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Trabajo Fin de Grado

El juego como recurso comunicativo

Games as a communicative resource

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Abstract

Games are a resource that can be very useful in educative contexts and they have a linkage with the curriculum and with the competences. The point is to demonstrate that games can be used for working on different competences, areas and contents in a regular way. There are also some researches from authors and organizations who did studies about improvement of results and skills using games. This hypothesis comes with a proposal whose objectives are to show an improvement in the key competences and to increase students' motivation. In the proposal the resource of games is used in methodologies such as gamification or game-based learning, among others, but considering some key aspects about the students' characteristics the classroom management and the curricular context. Several games that cover different areas and competences are shown and explained along the proposal in detail. Even though the whole proposal has not been carried out and analysed in a long-term period, the part that was used in class plus the research about the topic prove that there is an improvement in skills and competences, and that these activities are more motivating for students. I conclude highlighting that creativity is essential to design all these games, that there is much to learn about this topic and that I hope that this project prompts other teachers to keep working on this topic.

Key words

Resumen

Los juegos son un recurso que puede ser muy útil en contextos educativos y que tienen conexión con el currículum y sus competencias. El propósito es demostrar que los juegos pueden ser utilizados para trabajar diferentes competencias, áreas y contenidos de manera regular. También hay investigaciones de autores y organizaciones que han realizado estudios acerca de la mejora en resultados y habilidades usando los juegos. Esta hipótesis viene acompañada de una propuesta cuyos objetivos son mostrar la mejora en las competencias clave y aumentar la motivación de los estudiantes. En la propuesta, el uso de juegos como recurso se utiliza en metodologías como la gamificación y el aprendizaje basado en juego, entre otros, pero teniendo en cuenta aspectos clave sobre las características de los estudiantes, la gestión del aula y el contexto curricular. Varios juegos que cubren diferentes áreas y competencias aparecen explicados en detalle a lo largo de la propuesta. Aunque la propuesta no se ha llevado a la práctica en su totalidad y no ha sido analizada a largo plazo, la parte que sí se ha llevado, junto a la investigación sobre el tema, demuestra que hay una mejora en habilidades y competencias, y que estas actividades son más motivantes para los estudiantes. Concluyo resaltando que la creatividad es esencial para diseñar todos estos juegos, que hay todavía mucho que aprender sobre el tema y que espero que este proyecto sirva para animar a otros profesores a continuar trabajando en este tema.

Palabras clave

juego, gamificación, juego serio, aprendizaje basado en el juego, competencia, motivación

1. INTRODUCTION AND JUSTIFICATION

According to the directorate-general of education, youth, sport and culture of the European Commission (2019) the key competences include knowledge, skills and attitudes. This means that within the concept of competence there are not only concepts and facts, but also abilities and the behavior of students when they have to face different situations (p. 5).

The key competences are an essential part of every single subject in the Spanish curriculum. They are worked in all the subjects, therefore, also in those whose language used is English. Due to this fact, teachers have to encourage students to develop these competences. How to work on these competences depends on the preferences of the teacher. In my case, I used as a reference the view I had when I was a primary school student to figure out in which way I liked to work on my skills and competences. After a time thinking about this issue, I concluded that games would be a good option. Games were the resource that I enjoyed the most when I was a primary student. For what I have experienced working with kids, games motivate them and being motivated is the best way for them to be eager to learn.

There are several goals that I aim to achieve along this essay. To start with, it is important to get a general picture of what are games. This is because before immersing into this topic, it is essential to have some basic knowledge so that you can follow the reading and the project in an effective way. Another goal connected with the theoretical knowledge is to differentiate between gamification and game-based learning, which are two methodologies that are generally confused or thought that they are the same one. As though the point of this essay is to check if the use of games has any positive effect or benefit on the student's communicativeness, among other competences, we have to know what do games consist of and how can we measure the competences' acquisition.

2. OBJECTIVES

It is time to focus on the main objectives of this project. The project is an innovation proposal to check if there is a development and improvement in the key competences by the use of games.

The main goal is to show or demonstrate that by using games, which are generally motivating for students, they can develop and improve some of these competences. The most important competence (or at least the one that appears more often in the curriculum) is the

communicative competence. Furthermore, other competences might appear and be taken into account in higher or lower quantity. Another objective of this hypothesis is to make learning more enjoyable for students. This proposal could have been about whatever methodology or technique, but it is done using games with the purpose of making lessons more entertaining for students and at the same time for the teacher. The proposal does not mean that you only have to use games. In my view, it is always positive to have a diversity of methods to test which ones are more effective. So, in the long term, I expect games to be used more often than now, but not as the only option.

3. THEORETICAL FRAMEWORK

3.1. What is the game?

Considering Saravanan and Sujitha Juliet's view (2018), we can define the game as an activity that is fun, immersive and engaging. The game sometimes includes problem solving tasks. Usually, games are more appealing for students than studying. So, why do not combine them to make students both acquire knowledge and abilities and enjoy it? "Studies have shown that game improves cognitive skills, creates enthusiasm and motivate students to learn the concepts thoroughly" (Saravanan & Sujitha Juliet, 2018, p. 1).

