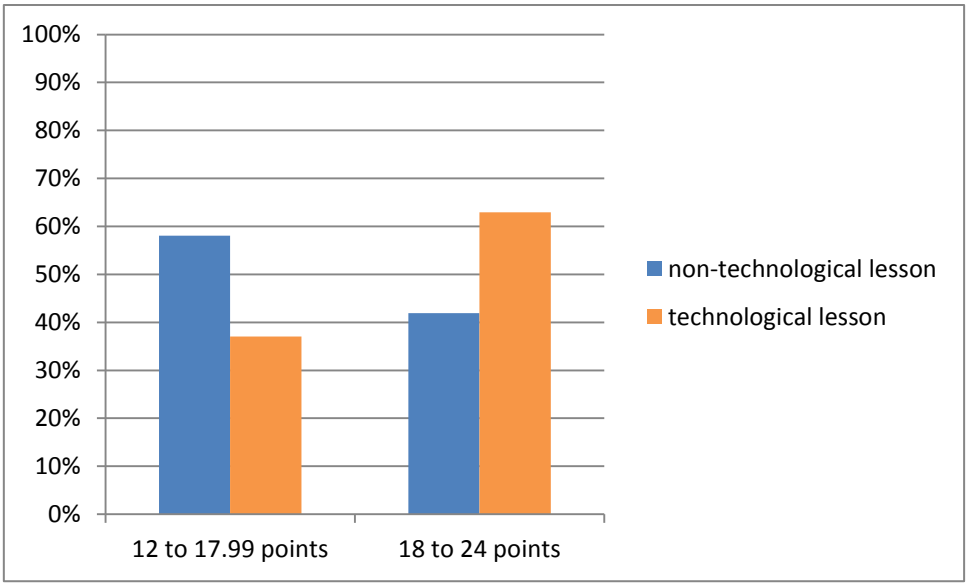

Figure 7: Total of post-test passing results in the technological and non-technological lessons

Figure 7 shows that out of the students who passed both post-tests, there were more students that had higher grades after the technological lesson. Whereas 13 students (42%) out of a total of 31 who passed the post-test of the non-technological lesson got grades between 18 and 24 points, 17 students (63%) out of the 27 who passed the post-test of the technological lesson had such high grades. That is to say that, even though there is not any statistically significant difference between both lessons since both helped improve vocabulary acquisition, more students got higher results after introducing the technological lesson.

This finding is further supported by the results from the pre-tests in each environment (non-technological and technological), since they showed a statistically significant difference with a p-value of 0.00 ($p<0.05$) as we shall see below (see Figure 8).

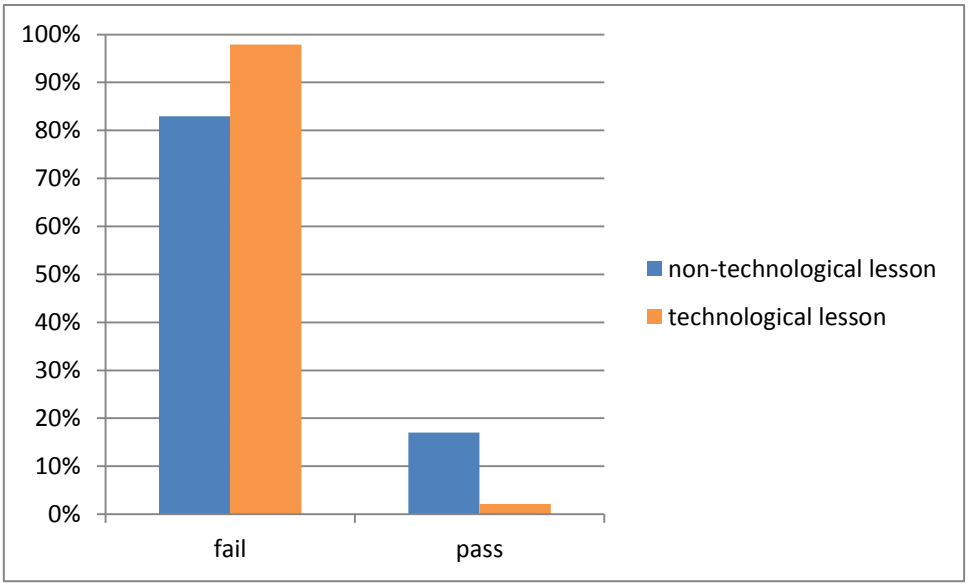

Figure 8: Totals of pre-test results in the technological and non-technological lessons

As it can be seen in Figure 8, whilst 8 students (17%) passed the pre-test of the non-technological lesson, 39 students (83%) failed it. Yet, the results from the pre-test of the technological lesson show that the grades were much lower since 46 participants (98%) failed and only one student (2%) got over 12 points. In fact, 18 participants (38%) did not have any correct answer at all. When the standard deviation of the grades of the two pre-tests was calculated, we found out that in the pre-tests before the non-technological lesson there was a variability of 5.05 from the mean (6.88), whereas the variability in the grades of the pre-test previous to the technological lesson was of 2.14 from the mean (1.32). This demonstrates that the grades from the latter pre-tests were more similar to each other indeed.

This striking difference is due to the fact that, even though the words that were asked in the latter pre-test and taught in the technological lesson were still related to the topic of body image, the majority of them had not been studied in previous years. Therefore, for the pre-test of the non-technological lesson the students had a previous knowledge they could use in a top-down process; but they did not have such knowledge for the pre-test of the technological lesson.

After analysing the grades from the pre-test and post-test of the non-technological lesson with the Mann Whitney's U test, we got a p-value of 0.00008 ($p<0.05$). This statistically significant difference shows that the non-technological methodology followed by the teachers was successful in improving the students' vocabulary acquisition. As it can be seen in Figure 9 below, the non-technological methodology made more students pass the post-test, namely 31 students (66%) whilst only 8

students (17%) passed the pre-test. That is to say, there was an increase of 23 students (49%) who passed the post-test after the non-technological session.

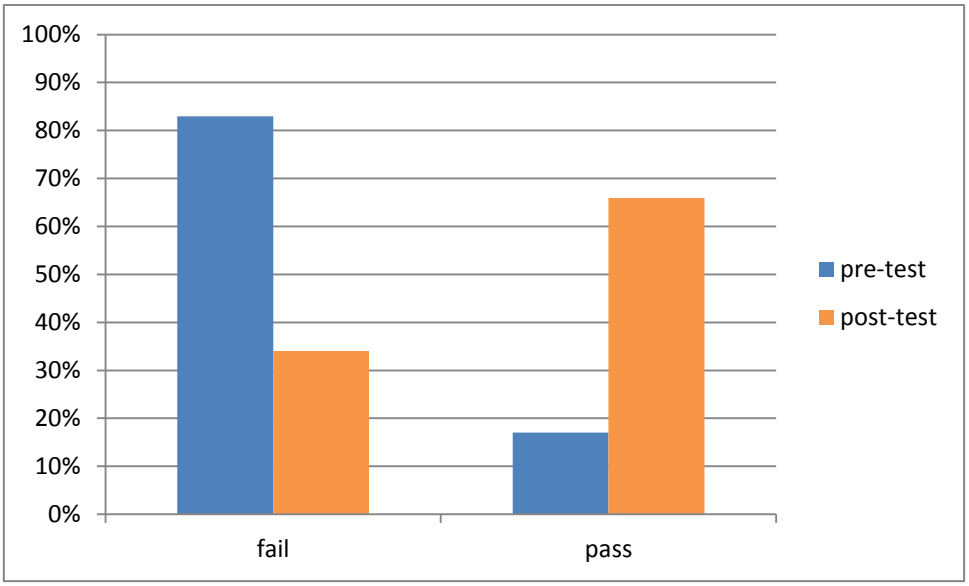

Figure 9: Totals of pre-tests and post-test results in the non-technological lesson

As regards results from the pre-test and post-test carried out in the technological lesson, the Mann Whitney's U test had a p-value of 0.000002 ($p<0.05$), which indicates that the p-value of the technological class shows a more (even if slightly) statistically significant difference than the p-value of the non-technological lesson (see Figure 10).

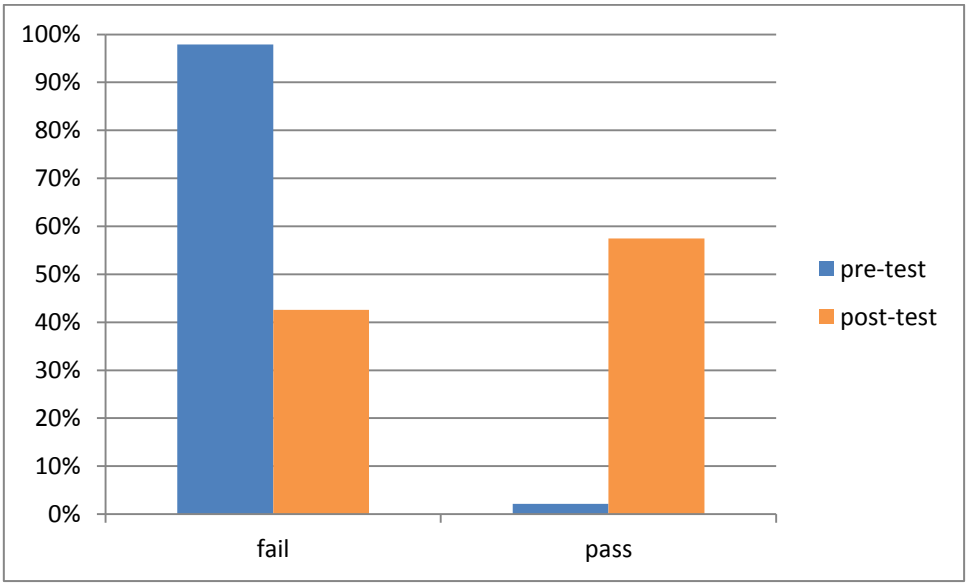

Figure 10: Totals of pre-test and post-test results in the technological lesson

Due to the lack of previous knowledge about the vocabulary taught in the technological lesson, only one person (2%) passed the pre-test but 27 students (57%) passed the post-test. Thus, there was an increase of 26 students (55%) who passed the post-test after implementing gamification in the English classroom. Even though fewer people

passed this post-test in comparison to the amount of 31 students (66%) who passed the non-technological post-test (see Figure 9), the increase in people who pass the post-test after each session was higher in the technological lesson.

Thus, the use of gamification has resulted in a higher improvement in students' acquisition of lexical items during the English lesson when compared to the non-technological lesson. In this study, we suggest that motivation may be a plausible key reason for such improvement. This possibility will be discussed in section 5.2., in which the results from the questionnaires are analysed. Before that, answers for the second research question will be discussed after analysing the data in relation to the two groups in which the students were divided: higher level (HLG) and lower level group (LLG).

5.1.2. HLG vs. LLG

In order to find answer to RQ2, we wanted to know if this improvement in the acquisition of English lexical items was more prominent in one group than in the other. There was not any previous supposition towards any group undergoing a more significant improvement, so we analysed the data with Mann Whitney's U test without any fixed assumption.

Firstly, we analysed quantitatively the data gathered from the HLG and compared the results from the post-test of the non-technological lesson with those from the post-test of the technological lesson. Results showed no statistically significant differences, with a p-value of 0.06 ($p > 0.05$). Similarly to previous results, there were no statistically significant differences relating to the way of teaching vocabulary since the students improved in a similar level (see Figure 11 below). Whereas 28 students (85%) passed the non-technological post-test, 24 people (73%) passed the technological one.

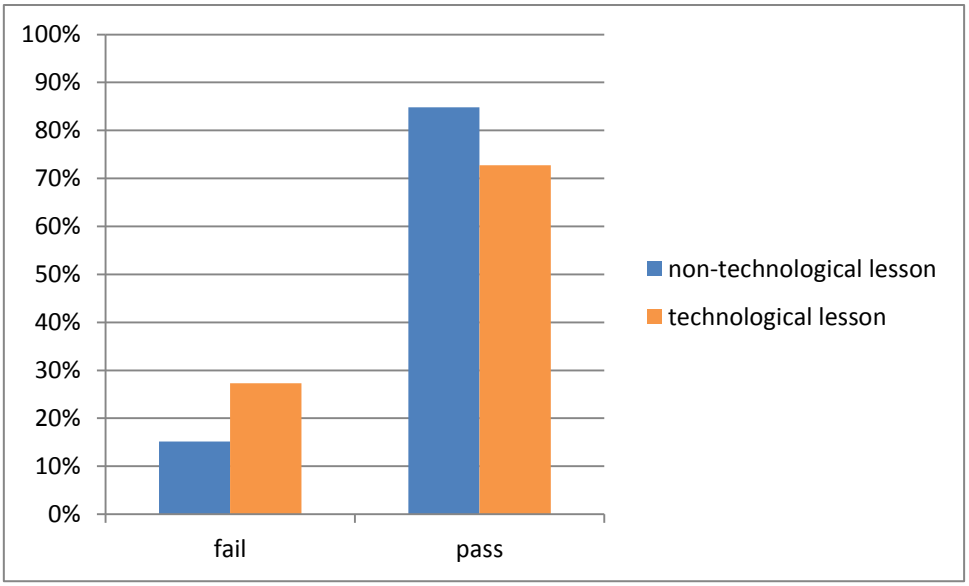

Figure 11: Totals of post-test results of HLG in the technological and non-technological lessons

Then we moved to compare the results of the pre-tests and post-tests of the HLG in both learning environments. Within the non-technological lesson, results from the pre-test and post-test displayed a p-value of 0.00 ($p < 0.05$), which is statistically significant. As it can be seen in Figure 12 below, the amount of people who passed increased from 8 students (24%) in the pre-test to 28 people (85%) in the post-test.

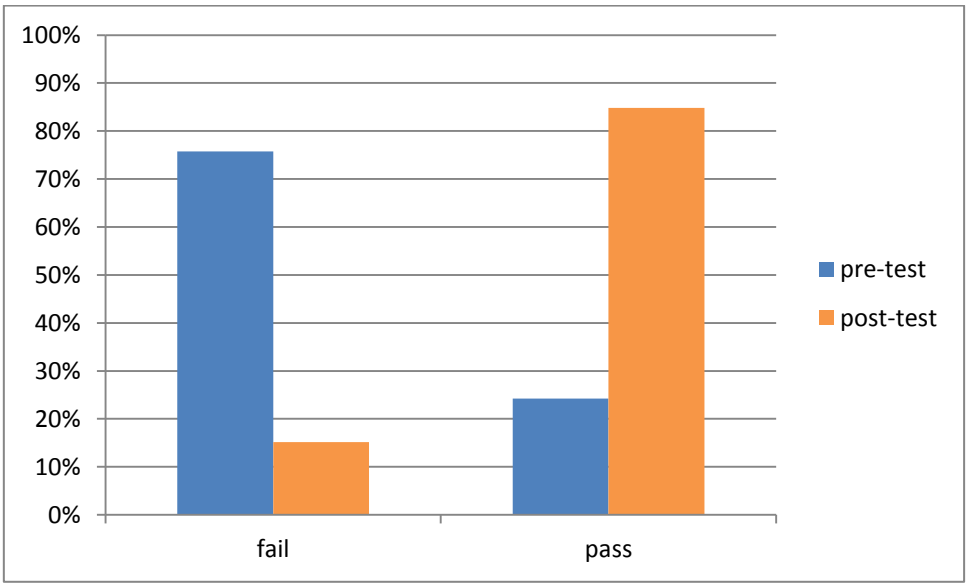

Figure 12: Results from pre-test and post-test of the HLG in the non-technological lesson

Similarly, results obtained from the technological environment also had a p-value of 0.00 ($p < 0.05$). This is due to the fact that the amount of people who passed the pre-test of the technological lesson – one person (2%) – increased to 24 people (73%) who passed the post-test after the implementation of gamification (see Figure 13).

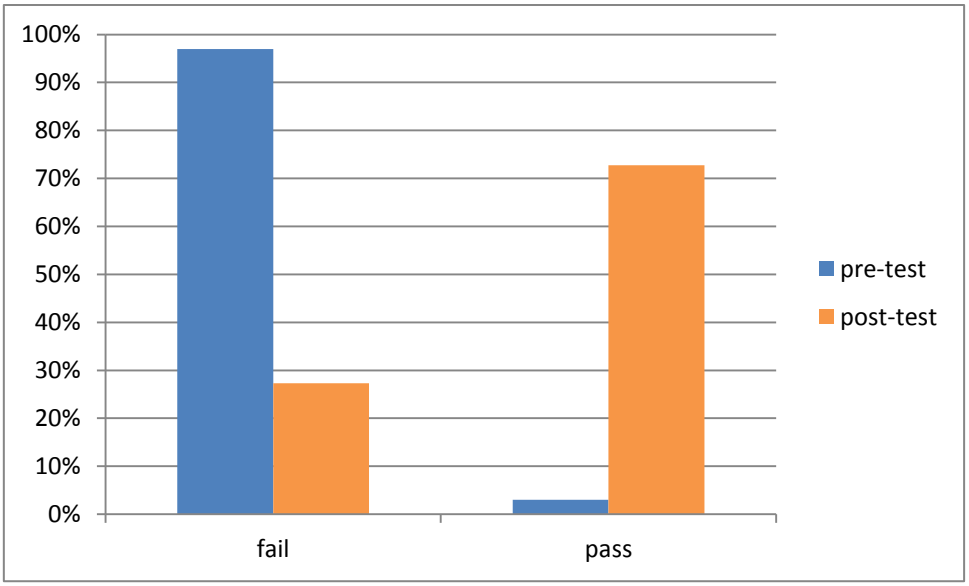

Figure 13: Results from the pre-test and post-test of the HLG in the technological lesson

However, similarly to previous findings (see Figures 9 and 10) there is a slight difference between the two p-values obtained. Thus, whereas the p-value obtained from comparing the results of the pre-test and post-test of the technological lesson in the HLG was exactly 0.000000, the p-value from the same comparison in the non-technological lesson was 0.000001. In other words, even though both p-values show a statistically significant difference between the students' previous knowledge (pre-test) and the vocabulary learned after lessons took place in both environments (post-test), there is a slightly higher improvement in the technological lesson. Thus, we could conclude that the implementation of gamification seems to have improved the HLG's acquisition of lexical items a bit more than the methodology followed by the teachers in a non-technological lesson, even if the latter is still efficient for vocabulary acquisition.

After analysing the data from the LLG, we observed that the results obtained in the post-tests sat after the non-technological and the technological lessons did not show any statistically significant difference ($p > 0.05$). See Figure14:

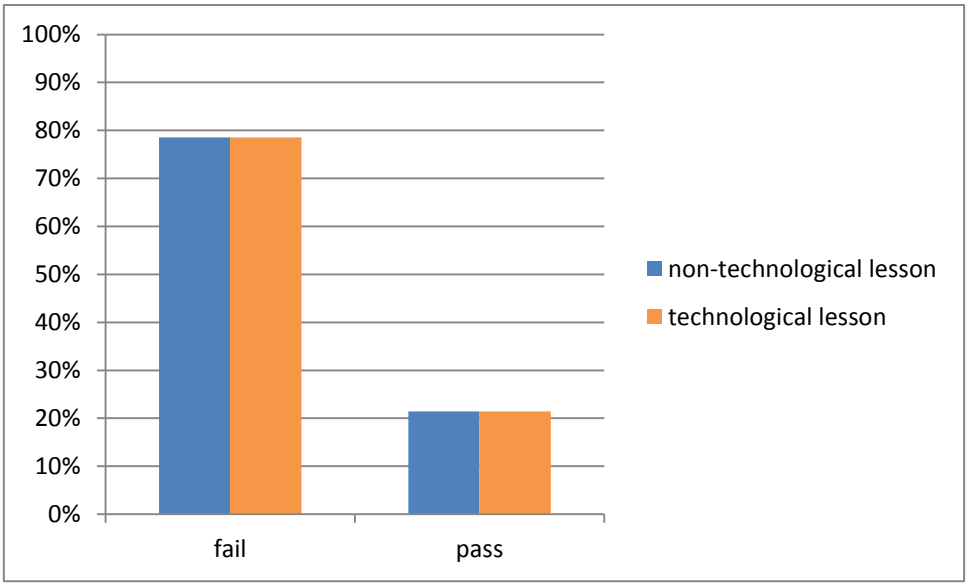

Figure 14: Totals of post-test results of LLG in the technological and non-technological lessons

In fact, this p-value (0.71) is higher than the one obtained in the HLG (0.06). A high p-value such as 0.71 is due to the fact that the amount of students who failed and passed the post-tests was the same, as it can be seen in Figure 14: 11 people (79%) failed and 3 people (21%) passed the post-tests of both environments. Therefore, it could be assumed that implementing gamification in the lessons of the LLG does not seem to be as useful as it was for the HLG when comparing these results to those from the non-technological lesson.

However, when comparing the results of the pre-tests and post-tests of the LLG in both learning environments, results showed a statistically significant difference between the scores from the pre-tests and those from the post-tests. Thus, within the non-technological lesson, results from the pre-test and post-test displayed a p-value of 0.02 ($p < 0.05$), and within the technological lesson the p-value was 0.00 ($p < 0.05$). These results suggest that even though both methodologies have had a positive impact on the students' vocabulary acquisition, the p-value of the data in the technological lesson is lower, so the difference is statistically more significant in this environment.

In fact, there exists a difference in the grades of the students in the LLG after each session: the non-technological post-test displayed a mean of 6.27 – the higher score being 16.75 –, whilst the mean of the technological post-test was 6.95 – the higher grade being 17.5. This suggests that the use of gamification in a vocabulary lesson can help improve vocabulary acquisition for those students in the LLG.

Therefore, even though the p-value obtained when comparing the post-tests of the non-technological and technological lessons was higher in the LLG (0.71) than in the

HLG (0.06), this result does not imply that the implementation of gamification benefits less the acquisition of vocabulary in the LLG. That is, this difference between the groups can be explained by the high level of variation in the students' grades in both groups. Thus, the standard deviation in the post-tests of the HLG in both environments is higher (5.89) than the standard deviation of the post-tests in the LLG (5.12). What this suggests is that the grades obtained by the students in the post-tests in the HLG varied more from the mean (16.22) since dispersion was higher. It is plausible that this difference in deviation may be the reason for the HLG's p-value to be closer to the margin of significance (0.05).

Once it had been shown that the implementation of gamification benefited students' acquisition of vocabulary in both groups even if only slightly more than the non-technological lesson, we compared the post-test results obtained after the technological lesson in both groups (HLG and LLG) in order to discover whether the use of gamification helped one group more than the other (Figure 15).

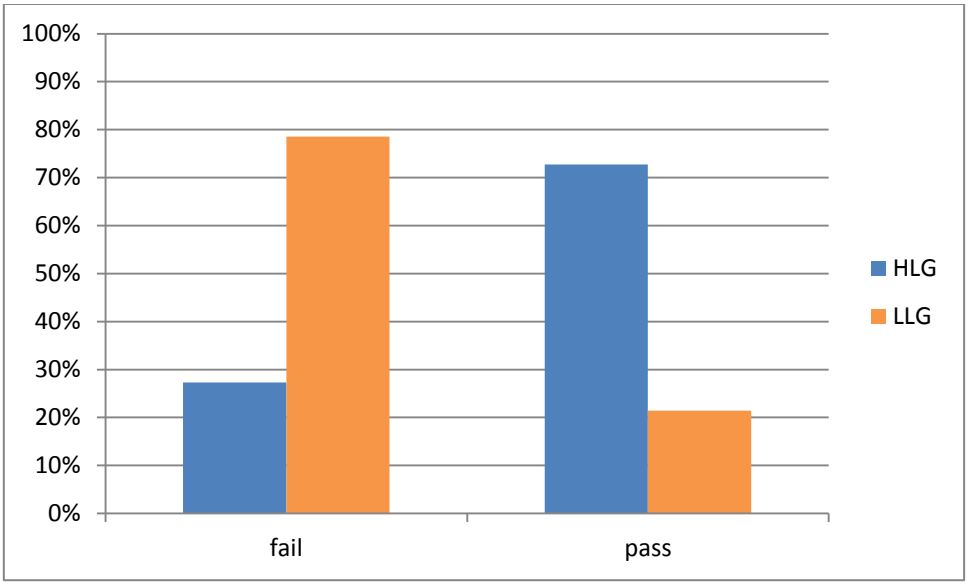

Figure 15: Totals of post-test results in the HLG and LLG after the technological lesson

As can be seen above, there is a statistically significant difference between the scores of each group, p-value being 0.00 ($p < 0.05$). Thus, the majority of the students in the HLG (24, 73%) passed this post-test – that is they got 12 or above 12 points –; whereas only 3 students (21%) in the LLG obtained a passing grade. This difference between the groups can also be observed in the means of each group, which were 16.23 and 6.95 respectively. These results could lead us to conclude that gamification was more useful to improve vocabulary acquisition in the HLG than in the LLG. Yet, when we analysed the post-test results obtained after the non-technological lesson in both groups (HLG and LLG) we observed a similar pattern (see Figure 16).