Within the term of game in the field of education we can find different terms. Firstly, Caserman, Hoffmann, Müller, Schaub, Straßburg, Wiemeyer & Göbel (2020) cite Dörner, Göbel, Effelsberg & Wiemeyer (2016), who explain that serious games are a kind of games which have another purpose or goal apart from the enjoyment of the game itself. Living in the 21st century, when technology has developed a lot, also in the field of games, we cannot forget about videogames as a very interesting educational tool.

Furthermore, it is important to differ gamification from game-like activities. According to Deterding, Dixon, Khaled & Nacke (2011), cited by Bakhanova, Garcia, Raffe & Voinov (2020) gamification consists on using elements of games in other contexts. Figueroa-Flores, who cites Perrotta, Featherstone, Aston and Houghton (2013), says that games are used to support the teaching-learning process. Erümit & Yilmaz (2022) cited Deterding (2011) who said that "in gamification, game mechanics are applied in places where, originally, no purpose of play existed". Game-based learning is used to increase students' participation in the learning process while they are playing to games (Al-Azawi, Al-Faliti & Al-Blushi, 2016).

In short, we can say that in gamification they use features of games with a learning purpose, whereas in game-based learning they actually play games to learn. An example of gamification could be a quiz, in which there are game elements such as scores, rankings, etc, (but they are not playing) whereas an example of game-based learning could be a bingo, because they are playing a game while enhancing the learning of numbers.

3.2. Competences

Nowadays, if we talk about competences in education and learning in Spain and in most of Europe, we easily link it with the key competences. The key competences are an essential part of

the curriculum in Spain. As the directorate-general of education, youth, sport and culture of the European Commission (2019) says, apart from being a mixing of knowledge, skills and attitudes, they are improved along the years in multiple environments, such as the family, the school or the neighborhood, among others.

It is important to understand that, even though they do not have exactly the same name, the eight key competences that the European Commission published in their article "Key competences for lifelong learning" are associated and their descriptions have many common characteristics with the seven key competences of the Spanish curriculum. These seven competences were established by using the European framework as a reference. In this framework, there are eight competences, so, two of them are put together into a single one (the literacy competence and multilingual competence are linked with the competence in linguistic communication), and each one of the other 6 has a competence with a similar meaning to the one of the European framework. The citizenship competence (Europe) is linked with the social and civic competence (Spain). The mathematical and scientific competence in the Spanish curriculum has practically the same name, as well as the digital, the learning to learn, entrepreneurship, cultural awareness and expression competences.

Logically, the competence in linguistic communication is the most recurrent in the Spanish curriculum of English as a foreign language. Nevertheless, the other 6 competences are also present in more or less quantity because they are cross competences which appear in all the subjects.

Knowing what key competences are and which ones are them, we can focus on their acquisition. According to Brković, Bušljeta and Togonal (2020) the teacher's role is the key for the students to be motivated to acquire the skills and accomplish the learning results.

Depending on which competence are we working on, we have to analyse different aspects that are included within it. As I mentioned before, when referring to communication in English the most important one is the communicative competence. Therefore, it is essential to know its main points in order to check the evolution of its acquisition. A research carried out by Gumán, Torres and Caballero (2020) confirms that the assessment of the communicative competence in Spain is weak due to the low awareness of assessment tasks and the poor techniques. Canale (1983) says that the ability to communicate efficiently in English "requires the communicative competence which includes grammatical, sociolinguistic, discourse, and strategic competences". Those are the main points to be assessed when talking about the acquisition of this competence.

The other competences' acquisition may be analysed, but taking into account that the importance and influence in the subject of English according to the Spanish curriculum is not that high.

3.3. Role of the game within the curriculum and the competences

If we talk about the role of games in the curriculum, first we need a basic knowledge about the curriculum, in this case the Spanish one, which is the one that I use. The current law of education in Spain is *Ley Orgánica 3/2020, de 29 de diciembre, por la que se modifica la Ley Orgánica 2/2006, de 3 de mayo, de Educación*. Recently, a new decree was established, which is *Real Decreto 157/2022, de 1 de marzo, por el que se establecen la ordenación y las enseñanzas mínimas de la Educación Primaria*.