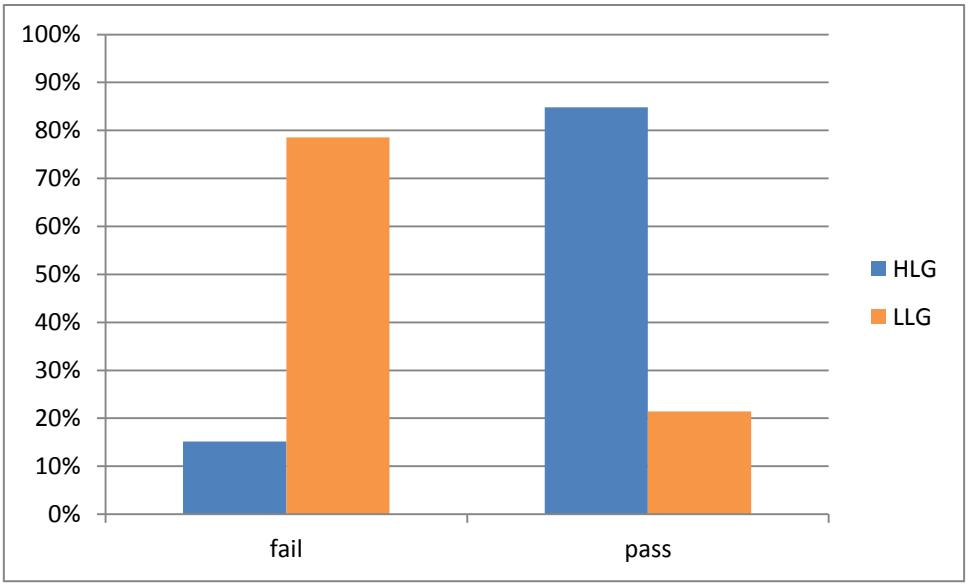

Figure 16: Totals of post-test results in the HLG and LLG after the non-technological lesson

As seen in Figure 16, the distribution of the grades of each group is similar to the distribution of the scores in the post-test of the technological lesson (Figure 15). Similarly, the post-test p-value in this non-technological environment was also 0.00 ($p < 0.05$) which indicates a statistically significant difference between the two groups. This is due to the fact that in the post-test of the non-technological lesson, 28 students (85%) of the HLG passed; whereas only 3 students (21%) in the LLG obtained such grades. The means of the HLG and the LLG were 16.20 and 6.27 respectively.

All the above-mentioned findings point out to the fact that gamification did not help the majority of students in the LLG pass the post-test, while this did happen with the HLG. However, the same happened after following a non-technological methodology. It is possible that the difference in the levels of competence in the foreign language of students in both groups is important enough to result in such significant differences between the scores of both groups.

Despite these not very encouraging findings, when we compared the means of both post-tests we discovered that there was an improvement of 0.68 in the technological lesson (6.95) when compared to the non-technological lesson (6.27) in the LLG. In the HLG however, students improved only by 0.03 when gamification was implemented (16.23 vs. 16.20).

To summarise, data analyses have shown that both methodologies used in this project favoured the students' acquisition of lexical items. Nonetheless, the implementation of gamification represented a slightly higher level of acquisition in both groups but more noticeable in the LLG. Even though this improvement did not result in students in the

LLG achieving higher grades than students in the HLG, the global improvement of students in the LLG after the technological lesson was nevertheless more evident than that of students in the HLG.

Since we believe that these findings might be related to an increase in the students' motivation, in the following section the results from the questionnaire will be analysed in order to find answers to RQ3.

5.2. The motivational variable

The reason for implementing gamification was to increase students' participation in the foreign language classroom and as a result vocabulary acquisition given its motivational component. In order to investigate if the findings from this study, already presented in the previous sections, could be related to their perception of motivation, all participants (47) in this project answered the questionnaire about motivation (See Appendix 9).

Once the answers to this questionnaire were analysed, we observed that in Question 5 about active participation (He participado con ilusión en las actividades de gamificación) the vast majority of students (45, 96%) agreed to have been more participative when carrying out technological activities (see Figure 17 below) the mean being 3.70 over 4, with a very low deviation (0.54).

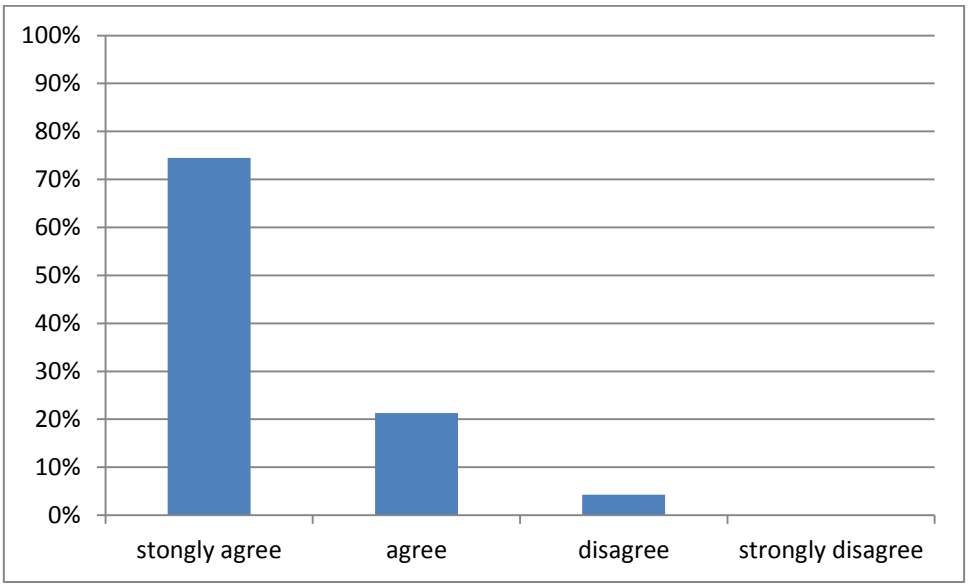

Figure 17: Totals of answers to Q.5

The reasons for such participation may be linked to the answers gathered from Questions 1 (Estoy satisfecho/a con las actividades de gamificación) and 2 (Me he divertido con las actividades de gamificación) which showed that the gaming activities fulfilled the students' needs of satisfaction and fun (see Figure 18 below). The vast

majority of students were extremely positive with 46 (98%) in Q1 and 47 (100%) in Q2 agreeing to have enjoyed gamification (satisfaction) and to have had fun during the technological lesson.

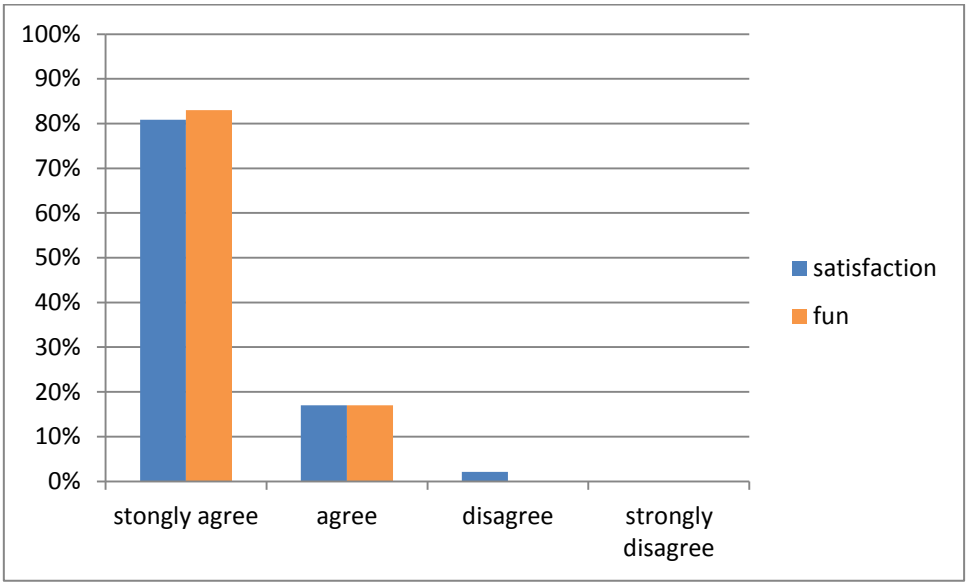

Figure 18: Totals of answers to Q.1 and Q.2

The mean in Q1 was a bit lower than in Q2, the former being 3.79 and the latter 3.83. Moreover, the standard deviation in satisfaction was 0.46, while in fun it was 0.38. This means that the students' opinions about their satisfaction with the gaming activities from the technological lesson were more varied than the results about these activities being fun. Therefore, activities being fun are not enough to satisfy the students' needs and expectations and other parameters have to be studied in order to successfully engage students.

One of such parameters is feedback, since in gamification showing to the peers how well the students are doing is motivating because it raises their self-confidence (Dellos, 2015). In order to investigate whether Dellos's reflection could be applied to this context, students were also asked if they believed to be good at gaming activities (Q.3 Pienso que soy bueno/a en las actividades de gamificación) and whether it was important for them to demonstrate their abilities in front of the class (Q.4 Era importante para mí hacerlo bien en las actividades de gamificación). See Figure 19 below:

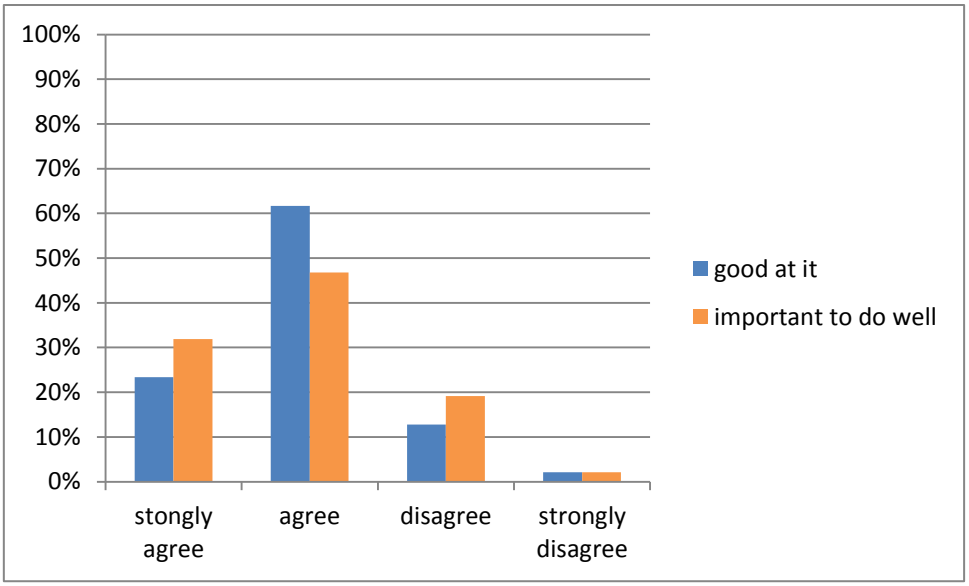

Figure 19: Totals of answers to Q.3 and Q.4

As it can be seen in Figure 19, 40 students (85%) thought that they were good at these activities, and 37 (79%) thought that it was important for them to demonstrate this to the rest of the class. However, results were more varied in these two questions since a higher number of students (7, 15% and 10, 21% respectively) disagreed with these two statements. This variation can also be observed in the means being lower than in the previous questions. Thus, the mean in Questions 3 and 4 were 3.06 and 3.09 respectively and the deviation was higher: 0.67 and 0.77. These results suggest that participants were not as sure about being good at the gaming activities and performing well being important for them as they were about these activities being fun and satisfying. Furthermore, the fact that they might not be sure about their abilities may be one of the reasons for the mean of satisfaction (3.79) being lower than the mean of fun (3.83), since the students' insecurities about being good at gaming might make them enjoy the activities less in spite of them being fun.

Still, results from Questions 3 and 4 suggest that the response systems used in this project (namely *Kahoot!* and *Socrative*) motivate students to do well in order to prove their abilities to their peers, which increases their self-confidence.

The participants' level of confidence when doing this type of activities is also reflected in their expectations of getting higher grades after the implementation of gamification in the classroom (Question 6, Después de estas actividades, creo que sacaría buena nota en un examen). As illustrated in Figure 20 below, 40 students (85%) participants believed that their grades would be high in a test after doing these activities.

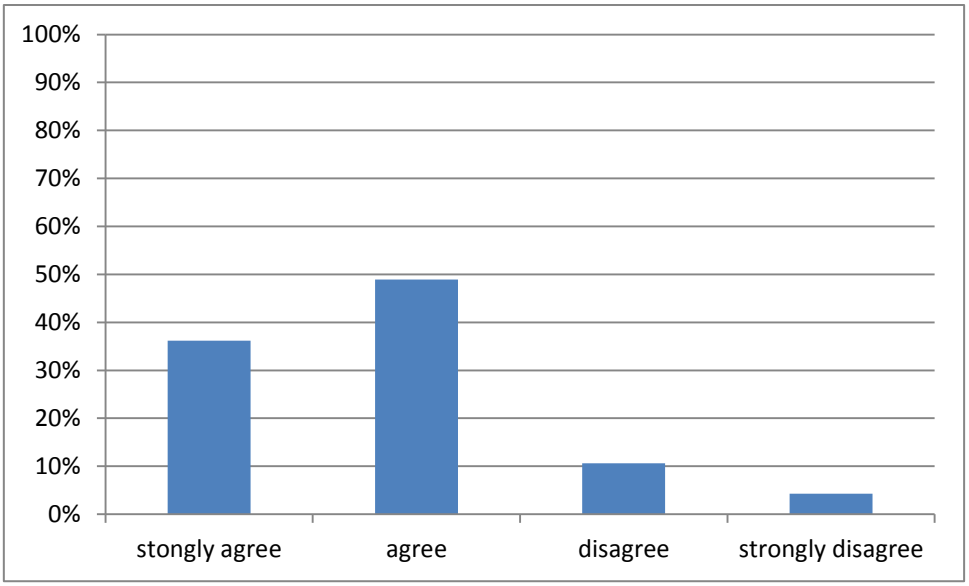

Figure 20: Totals of answers to Q.6

The mean of this question was 3.17 with a standard deviation of 0.79. In this question, we can also see that some students (7, 15%) are doubtful about gaming having a positive impact in their final grade. This could be due to the fact that gamification may be considered as an activity not conducive to learning, given that in most learning environments this activity is still rare. It is possible that a more frequent introduction of gaming activities could make students' confidence grow enough for the majority of them to strongly believe in the learning benefits that gamification have in the classroom.

Other interesting findings in connection to Question 6 were found when we compared to the answers to this question in the HLG and the LLG. Thus, answers from the students in the LLG showed a clearer connection between using gamification and their final grades than the students in the HLG (see Figure 21 below).

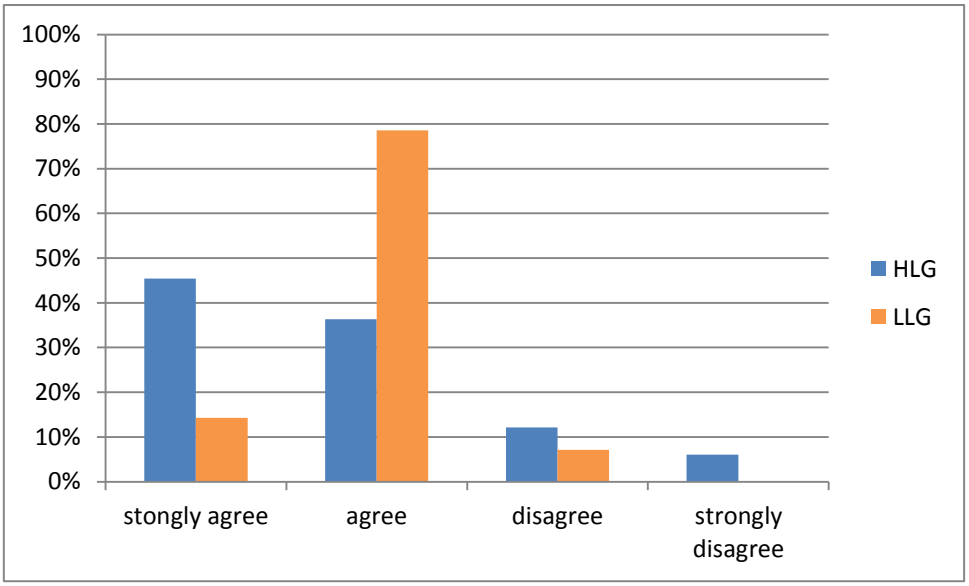

Figure 21: Totals of answers to Q.6 in the HLG and LLG

Thus, 13 students out of 14 – (93%) in the LLG agreed that gamification would have a positive impact on their grades whilst 27 students out of 33 (82%) thought the same in HLG. Therefore, the students in the LLG were more confident that they would get a high mark after the technological lesson than the students in the HLG. This can also be seen in their answers' deviation: 0.46 and 0.88 respectively. The fact that the standard deviation in the responses of the LLG is lower shows that most students in that group shared the same opinion.

Surprisingly, this confidence shown by the LLG was only in relation to this question. When we compared each group's answers to Q3 (whether they believed they were good at the gaming activities), we could see that only 9 students (64%) in the LLG agreed whilst 31 students (94%) in the HLG did (see Figure 22 below). There were also more students from the former group who claimed not to be good at these activities, namely 5 students (36%), whilst only 2 (6%) in the HLG shared this opinion.

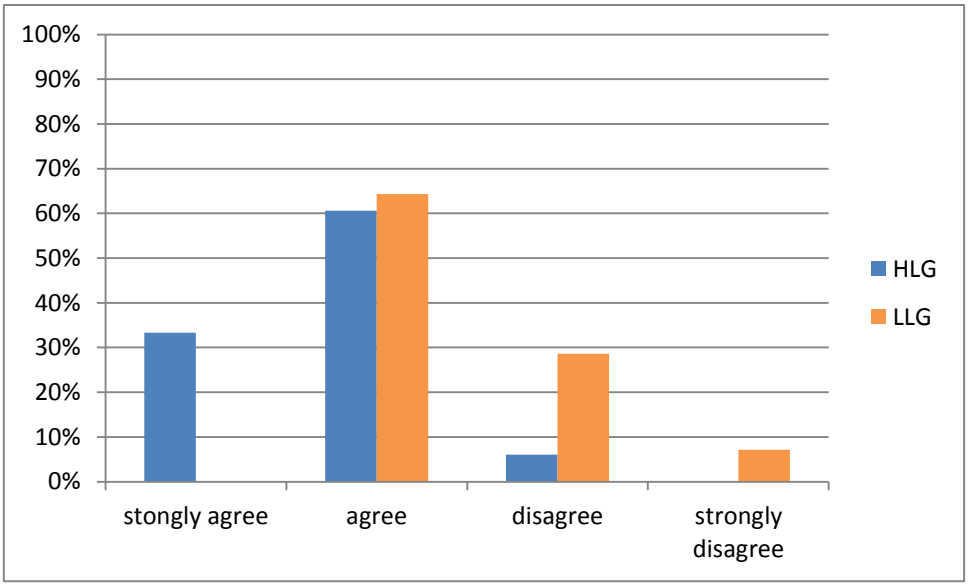

Figure 22: Totals of answers to Q.3 in the HLG and LLG

These differences in the levels of confidence can also be appreciated in the means of each group. In the HLG it was 3.27, whereas it was 2.57 in the LLG. The standard deviation was similar in both groups: 0.57 in the HLG and 0.62 in the LLG.

These results coincide with those from Question 7 (Me ha resultado difícil hacer las actividades de gamificación), which dealt with how difficult the participants had found the gaming activities. Figure 23 shows that 3 participants out of 14 (21%) in the LLG claimed that the gaming activities were difficult, whereas only 3 students out of 33 (9%) in the HLG thought the same. For this question, the vast majority of students in the HLG (30, 91%) disagreed that gaming had been difficult compared to 11 (79%) students in the LLG. Thus, students in the LLG (with a mean of 1.71 and a deviation of 0.81) perceived the activities done during the technological lesson as slightly more difficult than students in the HLG (with a mean of 1.61 and a deviation of 0.80).

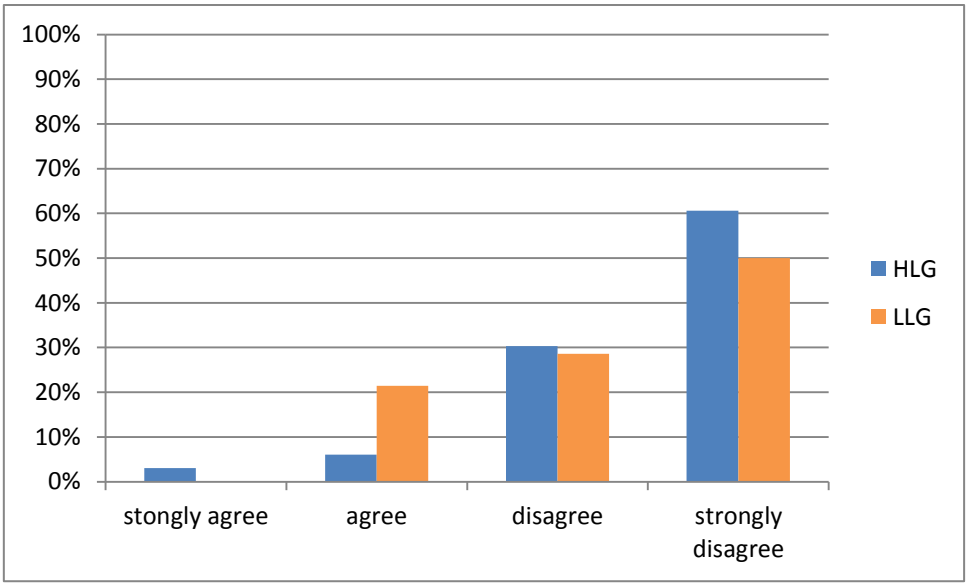

Figure 23: Totals of answers to Q.7 in the HLG and LLG

Difficulty in the gaming activities was not the only factor that was analysed in the questionnaire. The students also had to answer if they had found the activities boring or stressful in Questions 8 (La gamificación me parece aburrida) and 9 (La gamificación me resulta estresante) (see Figures 24 and 25).

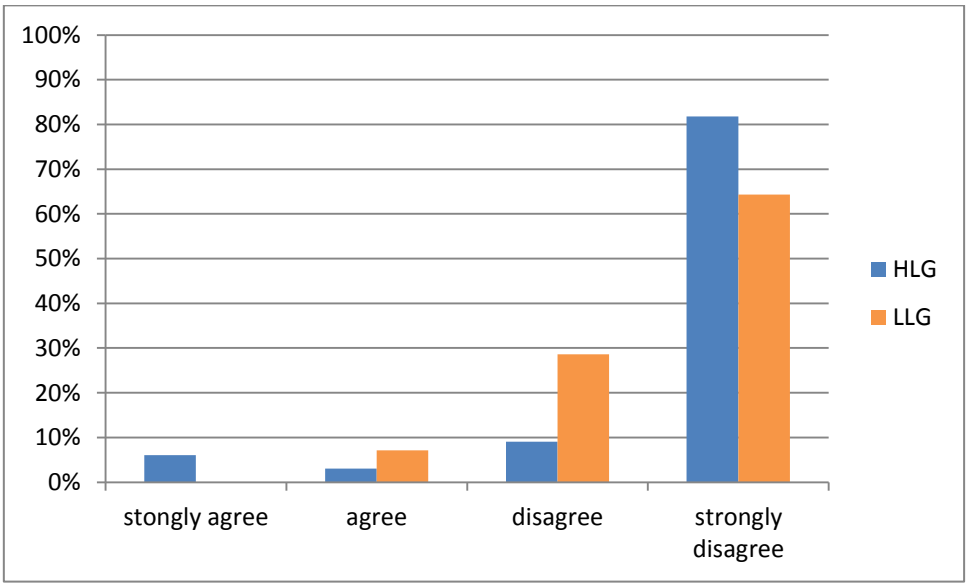

Figure 24: Totals of answers to Q.8 in the HLG and LLG

Results from Question 8 showed that 3 students (9%) in the HLG found the activities to be boring, whereas only 1 participant (7%) in the LLG felt this way. The mean in the HLG was 1.33, whereas in the LLG it was a 1.43 indicating that students in the LLG disagreed more with this statement. Answers in the HLG also varied more (0.80) than in the LLG (0.62).