There is also the new order *Orden EFP/279/2022, de 4 de abril, por la que se regulan la evaluación y la promoción en la Educación Primaria, así como la evaluación, la promoción y la titulación en la Educación Secundaria Obligatoria, el Bachillerato y la Formación Profesional en el ámbito de gestión del Ministerio de Educación y Formación Profesional*. Currently, the following order is still valid in the autonomous community of Aragón, whose name is *ORDEN de 21 de diciembre de 2015, de la Consejera de Educación, Cultura y Deporte, por la que se regula la evaluación en Educación Primaria en los centros docentes de la Comunidad Autónoma de Aragón y se modifican la Orden de 16 de junio de 2014, por la que se aprueba el currículo de la Educación Primaria y se autoriza su aplicación en los centros docentes de la Comunidad Autónoma de Aragón y la Orden de 26 de junio de 2014, por la que se aprueban las Instrucciones que regulan la organización y el funcionamiento de los Colegios Públicos de Educación Infantil y Primaria y de los Colegios Públicos de Educación Especial de la Comunidad Autónoma de Aragón (BOA de 30 de diciembre)*.

According to the Spanish curriculum of English, the use of games, especially during the first years, is essential to acquire a language effectively. In fact, there are several standards that include the use of games as an option. Apart from that standards or assessment criteria that have games implicit in them, games can be used for any others if they are adapted in a proper way.

Some of the examples of games that appear along the Spanish curriculum are simulated games of phone calls, digital games and computer games. Despite that, as I mentioned before, there is no need to limit to what appears in the curriculum when developing activities. These

examples of games are linked, mainly with the communicative competence and the learning to learn. But also, on occasion, they are linked to some of the other five competences.

3.4. Methodologies

Is there any evidence that proves that games have an impact in education? The truth is that, according to some pedagogic currents and theories, games have an educational component. As Becker (2005) said, Gagne's Conditions for Learning Theory says that there are five categories of learning, so that each category needs a specific approach. These categories are represented in Gagne's Nine Events of Instruction. Getting the attention of the students, showing the stimulus and providing feedback are three examples of the nine events applied to a gaming context (Becker, 2005). Becker (2005) explains that games and their elements are more attractive for students than other teaching methods and that they receive feedback in the form of scores and questions, among other ways. Apart from that, she affirms that games must stimulate the students by encouraging the students and by being challenging for them. According to Becker (2005), Gardner's seven intelligences have a linkage with games: the linguistic intelligence because of all the writing and speaking components in games; the musical because of the sound effects; the logical-mathematical because there are puzzles and logic exercises; the spatial because of the visual component; the kinesthetic because the players are 'placed' in a virtual way in the game; the intrapersonal because games makes the individual think about his knowledge and abilities and they sometimes include moral topics; the interpersonal because of the possibility of playing with other individuals; and the naturalistic because some games can have a naturalistic topic.

In a world in which technology develops so fast, technology enhanced learning is aware of the latest technologies that have any connection with education, for example the augmented reality (Videnovik, Vold, Kiønig & Trajkovik, 2019). Even though the knowledge about augmented reality connected with education is still reduced, we know that it can be useful. "First of all, it allows teachers to show virtual objects in the real-world environment which otherwise it would be impossible to show. On the other hand, it can also be used to enhance collaborative tasks, as well as encourage socializing and inclusive activities for people with special needs" (Ariso, 2017). Augmented reality and the use of virtual worlds is linked in some way with videogames, which will be mentioned later.

At this point, we are going to analyse more deeply the different methodologies in which games are involved. Firstly, there is gamification, which is a well-known methodology that consist

on using elements and procedures from games in contexts that are external to games (Werbach & Hunter, 2012, as quoted in Figueroa-Flores, 2016). Among the elements that appear in gamification, we can find points, scoreboard or ranking, levels, rewards or prizes, challenges, or badges (Fiş Erümit & Karakuş Yılmaz, 2022). As stated by Figueroa-Flores (2016), some of the benefits of gamification are that the students are more motivated to fulfil the activities, that they are encouraged to focus on their learning and they take part in a healthy competition with their classmates. However, Figueroa-Flores (2016) also reinforce the idea that activities should have clear goals and be unpredictable to prevent from meaningless activities.

When it comes to game-like activities or game-based learning, games are used with a learning purpose. Game-like activities are useful, not only for improving the students' motivation, but also when working on technical and boring materials, and when there is a complex understanding process (Al-Azawi, Al-Faliti & Al-Blushi, 2016). Other positive aspects of game-based learning that should be highlighted are the enjoyment during the learning process and the use of the game as an authentic material, among others (Figueroa-Flores, 2016).

When we research about games connected with education, we find serious games. They are used for a main purpose which is different from just pure entertaining and they have formal and dramatic game elements (Bakhanova, Garcia, Raffe & Voinov, 2020). As stated by Ning, Wang, Wang, Ye, Ding & Backlund (2021) this main aim is to share knowledge and to develop skills. According to Calderón & Ruiz, cited by Calvo-Morata, Alonso-Fernández, Freire, Martínez-Ortiz & Fernández-Manjón (2020) serious games are motivational tools that are useful to raise awareness, to modify a behaviour and to improve specific skills. Some of the advantages of serious games are to raise the pupils' enthusiasm and to achieve effective learning by optimizing teaching methods (Ning, Wang, Wang, Ye, Ding & Backlund, 2021).