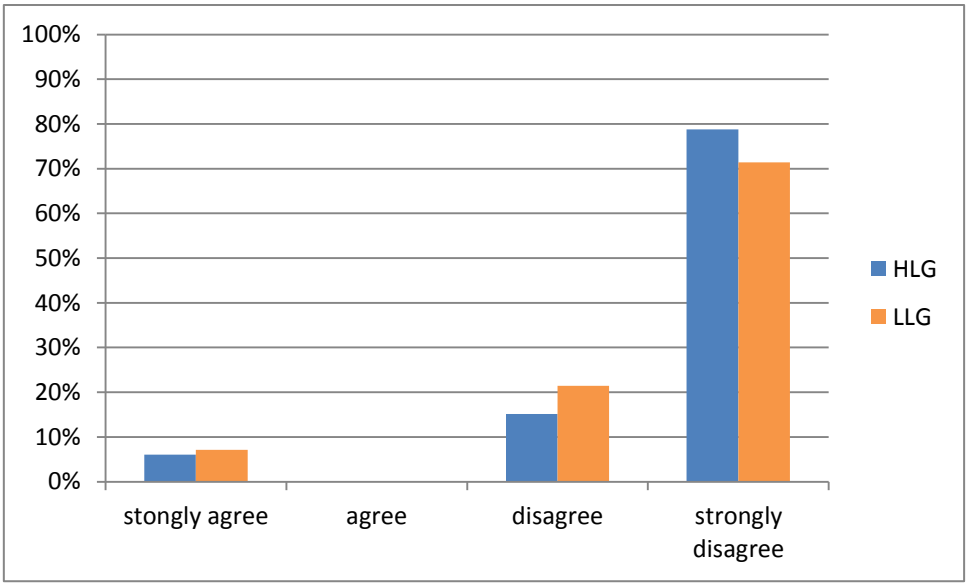

Figure 25: Totals of answers to Q.9 in the HLG and LLG

Regarding feeling stressed during the technological lesson (Question 9), only 1 participant (7%) in the LLG and 2 students (6%) in the HLG felt stressed when doing the gaming activities. The vast majority of students (31 students (94%) in the HLG and 13 participants (93%) in the LLG claimed that they had not felt stressed by the gaming activities. The means for these questions were closer, with 1.33 in the HLG and 1.43 in the LLG. The standard deviation was also higher in the LLG (0.82) when compared to 0.77 in the HLG.

An explanation for the feelings of boredom and stress of a small minority of the students in both groups could not be found, but it is plausible to think that these results might be linked to the levels of perceived positive impact of gaming on their grades (results from Question 6). As can be seen in Figure 21, most students in the LLG (13, 93%) agreed that gamification would have a positive impact on their grades whilst 27 students out of 33 (82%) thought the same in the HLG. It is also plausible that the activities may have been more challenging for students in the LLG and therefore only 1 student mentions feeling bored in that group (3 in the HLG). In any case, it would be interesting to investigate this finding further with a bigger sample to get significant results regarding the impact that these factors can have in a gamification context.

As regards finding an explanation for the very high disagreement levels found in both groups for Questions 8 and 9, it is possible that the desire to boast about one's results or showing off to the rest of the peers does not only create a competitive environment but it also motivates the students to be active, relaxed and do better at the same time it makes their confidence grow (Dellos, 2015: 51). As illustrated in Figure 19, both groups

gave importance to perform well during the gaming activities (answers to Question 4). Nonetheless, Figure 26 below shows that more students in the LLG gave importance to their performance than those in the HLG: a total of 12 out of 14 students (86%) in the LLG agreed with this statement when compared to 25 students out of 33 (76%) in the HLG.

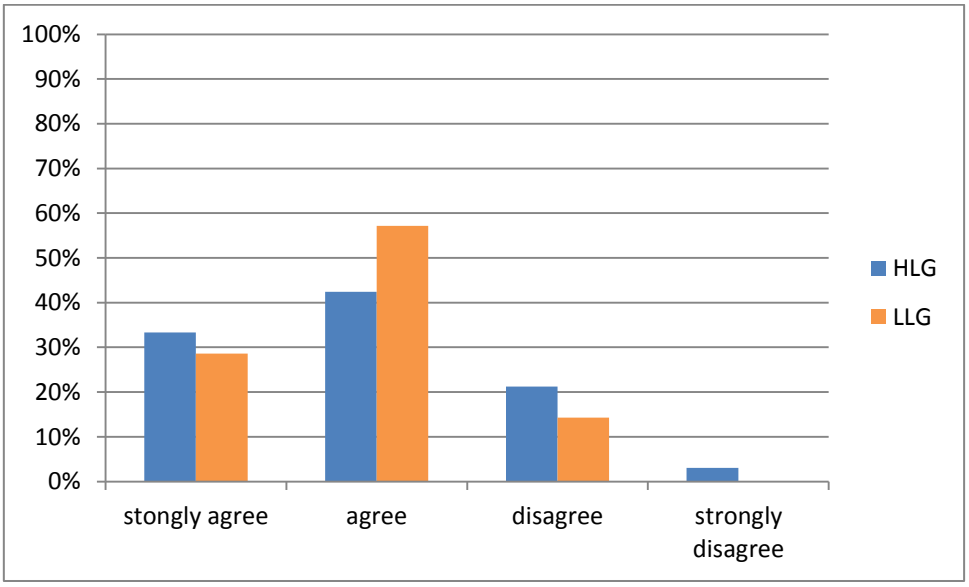

Figure 26: Totals of answers to Q.4 in the HLG and LLG

Thus, doing well was more important for the students in the LLG (mean 3.14), than to the students in the HLG (mean 3.06). Moreover, the answers of students in the LLG were similar with a deviation of 0.64 whereas the deviation in the HLG's answers was 0.81. This finding indicates that having their success recognized was more important to more students in the LLG than in the HLG.

It is possible that this higher need for recognition in the LLG might be related to the fact that students in this group are also the ones who believed to have done worse during the activities (see Figure 22). Public acknowledgement of success by means of the scoreboard seems to be more important for those students with lower self-confidence. This is also supported by the fact that a higher number of students in this group agreed with the idea of doing gaming activities more frequently as can be seen in response to Question 10 (Me gustaría que la gamificación se introdujera en las aulas de mi colegio) (See Figure 27):

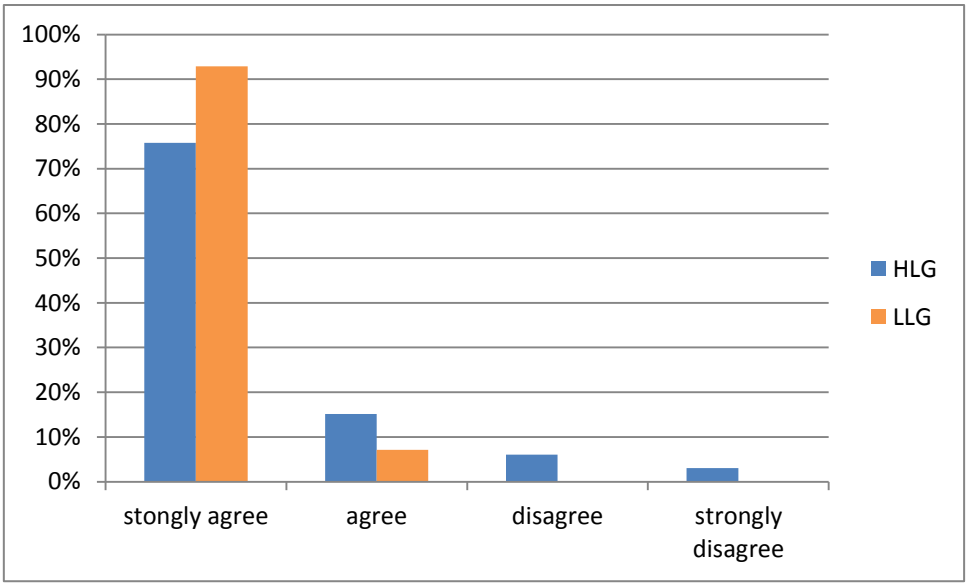

Figure 27: Totals of answers to Q.10 in the HLG and LLG

Even though there is a high number of students in the HLG who would like to see gamification being implemented more frequently in the English classroom (30, 91%), the entire LLG (14, 100%) shared this opinion. Moreover, whereas no student in the LLG claimed not to be interested in a more frequent implementation of gamification, 3 participants (9%) in the HLG were not interested in it. The fact that some students in the HLG were against the implementation of gamification lowers this group's mean (3.64) in contrast to the mean of the LLG (3.93). Also, the deviation in the HLG was much higher (0.73) than the one in the LLG (0.26).

It is possible that the fact that students in the LLG are more interested in using gaming in the classroom might be related to a desire to have more motivating activities in the learning process as previously suggested in response to Question 4. It is also plausible that this need for more motivation could be explained by their lower level of competence in the foreign language and perhaps being self-conscious about this fact. This could be one argument against streaming a group according to their level of competence in the foreign language. Yet, this division seems to help the teacher fulfil students' needs more easily.

Despite all above-mentioned findings, all participants' answers have been extremely positive regarding both results from the post-tests and motivation. This seems to be a likely explanation for the high number of students to agree in Question 11 (Creo que la gamificación se puede utilizar en otras asignaturas), which suggested the possibility of implementing gamification not only in the English classroom but also in other subjects (Figure 28):

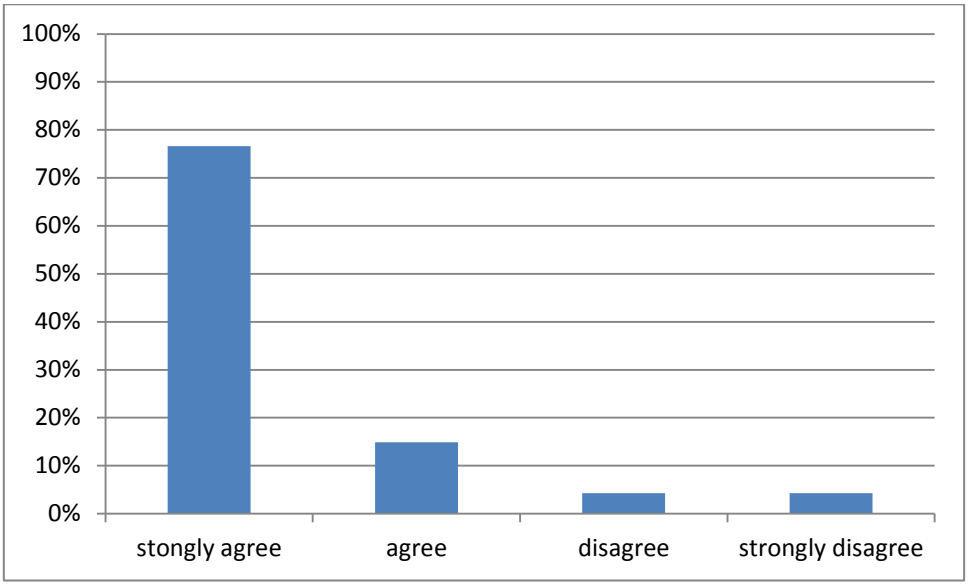

Figure 28: Totals of answers to Q.11

Out of 47 participants, 43 students (91%) agreed with the idea of gamification being implemented in other subjects. The mean was quite high (3.64) and only a small minority (4, 9%) disagreed with this idea. Standard deviation was also high (0.76).

When presented with the idea of gamification being the only teaching approach in the classroom (Question 12: Si solo se utilizara la gamificación en las aulas, me aburriría) the majority of students (39, 83%) answered that the classes would not be boring if only gamification was used. The mean was 1.72 with little deviation in the students' answers (0.92). See Figure 29:

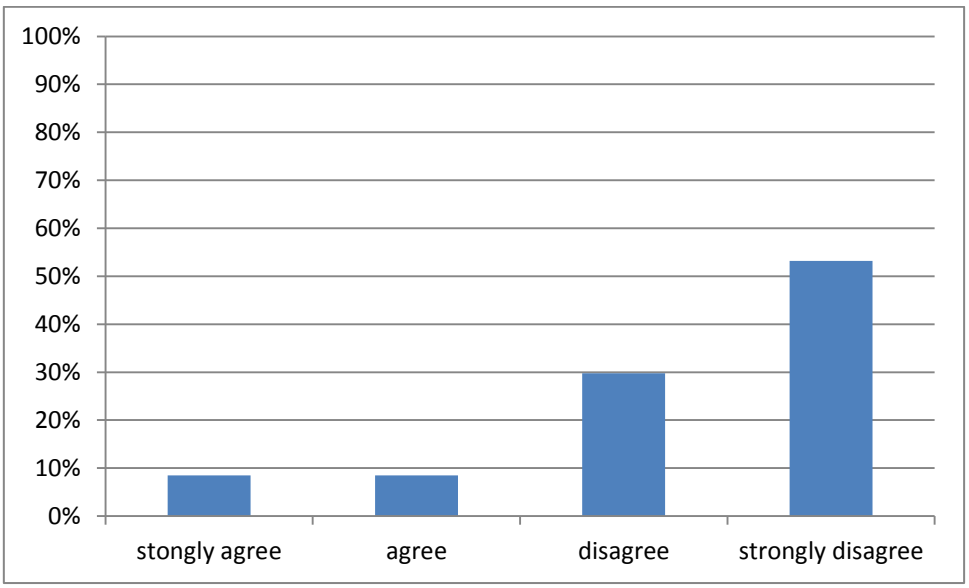

Figure 29: Total of answers to Q.12

This finding is consistent with the previous ones and suggests that gaming prompts motivation and has a positive effect in students' perception of the learning process. In this respect, it would be interesting to track students' motivation during an entire semester using only gaming systems in order to discover whether the use of this technology is a continually motivating factor or if it only works when introduced in the classroom sporadically.

Finally, since two different response systems were used for the technological part of this research project (*Kahoot!* and *Socrative*), the last question in the questionnaire was a multiple choice question in which students had to answer whether they preferred one of these systems to the other (Figure 30).

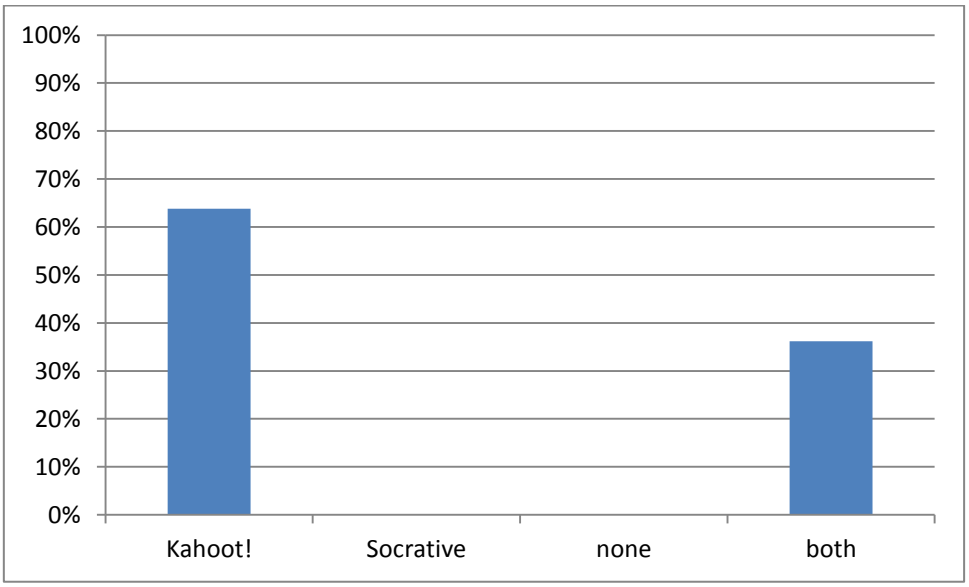

Figure 30: Totals of answers to Q.13

As can be seen in Figure 30, both gamification tools were enjoyed by the students since there were not any participants who claimed not to have not liked either of them. In fact, 30 students (64%) claimed to have liked *Kahoot!* the most, whereas 17 students (36%) claimed that they liked both *Kahoot!* and *Socrative* together.

Taking into account that the motivational feedback element has been shown to be a motivating factor, it is possible that the aesthetics of the scoreboard generated by *Kahoot!* engages students more than that by *Socrative*. Also, rewarding time of answer helps create a more competitive environment which the students seem to appreciate. Furthermore, the questions that were played with *Kahoot!* were answered individually, so the reward was due only to personal achievement and effort. This aspect may have motivated the students more than relying on their team to get the answers right.

6. Conclusion

This paper has researched the implications that gamification can have in English as a Foreign Language classroom within the Spanish educational context. Students' interests and needs have changed from one generation to another, but the educational system has not evolved at the same pace. The integration of technology into the learning process could be an effective solution for this situation, as nowadays teenagers use it on a daily basis. More specifically, the use of gamification could prompt students' learning results given its gaming aesthetics and characteristics to which teenagers are so used to nowadays. Introducing an element that is familiar to them in the classrooms could motivate and engage them resulting in an improvement of their learning.

After analysing the data gathered from a group of Secondary Education students, results suggest that there is indeed an improvement in their acquisition of English lexical items in the technological lesson when compared to the non-technological methodology used in the school. This conclusion does not entail that the latter methodology is not useful or beneficial – which it is, as the results also demonstrate – but rather that the implementation of gamification has a slightly higher effect in students' improvement.

There are some limitations to this study. Cross-program and cross-institutional studies with larger sample sizes are required if results are to be generalized. Although a questionnaire based on specific criteria is an appropriate method that provides opportunities for students to become actively involved in the evaluation of their own learning experience, supplementary analyses of production progress or performance data may increase the degree of reliability and validity of the results (Vinagre, in press).

Despite the above-mentioned limitations, in this paper we have shown that gamification improves the acquisition of vocabulary in the foreign language. This improvement has been higher in the LLG and the motivational component of gamification seems to play a role in such an improvement. There are still many other questions to be answered that are left for future studies to be carried out in this field. First of all, it would be interesting to investigate the correlation between external and internal factors and their impact on students' motivation in a gaming context. Secondly, the implications of implementing gamification should be tested longitudinally in order to see whether the improvement derived from its implementation are sustained over time or it works better when introduced only sporadically in the classroom.

Finally, whatever the answers to these questions might be, we can state that gamification can be used in a teaching context safely and that it has numerous benefits for students' foreign language learning. Therefore, Spanish teachers should advocate for its implementation in the classrooms, not only in the English classroom but also in other courses too since this methodology appeals to students and motivates them into learning.

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8. Appendixes

8.1. Appendix 1

Consent form

9 de Marzo de 2017

Estimado/a padre / madre / tutor:

Me pongo en contacto con usted para informarle de que se va a realizar un estudio sobre el uso de **gamificación** en la asignatura de Inglés con los grupos de **3º A** y **3º B** de la ESO. La gamificación consiste en el uso de aplicaciones web de juego con un fin pedagógico. Este estudio es realizado por una docente en prácticas de la Universidad Autónoma de Madrid como proyecto de investigación para su Trabajo de Fin de Máster. A los alumnos que participen se les permitirá usar su **teléfono móvil** en la clase de Inglés los días **23 de marzo** (grupo ordinario de 3º A), **24 de marzo** (grupo ordinario de 3º B) y **27 de marzo** (agrupamientos flexibles de 3º A y 3º B). El uso del dispositivo móvil estará restringido a las siguientes aplicaciones:

- **Kahoot!**
- **Socrative Student**

Los alumnos tendrán que traer **ya instaladas** en sus móviles estas aplicaciones. Si necesita más información contacte con nuestro centro.

Reciba un cordial saludo:

FDO: _____

--✂----------

D/Dña. _____,
padre/madre/tutor del alumno/a _____ del grupo_____, AUTORIZO a mi hijo/a a utilizar su teléfono móvil dentro del marco de este proyecto de gamificación en la asignatura de Inglés.

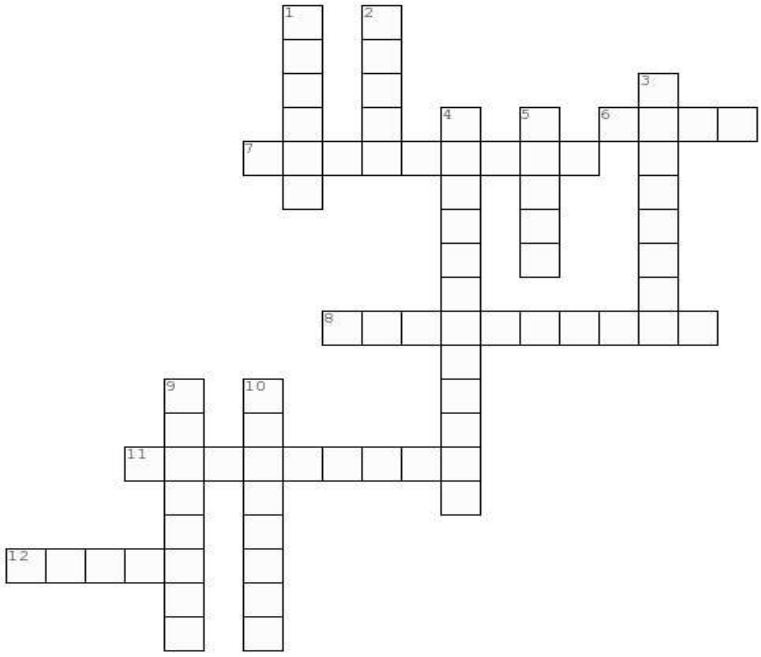
En _____ a ____ de _____ de 2017

Fdo:_____
(Padre/Madre/Representante Legal)

8.2. Appendix 2

Non-technological pre-test

1. Complete the crossword:



Down

1. Design that is drawn on someone's skin using needles and coloured dye.

2. Small pieces of coloured glass, wood, or plastic with a hole through the middle. They are often put together on a piece of wire to make jewellery like necklaces.

3. Coloured substance in the form of a stick which is used to colour someone's lips.

4. Thick liquid that women paint on their nails

5. Metal rings connected together in a line.

9. Substance made from plants or chemicals which is mixed into a liquid and used to change the colour of hair.

10. Type of jewellery that is worn in different parts of the body.

Across

6. Small circle of metal or other substance that you wear on your finger as jewellery

7. Hair that grows on men's upper lip

8. Hair style in which the hair is worn in long, rope-like locks. They are mainly worn by Rastafarians.

11. Strip of hair growing down the side of each cheek.

12. Hair that grows on men's chin and cheeks.

2. Fill in the blanks with the most appropriate noun.

1. That bracelet has got beautiful _____ in it.
2. I've always wanted to grow a _____ since I was 16, but my face is hairless.
3. Rappers wear a lot of gold _____ around their necks.
4. My mom doesn't allow me to have _____ because she says they will ruin my hair. But I want to look like Bob Marley…
5. My favourite _____ is the Impatient Pink one. It looks very pretty on my lips.
6. My granddad has a bushy and grey _____. He looks like Albert Einstein.
7. My sister has dyed her hair again. But the _____ _____ was too dark to suit her.
8. I cannot wear any _____ _____ because I am a cook and I work with my hands.
9. A lot of people have _____ in the nose nowadays. It must hurt a lot.
10. He bought her a tremendous _____ for the marriage proposal.
11. Justin Bieber has got a new _____ on his right leg.
12. He looks funny because he has got blond hair but his _____ are read-haired.

8.3. Appendix 3

Non-technological post-test

1. What is it? Read the definition and write down what it refers to.

1. Type of jewellery that is worn in different parts of the body.
   - _____
2. Design that is drawn on someone's skin using needles and coloured dye.
   - _____
3. Metal rings connected together in a line.
   - _____
4. Hair that grows on men’s chin and cheeks.
   - _____
5. Thick liquid that women paint on their nails.
   - _____ _____
6. Strip of hair growing down the side of each cheek.
   - _____
7. Substance made from plants or chemicals which is mixed into a liquid and used to change the colour of hair.
   - _____ _____
8. Hair style in which the hair is worn in long, rope-like locks. They are mainly worn by Rastafarians.
   - _____
9. Small pieces of coloured glass, wood, or plastic with a hole through the middle. They are often put together on a piece of wire to make jewellery like necklaces.
   - _____
10. Small circle of metal or other substance that you wear on your finger as jewellery.
    - _____

11. Hair that grows on men's upper lip.

- _____

12. Coloured substance in the form of a stick which is used to colour someone's lips.

- _____

2. Fill in the blanks with the most appropriate noun.

13. I used to make necklaces with colourful _____ when I was a child.

14. A lot of dictators had a small _____. For example, Hitler.

15. My grandfather gave me the _____ he used to wear around his neck when he was in the military. It is really heavy.

16. People say I am not a real hippie because I don't have _____ , but they look so uncomfortable… I prefer straight hair.

17. I usually wear red _____. I think it makes my smile sexier.

18. My granddad has a bushy and white _____. He looks like Santa Claus.

19. I would like to try the new blond _____ _____, but I don't know if it would suit me.

20. I love using white _____ _____ in my fingers and toes during summer.

21. I met a boy with a lot of _____ in his ear. He also had one in his tongue.

22. My mum is freaking out because she has lost her wedding _____!

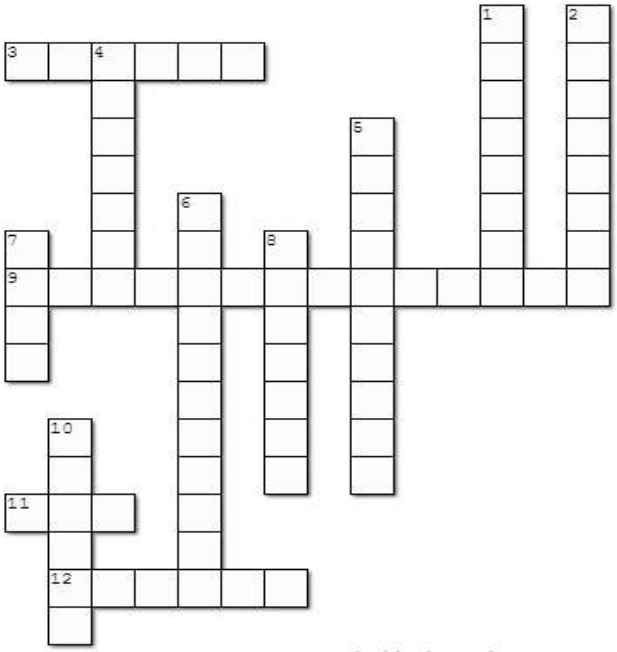
23. I would love to have a _____ on my back, but it must hurt a lot.