Despite the fact that, traditionally, video games have been seen as a distraction and something harmful for studies and learning, they can also be really helpful if they are used in a proper way. Some results of the questionnaire done by Marín-Díaz, Morales-Díaz & Reche-Urbano (2019) show that the hours spent with videogames are irrelevant for the academic activities. These results also show that the use of video games in classroom may help students to develop behaviours against violence. In the past the number of researches about video games in education was lower than about other methodologies such as gamification, game-based learning and serious games. However, nowadays video games are a solid option to consider for teachers.

There is a high likelihood that in the following years the knowledge about this topic is going to increase and to take an important role in innovative methodologies. Teachers that want to try to use video games in their classroom can also do their own research and analyse the results. Nevertheless, it is true that for preparing materials for video games activities you need some ICT skills.

3.5. Types of games

When it comes to specific types of games, there are hundreds of them, but we are going to review briefly some of them. Board games are those in which the players have to move along a path and doing several activities of different kinds. They sometimes can be combined (or not) with games that use cards. There are also guessing games, dice games (they are not just a tool for board games, they are type of game themselves, because there are many different kind of dices), movement games, drawing games, word games and chanting games (Benítez & López). We cannot forget puzzle-solving games and riddles.

According to Wright, Betteridge & Buckby (1983), to put games into practice we have to consider several factors, such as the students' characteristics and interests, the class level, the contents and how to correct the students. Apart from that, elements of classroom management like time available, space used and resources used have to be planned in advance.

3.6. Resources

For suggesting a proposal connected with the use of game linked with the main competences it is important to research about previous studies or reports that expose the outcome of games in educational contexts.

De Souza & Petty (2017) did an intervention program with students of between 7 and 11 years old during around three semesters with a frequency of one hour per week. In this intervention program they played games that involved different communicative aspects (for example, speaking and listening). Among all the games, they play some that are worldwide-known games, but they also play some local games such as "*Image and Action*" (popular game in Brazil). As a brief summary of this game, they had to guess the specific word of a card that some other student has drawn. If they do not guess it, another person will suggest ideas to improve the drawing and facilitate the guess. In this game they work on the communicative skills and they can work on

some specific vocabulary (choosing words connected with a particular topic). As a result of the program, De Souza & Petty (2017) affirm that the children overcame their learning difficulties and changed their negative attitudes. The pupils improved, not only their communicative skills, but also their cognitive, motor, affective and social skills (De Souza & Petty, 2017).

As I mentioned before, the communicative competence is not the only one that can be worked by using games. A good example is the Fort Ross Virtual Warehouse project from the University of California Merced, whose main goal was to search for new means of conveying cultural and historical knowledge (Lecari, Mortara & Forte, 2014). This project wanted to raise cultural awareness, which is one of the competences both in the Spanish curriculum and in the "Key competences for lifelong learning" of the European Commission. In the Fort Ross Virtual Warehouse, they created a virtual world in which they had to interact with the different elements that surround them in order to learn about history and cultures of California in that period (they set some specific learning outcomes that they have to achieve) (Lecari, Mortara & Forte, 2014).

It is true that the FRVW is a large project that requires specialized knowledge in game design and that it is unlikely that a single teacher can create this for his/her class, but it can be used as a prove that cultural awareness and other competences can be developed through games (even though they are simpler).

Apart from working on the different competences, games can be used to work on other skills or knowledge, whatever the subject or the content is. For example, Fithriani (2019) talks about the Game-based Grammar Learning, in which they used a guessing game to work on their speaking and listening skills while learning new vocabulary, board and dice games, in order to create an enjoyable competition practising Grammar, and another guessing game that involved physical activity. According to the results of the survey done by Fithriani (2019) to twenty students that participated in these activities, most of them said that they disliked Grammar because it was boring and difficult. Nevertheless, after these games all of them responded positively about their opinion about learning Grammar.

In short, there are several studies that prove that games have a positive effect in the development of competences and skills. Therefore, the use of these kind of methodologies in our classroom may be feasible for the teacher and beneficial for the students, both in terms of motivation and outcomes.

4. INNOVATION PROPOSAL

4.1. Justification

Although it is generally thought that the use of games is only effective with young children, the findings of some studies do not say the same. In fact, one of them says that the effectiveness is even higher with grown-ups than with children and university students (Nadi-Ravandi & Batooli, 2022). The age group of this proposal is going to be focused on year 5 and year 6 of Primary Education, due to the fact that they are the oldest students in this educative stage. So that I can provide examples of games used with older children. Despite this proposal is aimed at years 5 and 6, some of the games can be used or adapted to higher or lower levels.

In this proposal I will provide some examples of games used in different educative contexts working on different areas, skills and competences. Some of the following activities have been used by myself during my internship period. I could not analyse the effect in the long term of activities that involve games because my school placement was too short for that. However, I received positive feedback from the students with these activities and I perceived higher motivation than with other activities.