24. Jose, who is my Spanish teacher, has very long _____.

8.4. Appendix 4

Technological pre-test

1. Complete the crossword:



Down

1. Small light brown spots on someone's skin, especially on their cheeks and nose.

2. Lines which are formed on someone's face as they grow old.

4. A punk hairstyle in which the hair is shorter at the sides and the centred strip of hair is worn stiffly erect.

5. Dyed stripes in the hair, usually of a lighter colour than your own hair.

6. A small, dark spot on the skin.

7. A mark on the skin which is left after a wound has healed.

8. The very short hairs on a man's face when he has not shaved recently but it is not a beard yet.

10. Hair which is cut so that it hangs over your forehead and (sometimes) above your eyes.

Across

3. Small raised spot in the face, usually with pus inside.

9. Small plastic lenses that you put on the surface of your eyes to help you see better, instead of wearing glasses.

11. A covering of false hair which you wear on your head.

12. A very short pointed beard that covers a man's chin but not his cheeks.

2. Fill in the blanks with the most appropriate noun.

1. I don't like dyeing all my hair, but I like having blond _____.
2. After the surgery, she had a long _____ in her knee.
3. His skin is very pale and he gets _____ on his face when he is under the sun for a long time.
4. You should shave soon if you don't want to have a beard. You already have a _____.
5. I stopped wearing glasses last year. I use _____ _____ now.
6. I like that cute little _____ _____ on Sarah's upper lip.
7. Even though my grandmother is 85 years old, she has not many _____ on her face. She looks much younger.
8. Mike has a lot of _____ on his face. He should eat less chocolate.
9. I am going to cut my hair and get a _____ above my eyes.
10. For carnival I wore a blue _____ instead of dyeing my hair.
11. He has hair only on his chin. That is not a beard! That is a _____!
12. My brother got his hair cut last week. He got a _____ like Cristiano Ronaldo.

8.5. Appendix 5
Technological post-test

1. What is it? Read the definition and write down what it refers to.

13. Lines which are formed on someone's face as they grow old.

- _____

14. A small, dark spot on the skin.

- _____ _____

15. A punk hairstyle in which the hair is shorter at the sides and the centred strip of hair is worn up.

- _____

16. Small light brown spots on someone's skin, especially on their cheeks and nose.

- _____

17. Dyed stripes in the hair, usually of a lighter colour than your own hair.

- _____

18. Small raised spot in the face, usually with pus inside.

- _____

19. Small plastic lenses that you put on the surface of your eyes to help you see better, instead of wearing glasses.

- _____ _____

20. A mark on the skin which is left after a wound has healed.

- _____

21. A covering of false hair which you wear on your head.

- _____

22. Hair which is cut so that it hangs over your forehead and (sometimes) above your eyes.

- _____

23. A very short pointed beard that covers a man's chin but not his cheeks.

- _____

24. The very short hairs on a man's face when he has not shaved recently but it is not a beard yet.

- _____

2. Fill in the blanks with the most appropriate noun.

13. I have a small _____ in my leg from that time I fell off my bike.

14. A: Hey! Have you changed your hair? B: No, I'm wearing a _____.

15. I am going to buy red _____ _____ for my vampire costume.

16. It is normal to have a lot of _____ on your face when you are a teenager.

17. I get _____ on my cheeks after being at the beach for some days.

18. The director's _____ looks like a perfect equilateral triangle.

19. Last week I saw a punk with a green _____. It must be very difficult to comb that!

20. She looks much older than she is. She has a lot of _____!

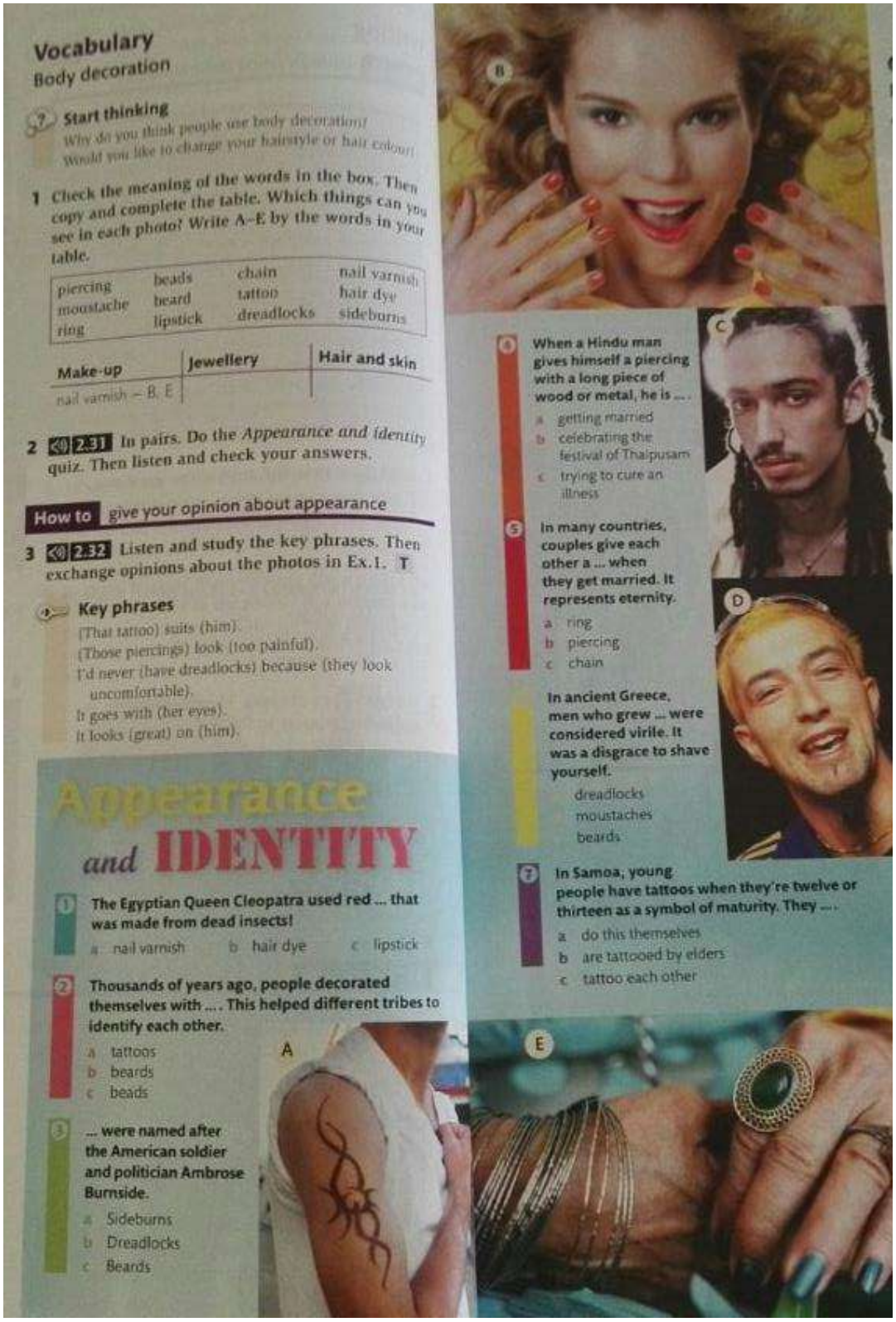
21. I have some new _____ _____ on my arm. I will go to the doctor to check them.

22. Tomorrow I am going to the hairdresser. I think I will get some blond _____ to light up my style.

23. You should let that _____ grow and have a proper beard.

24. My _____ is so long I cannot see! I have to wear a lot of hairpins.

8.6. Appendix 6
Activities performed in the non-technological lesson



Vocabulary
Body decoration

Start thinking
Why do you think people use body decoration?
Would you like to change your hairstyle or hair colour?

1 Check the meaning of the words in the box. Then copy and complete the table. Which things can you see in each photo? Write A–E by the words in your table.

piercing	beads	chain	nail varnish
moustache	beard	tattoo	hair dye
ring	lipstick	dreadlocks	sideburns

Make-up	Jewellery	Hair and skin
nail varnish – B, E		

2 2.31 In pairs. Do the *Appearance and identity* quiz. Then listen and check your answers.

How to give your opinion about appearance

3 2.32 Listen and study the key phrases. Then exchange opinions about the photos in Ex.1. T

Key phrases
(That tattoo) suits (him).
(Those piercings) look (too painful).
I'd never (have dreadlocks) because (they look uncomfortable).
It goes with (her eyes).
It looks (great) on (him).

Appearance and IDENTITY

1 The Egyptian Queen Cleopatra used red ... that was made from dead insects!
a nail varnish b hair dye c lipstick

2 Thousands of years ago, people decorated themselves with .... This helped different tribes to identify each other.
a tattoos
b beards
c beads

3 ... were named after the American soldier and politician Ambrose Burnside.
a Sideburns
b Dreadlocks
c Beards

4 When a Hindu man gives himself a piercing with a long piece of wood or metal, he is ....
a getting married
b celebrating the festival of Thaipusam
c trying to cure an illness

5 In many countries, couples give each other a ... when they get married. It represents eternity.
a ring
b piercing
c chain

6 In ancient Greece, men who grew ... were considered virile. It was a disgrace to shave yourself.
dreadlocks
moustaches
beards

7 In Samoa, young people have tattoos when they're twelve or thirteen as a symbol of maturity. They ....
a do this themselves
b are tattooed by elders
c tattoo each other

8.7. Appendix 7
Activities with *Kahoot!* performed in the technological lesson

What is she wearing in the bottom picture?

23

Skip

0
Answers

hair

a wig

a wight

a wiggle

What does Harry Potter have?

29

Skip

0
Answers

a wound

a burn

a scar

a beauty spot

Brad Pitt looks very attractive with that...

28

Skip

0
Answers

beard

bear

goate

goatee

What does she have on her cheecks and nose?

29

Skip

0 Answers

- beauty sports
- wrinkles
- pimples
- freckles

What does she have on her hair?

27

Skip

0 Answers

- highlights
- hair dye
- hihglihgts
- hair die

Older people have more...

27

Skip

0 Answers

- beauty spots
- wrinkles
- pimples
- freckles

What does Dakota have over her forehead?

What was Monroe's sexiest mark?

What is Jason's beard like?

What hairstyle is Cristiano wearing?

You can wear glasses or...

When you are a teenager, you have a lot of...


If you are pale, you tend to have...
Skip
6
Kahoot!
0
Answers
beauty sports
wrinkles
freckles
pimples

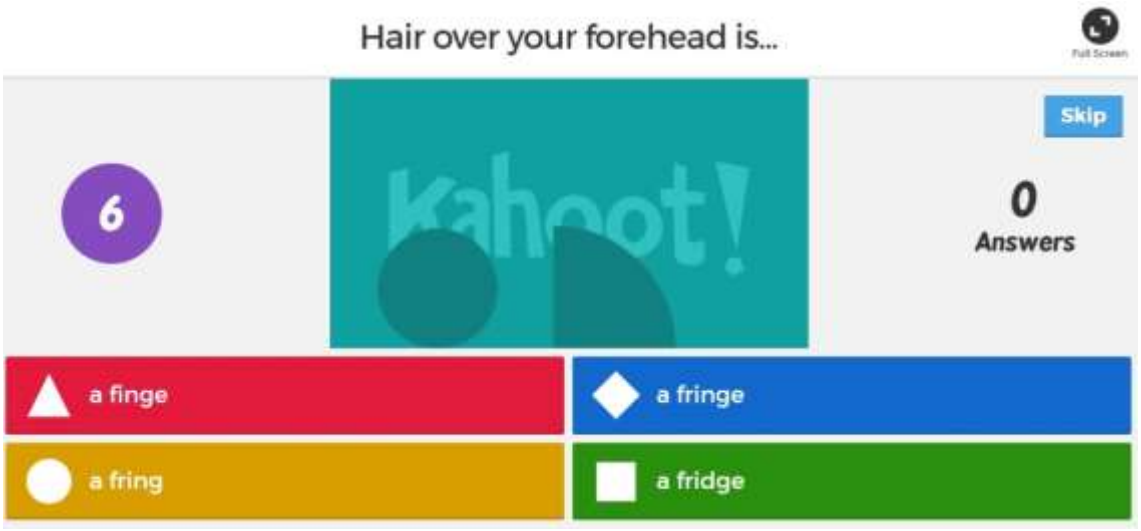

If you don't have hair, you can wear...
Skip
8
Kahoot!
0
Answers
a vig
a wight
a wig
a wiggle


Beard on your chin is...
Skip
7
Kahoot!
0
Answers
just a beard
a stubble
a goatee
a goat