4.2. General objectives

The general objectives of using games as a common tool in a class are linked with the improvement of the students in each of the seven competences that appear in the Spanish curriculum and that have been mentioned previously. The is the need to check the level of acquisition of those competences before having regular contact with games, so that we can observe an evolution. Moreover, increasing the students' motivation in class is another main objective of this proposal. In the long term, we expect to have students with a higher development in those competences and higher motivation in the activities that they work on.

4.3. Trivial Game

To start with, we have the Trivial Game. The example shown in Image 1 is aimed at the area of English. There is a path with twenty-two boxes of six different colours. Each colour corresponds to a category and each category to a skill, which are listening, reading, writing, speaking, grammar and vocabulary. In each category there are several boxes, as many as the number of teams you make for the trivial, so that if they go to the same box, they will have different questions. In the boxes of "words" that appears in Image 2, they have to make a list with vocabulary

that starts with a particular letter in order to revise vocabulary. In the boxes of "choose" in Image 3, they have to answer a multiple-choice question connected with grammar. In the boxes of "news" in Image 4 they have to read an article and to answer a question afterwards. In the boxes of "songs" shown in Image 5 they have a fill in the gaps activity with the lyrics. In the boxes of "describe" that appears Image 6 they have a to describe a character and write it down. In the boxes of "interview" that appear in Image 7 they have to answer a few questions orally. As though the methodology of this activity is gamification, there is the possibility of using the same game elements but with many different contents. For example, I used the trivial to revise contents of other subjects, such as social science in the unit of "Population" shown in Image 8. As the creator of the activity, you have the freedom to modify the categories according to the contents and the length of the path depending on the time available. Furthermore, there is the possibility of doing it individually if considered necessary. This game encourages students to develop their communicative skills and gives the students the chance to compete between them in a healthy and educative way. The tool used for this activity is Prezi.

Table 1

Trivial game (own creation)

Type of game	Board game
Grouping	Two groups of 10 people
Specific objectives	-To practise the different skills (reading, listening, writing and speaking) -To revise vocabulary (animals, places…) and grammar (present simple, present continuous…)
Contents	-Vocabulary of animals, places, food, clothing and objects -Present simple, present continuous, past simple, future tenses, existential there and demonstrative nouns
Competences	-Communicative competence: they have to use the English language to interact between them -Cultural awareness competence: they become aware of the importance of music in English

Methodology	Gamification: there is use of game elements such as the board, the different categories, the questions and rolling a dice to move forward are part of this activity.
Step by step	Firstly, you have to make two teams of ten people (or more teams of less people, but you have to prepare more options in that case). Each team rolls the dice and the one with a higher number starts the game. Then, according to the number they get, they move to a particular box. In each box they have a different challenge that they have to overcome. For each challenge they do right, they get a point. If they do it wrong, the other team will have the chance of doing it well and getting the point. They play until either the time is over or one team reaches the finish box. They get an extra point for finishing first.
Assessment	The number of points that each team gets is a factor to consider in the assessment. Apart from that, the attitudes and implication of students are very important for the activity. That can be measured by using direct observation and a rubric (Table 2)

Table 1

Trivial's rubric

	3	2	1
Participation	He/she participates actively talking with the rest of the group to solve the activities	He/she participates talking with the rest of the group to solve some of the activities	He/she barely participates or does not participate at all to solve the activities
Interest	He/she pays attention to the	He/she sometimes pays attention to	He/she does not pay attention at all

	activities, also when other teams are playing	the activities and when other teams are playing	to the activities and when other teams are playing
Effort	He/she works hard in trying to solve his activities and tries to solve activities that the other teams did wrong	He/she tries to solve his activities, but he/she does not try to solve activities that the other teams did wrong	He/she does not try to solve his activities, neither he/she tries to solve activities that the other teams did wrong

4.4. Who is who game

Another activity is the *Who is who game: Population Edition*. In this case we are talking about game-based learning, so, they will actually play the "Who is who" game, but adapted to the context. This game is framed at the end of a unit in which they have already studied migration (emigrants and immigrants) and employment (active and inactive population). The game is played in pairs and each person has one board with all the characters, like the one in Image 9, and a photocopy with information about these characters, which appears in Images 10 and 11. This game has several positive aspects. One of them is that they have an interaction where there is an information gap, which according to Ortíz (2019) the type of activities to apply this method are to exchange information and to differ between two elements. In this activity, we are certainly using the information exchange. Other positive aspects regarding the communicative competence are the constant feedback between the students (and with the teacher if he or she is around and joins the interaction) and the choice that students have during the activity, because they can freely choose the character that they prefer and make the questions that they consider better. For the creation of this game, I used the online tool Prezi.

Table 2

Who is who game

Type of game	Guessing game
Grouping	In pairs
Specific objectives	-To work on the listening and speaking skills -To work on question-and-answer structures
Contents	-Grammar: Questions and answers -Active and inactive population, migration (emigrants and immigrants)
Competences	-Communicative competence: they have to use the English language to interact between them. There is information gap and constant feedback. -Cultural awareness competence: there are characters from different cultures in the game, which is a component of raising the cultural awareness and expression competence.
Methodology	Gamification: there is use of game elements such as the guessing dynamic and the points they get after guessing.
Step by step	During the development of the game, they have to make questions such as "Is he a boy or a girl?" or "Is he part of the active or the inactive population?". They will have the photocopy with information to check the answer and the other person will have to cross out the characters who do not fulfil that trait. In the end of the game, when they have few characters left, they may ask "Is he Mark?" (or the name they think it is). Once one person guesses right the character, he or she will get a point. This game can be played several rounds depending on the time available
Assessment	A way to assess this activity is by observing if the students are making the questions and answers correctly. Another option is

doing an oral exam connected with this dynamic to check if they
have improved their listening and speaking skills.

4.5. Time-travellers game

The *time-travellers game* created with the app Genially is an example of a serious game to teach specific knowledge connected with history. It is a simulation of a time-travel along the 20th century to engage and to motivate the students. It is a story with a brief plot, so that you do not spend too much time because it is planned for a single lesson. A longer story can be carried out too, but it would require from more lessons. Perhaps a whole unit can be developed using this dynamic. In Image 12 we can see the first slide, which is the portrait. After that, in Image 13, there is an introduction, with a plot used to contextualize this science-fiction story. Then, we see in Image 14 the main slide with the different years that we are going to travel to. There are different kind of questions in every year. There are multiple choice questions, like in Images 15 and 16, also true or false questions, such as in Image 17, and other questions in which some visual input (image or video) is provided, for example, in Images 18, 19 and 20. Moreover, after each question there is an extra input to check if the answer is correct or not, either in a regular way, as it happens in Images 21, 22 and 23, or in the form of a newspaper, like in Image 24, a stranger, as in Image 25 or a poster, like in Image 26. To check the answer with the class is important because students always need some feedback about what they have done. After passing through all the years there is a final slide, shown in Image 27, rewarding and reinforcing the students for achieving the end of the activity. Obviously for performing this game it is necessary a computer and a projector. This game is a proof that history, which is an area traditionally seen as boring can be made attractive and entertaining for the students.

Table 3

Time-travellers game

Type of game	Story game
Grouping	Whole class / In groups (if you want to do it more competitive to increase students' motivation)

Specific objectives	-To review their knowledge about the 20th century
Contents	-Primo de Rivera, the Second Republic, the Civil War, Franco´s era, transition and democracy.
Competences	-Social and civic competence: becoming aware of periods in history in which there were conflicts and not democracy, can help to the students' social and civic life.
Methodology	Serious game: It is a game with a main purpose different from enjoyment and entertainment of the pupils.
Step by step	For this game, the teacher just has to follow the story moving from slide to slide. He has to engage the students in the story and to encourage them to guess the answers. If it is done in a whole-class group, you do not need to have any record of points, but if you make team you need to do it.
Assessment	As the activity is a review of a unit, it can be used as the previous lesson to the exam, which can be the assessment tool. Another factor that you can assess is the behaviour of students during the activity, by observation.

4.6. Maths Escape Room

The use of online tools always looks innovative and appealing, but real-life experiences can be as much or even more enjoyable for students. The Maths Escape Room is an activity in which working on their mathematical and scientific competence and using and manipulative objects, they can fulfil the goal of escaping from the room.

The materials needed for the escape room are a combination locker, a timer with a bell ringing at the end (on YouTube you can find timers of different time lengths), a scale, a box with one hundred equal marbles, 227 stickers of different colours (121 red stickers, 81 blue stickers and 25 yellow stickers), some pieces of paper and a pen to draw crosses, blackboard and chalk.

Before starting, it is important to highlight that the instructions and clues of the game are adapted to a particular classroom, so adapting the game to another one requires changing some of them. As well as the contents, which are adapted to the maths knowledge of a year 6 class.

A good idea for this activity, if there is a chance, would be to do each exercise in a different room and to split the students into 4 groups. In that way, they will be less in each group and they will assume more responsibility. If it is done in groups, some changes must be done. For example, you would have to tell the students to display again the stickers of the second activity. Besides, you would have to set a timer in each classroom with the same time, so that when a group finishes an activity, they do not have to wait for the other group to finish. Apart from that, you would also need someone monitoring each activity. In this case, students will get points for guessing the locker combination in less time. Furthermore, if they complete activities without help, they will also get more points. A way to distribute the points is to give 10 points to the quickest team, 8 to the second one, 6 to the third one and 5 to the last one. The same can be done with the most independent team (they need less help than the others), the first receives 10 points, the second, 8, the third 6 and the fourth 5. The teams will get 10 extra points or not depending on their cooperative work. This is done in order to prevent that some people in the team want to do it on their own, because they will be told how the point are going to be given. In the end, the sum will be made to check which team got more points.