Harry Potter is famous for his...
Skip
9
Kahoot!
0
Answers
wound
burn
scar
beauty spot


Lighter parts of hair are...
Skip
9
Kahoot!
0
Answers
hihglihgts
hair die
highlights
hair dye


A bit of beard is...
Skip
9
Kahoot!
0
Answers
just a beard
a stubble
nothing
a goatee


Hair over your forehead is...
6
Kahoot!
Skip
0
Answers
a finge
a fringe
a fring
a fridge

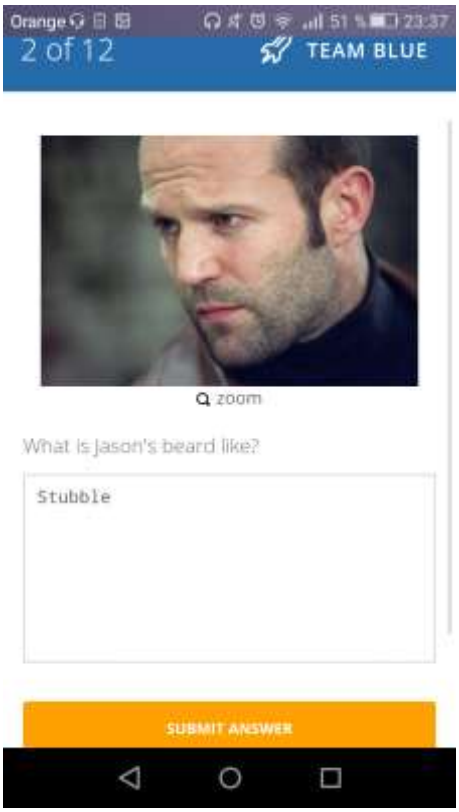

When you get older, you get...
8
Kahoot!
Skip
0
Answers
wrinkles
beauty spots
pimples
freckles

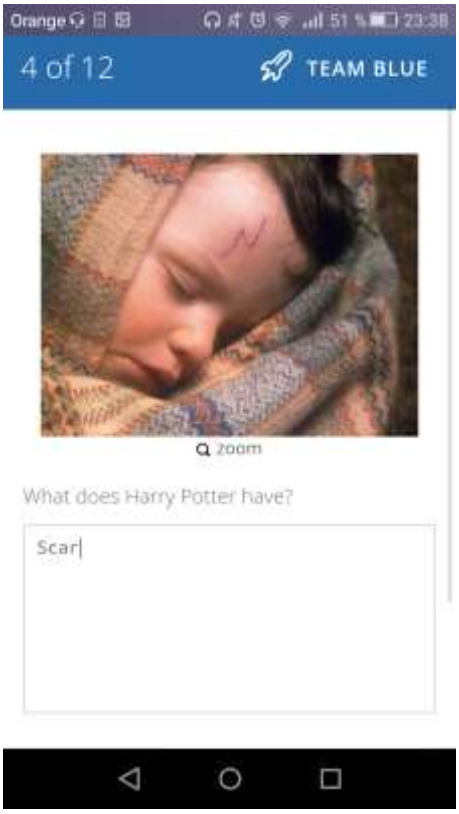

When your hair is upwars, you have...
10
Kahoot!
Skip
0
Answers
dreadlocks
a mohican
a mullet
a ponytail

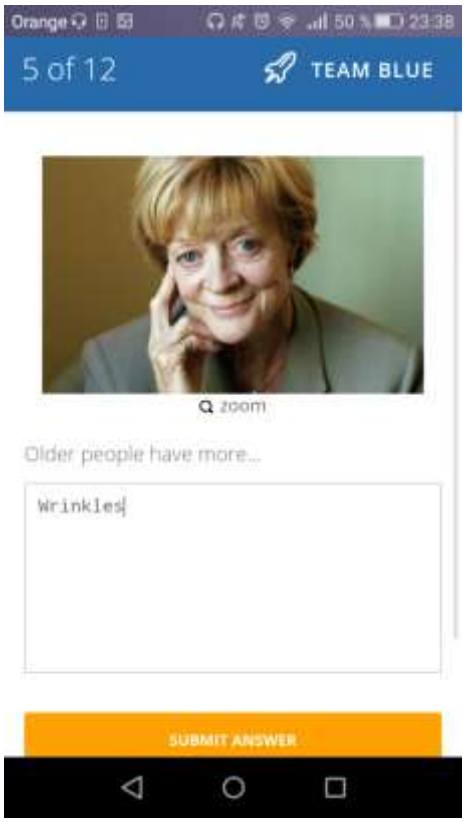

A brown mark on the skin is...
Full Screen
9
Kahoot!
Skip
0
Answers
a pimple
a wrinkle
a beauty spot
a freckle

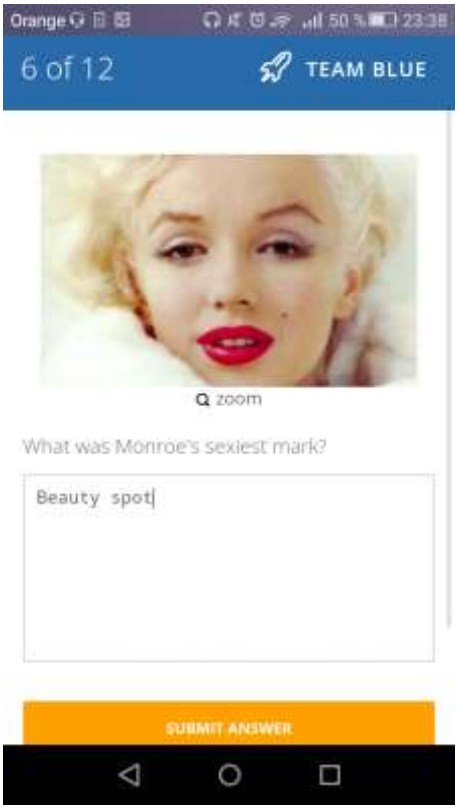
8.8. Appendix 8

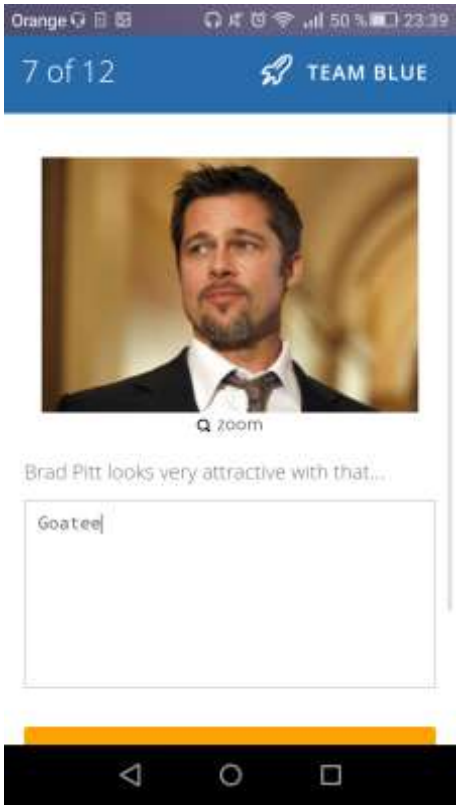
Activity with *Socrative* performed in the technological lesson



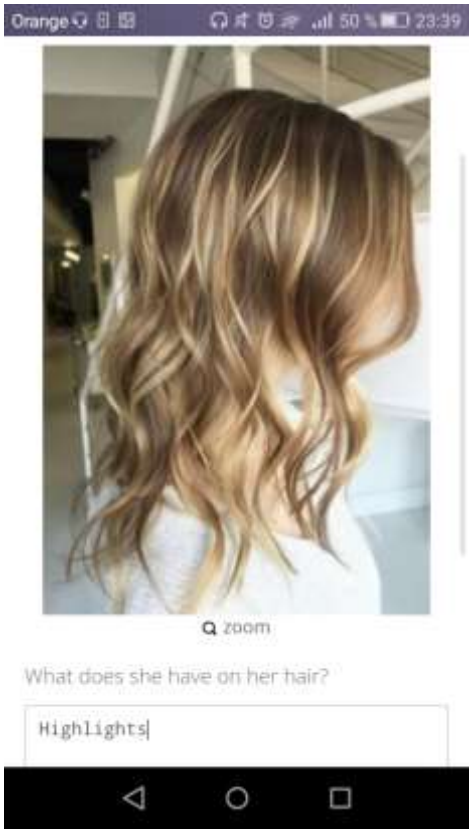



Orange
50 % 23:38
5 of 12
TEAM BLUE
zoom
Older people have more...
Wrinkles
SUBMIT ANSWER

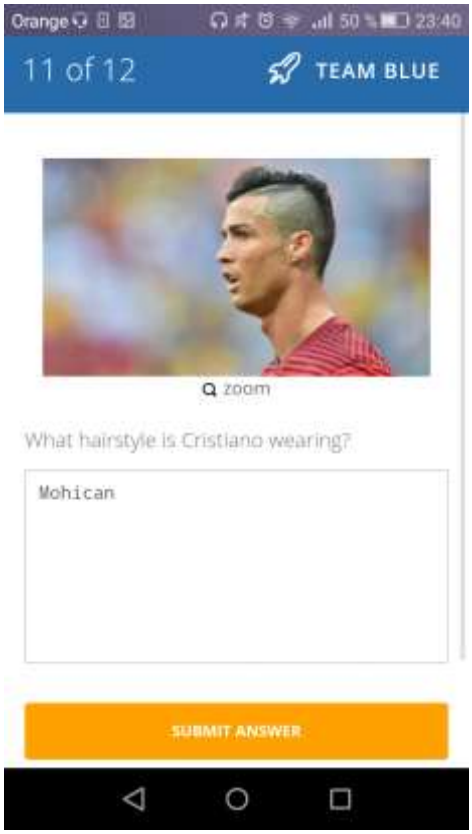

Orange
50 % 23:38
6 of 12
TEAM BLUE
zoom
What was Monroe's sexiest mark?
Beauty spot
SUBMIT ANSWER


Orange
50 % 23:39
7 of 12
TEAM BLUE
zoom
Brad Pitt looks very attractive with that...
Goatee


Orange
50 % 23:39
8 of 12
TEAM BLUE
zoom
What is she putting on?
Contact lenses
SUBMIT ANSWER


Orange
23:39
zoom
What does she have on her hair?
Highlights


Orange
23:40
zoom
What does Dakota have over her forehead?
Fringe


Orange
23:40
11 of 12
TEAM BLUE
zoom
What hairstyle is Cristiano wearing?
Mohican
SUBMIT ANSWER


Orange
23:43
zoom
What is she wearing in the bottom picture?
Wig

8.9. Appendix 9
Questionnaire

Este cuestionario es de carácter anónimo. A través de él se quiere conocer la opinión personal del alumnado sobre el uso de la gamificación en las aulas. Los datos recogidos serán únicamente utilizados en un trabajo académico para la Universidad Autónoma de Madrid, en el marco del Máster de Formación de Profesorado de Educación Secundaria Obligatoria y Bachillerato. No hay respuestas correctas o incorrectas, solo se quiere conocer tu opinión. De tal modo, espero que respondas con sinceridad.

Valora del 1 al 4 las siguientes afirmaciones

1. = muy en desacuerdo
2. = en desacuerdo
3. = de acuerdo
4. = muy de acuerdo

1. Estoy satisfecho/a con las actividades de gamificación.

   1 2 3 4

2. Me he divertido con las actividades de gamificación.

   1 2 3 4

3. Pienso que soy bueno/a en las actividades de gamificación.

   1 2 3 4

4. Era importante para mí hacerlo bien en las actividades de gamificación.

   1 2 3 4

5. He participado con ilusión en las actividades de gamificación.

   1 2 3 4

6. Después de estas actividades, creo que sacaría buena nota en un examen.

   1 2 3 4

7. Me ha resultado difícil hacer las actividades de gamificación.

   1 2 3 4

8. La gamificación me parece aburrida.

   1 2 3 4

9. La gamificación me resulta estresante.

   1 2 3 4

10. Me gustaría que la gamificación se introdujera en las aulas de mi colegio.

1 2 3 4

11. Creo que la gamificación se puede utilizar en otras asignaturas.

1 2 3 4

12. Si solo se utilizara la gamificación en las aulas, me aburriría.

1 2 3 4

13. Finalmente, marca con una cruz la opción que mejor describa tu opinión sobre las aplicaciones de gamificación utilizadas:

a) No me ha gustado ninguna de las aplicaciones utilizadas. ☐

b) Me ha gustado más la aplicación *Kahoot!* ☐

c) Me ha gustado más la aplicación *Socrative Student*. ☐

d) Me han gustado ambas aplicaciones por igual. ☐

¡Muchas gracias por participar!