This Maths Escape Room is a cross-curricular activity because it has elements of Science, Maths and it is carried out in English. Despite the fact that problem-solving exercises and puzzles fit easily with Maths and Science, an escape room can also be done with other areas. For example, in Literacy you can use riddles to make them figure out something.

Table 4

Maths escape room

Type of game	Escape room/ puzzle game
Grouping	In groups if it is possible, if not whole class. The smaller the group is, the more the pupils will get involved in the activity.
Specific objectives	-To use the scale and divisions to calculate the weight of a marble

	-To practise square divisions, the rule of three and percentages -To work in a cooperative way
Contents	-Weight and tools to calculate it, square divisions, rule of three and percentages
Competences	-Mathematical and scientific competence: they use maths reasoning and scientific methods to solve problems -Learning to learn competence: they have to cooperate and organize themselves to achieve the goals of the acitvity
Methodology	Gamification and cooperative learning: There are game elements, such as getting points, and the pupils work in a cooperative way to solve the problems.
Step by step	Firstly, you have set the combination locker with the correct number and lock it in the door. After that you will give the students, a note saying the following: "Warning! You've been kidnapped and you have time until the bell rings to escape from this room. For this you will have to solve some puzzles, problems and riddles. If not, you will have to stay here forever. You will get the digits to unlock the locker by following the next clue: Digit 1 -> For getting it you need to find a box close to the window. Good luck!" In a wardrobe next to the window, they will find a box with lots of marbles and a scale. Inside the box there is a note saying: "The first digit is the number of marbles within this box divided by twenty, but you cannot count them one by one". The idea that the students should come up with (if not the teacher can provide them some help) is to use the scale to weight the box, to weight a single marble and subtracting the weight of the box from the

overall weight and dividing the result between the weight of a single marble, they will get the number of marbles within the box. At that point, they will have the first digit of the locker, which is 5 (100/20=5).

On the back part of the note they saw before, they have the next clue, which is "There are red, blue and yellow, if you get the square root of each one and you sum everything, you will get the next digit". The thing is that 227 stickers of those three colours will be displayed all around the classroom. They have to collect them and count them. Once they get sure that they have all of them, they will have to calculate the square root of every colour and to sum all the numbers and then the two digits of the result ($\sqrt{121}$=11, $\sqrt{81}$=9, $\sqrt{25}$=5, 11+9+5=25 -> 2+5=7). Again, if students struggle, the teacher may help them to solve the exercise.

In one of the stickers there is the next clue, which is "% chairs". After a while examining the chairs, they will realize that a few of them have a piece of paper with a cross glued underneath the chair. They have in the classroom 25 chairs, but only two of them have the paper with the cross. As they are asked for the percentage of chairs, they have to calculate which percentage is 2 out of 25 using a rule of three (if 25 is 100%, 2 is 8%), so that they get number 8 as the third digit.

Next to each cross, they have a word. In one they have "board" and in the other "black". As it is obvious, they will have to guess the word blackboard, in which they will have to make some operations. The operations are the following: (186/8) x 4 + 6^2-5^3=4. When they are done with this, they will have:

Digit 1 -> 5

Digit 2 -> 7

Digit 3 -> 8

Digit 4 -> 4

With this combination they will unlock the locker, if not, they will have to revise what they have done because there is a mistake. If the teacher sees that they do not have enough time to revise all the exercises, he can tell them which one is mistaken. Unlocking it will mean that they have succeeded in escaping from the room and the activity is over.

Assessment	The number of points that they get can be used to assess, because it includes the independence of the group in doing the exercise, the speed and the cooperative work within the group.

4.7. Past Simple Bingo

Using games and their methodologies does not always require from complex and time-consuming creation of materials. There are many games that are both simple and effective. One example of this is the activity *Past Simple Bingo*, which is a good way to revise verbs in Past Simple.

Table 5

Past Simple Bingo

Type of game	Board game
Grouping	Individual
Specific objectives	-To introduce the irregular forms of some verbs in Past Simple -To work on the listening skill
Contents	-Grammar: past simple forms
Competences	-Communicative competence: they use English for this activity
Methodology	Game-based learning: It is a game in which they review verbs in their past simple form.

Step by step	In this game, the only thing that you need is a piece of paper and a pen. Each student will have to divide the piece of paper into 9 boxes and in each of the boxes they will have to write verbs in the past simple form. When they are ready the teacher will read aloud randomly verbs in present simple, so that the pupils have to link it with its past simple form and cross out the verbs named by the teacher. At this point, the activity follows the dynamic of a regular bingo. When a player has crossed out all the verbs he has to say "Bingo!". Afterwards the teacher will have to verify if the bingo is correct or not. The game can be played for several rounds and the verbs chosen by the students have to be part of a pre-established list.
Assessment	Winning the game depends on luck, so the only factor taken into account in the assessment is the participation and involvement of the students in the activity.

4.8. Natural Science Quizzes

Quiz games have always been very popular among the students. For example, Kahoot!, which is one of the most commonly used quizzes, uses game elements such as points or sounds during the quiz, which engages the students (Pireva, Tahir, Inge & Shariq, 2021). In this case, we are going to see several kinds of quizzes connected with Natural Science using the quiz creator of Sporcle, which is not so popular, but it has very interesting tools that can be used for educative purposes. These quizzes can be used to work on animals and the characteristics connected with them.

Table 6

Natural Science Quizzes

Type of game	Quiz game
Grouping	Individual

Specific objectives	-To work on animals and their characteristics -To practise their digital skills
Contents	-Animals, animals' groups and animals' characteristics
Competences	-Communicative competence: they use English for this activity -Digital competence: they use the ICT to do the quizzes
Methodology	Gamification: game elements such as scores, timer and questions are used in this activity
Step by step	In the first quiz, that appears in Image 28, students are given two examples of mammal and they have to type the name. For example, in "Lion and dog" they have to type "Mammals". When they do that, the answer appears. They have a score according to their answers and a timer that sets how much time left do they have. Once they complete all the boxes, the quiz is over. For the creation of this quiz, you have a menu with sections such as "Quiz edit" shown in Image 29, "Options", that appears in Image 30) or "Data", which can be seen in Image 31, which offers you lots of possibilities to modify your quiz in many different ways. Some examples are adding extra information, changing the layout of the quiz, as it happens in Image 32, or modifying the timer. In Image 33, you can see the second quiz, whose topic is animals and its characteristics. If they have fur, tail, beak, feathers, wings, scales, etc. It is a clickable quiz in which you are given the characteristics of the animal and you have to click the animal that fit with those traits. The previous quiz was more focused on categorization and hierarchy (groups of animals), but this one aims at associating animals and traits. In Image 34, there is the third quiz, which is the most complex one to create, because you also need to use external tools. In this case it is similar to the second quiz, because it is about

	animal characteristics, but the way in which the activity is displayed is quite different. What students have to do is to click in the correct area for each animal. It is important to know that if you choose an area within a circle or circles, that animal has to have those characteristics. For example, if an animal is within the circle of "It flies" and the circle of "It is not a bird", it has those two characteristics and not the one of the third circle which is "It is black". So, if you have an animal which is not a bird, it flies and it is black, it will be in the area shared by the three circles. With the image of the answers shown in Image 35 it is easier to understand. There is also an animal that do not have any of the three characteristics, so his area is outside the three circles. In case they do not understand all the vocabulary or they do not know an animal (for example, the steamer duck, which is not very common), the teacher can provide them with some pictures or videos about the animals before doing the quiz.
Assessment	The quizzes themselves can be used as an assessment tool to check their knowledge about animals. If we talk about assessing their digital skills, the teacher can walk around the classroom to observe their ICT management.

4.9. Assessment of the project

Regarding the ways to assess the acquisition of competences, we have to remember what were the objectives. The objectives were to develop and improve on some of the different competences in the curriculum, mainly in the communicative competence. Apart from the individual assessment of each specific activity, which can be done by direct observation or other ways, there must be an assessment in the long term. This assessment should be done before and after carrying out the proposal. For this we can use standardized exams with scores. For example, for the communicative competences they can do exams such as the one of Cambridge or the one

of the Official Language School, where they give you a score per skill (listening, reading, writing, speaking). That could be a good option to check the progress. In other competences like the cultural awareness or the learning to learn, different means can be used, including observation or questionnaires to the students about their development and skills. Another important objective was to raise the students' motivation with this kind of activities. The best way to check this is by taking into account their feedback. After the activities we could give them a survey about the activity: if it was motivating for them, if they enjoyed it or to evaluate if it was useful for them.

If we talk about the assessment of the project and its main objectives, we can use the rubric of Table 8 to assess the outcome of the project after putting it into practice.

Table 8

Assessment of the project

	Big improvement	Improvement	No effect	Retrogression
Competences development	The students' level in the seven competences is much higher than before the project	The students' level in the seven competences is higher than before the project	The students' level in the seven competences is similar to before the project	The students' level in the seven competences is lower than before the project
Motivation	The students are much more motivated than in the lessons before the project	The students are more motivated than in the lessons before the project	The students have similar motivation to the lessons before the project	The students have less motivation than in the lessons before the project

5. CONCLUSIONS

This proposal aims to be applied in a practical way to a class or classes. Even though I have used some of the activities I share here during my internship period, the period of time was not long enough to observe the results and to draw conclusions. What I can affirm is that I received positive feedback from the students in these activities. I did not take record from this feedback, but the use of games helped to achieve the goal of increasing their motivation. Therefore, if someone is interested in putting this proposal into practise, I encourage them to do it and to share the results.

I would like to highlight the importance of creativity to design activities with games adapted to different circumstances, contents and diversity. Creativity is not only a trait that an individual owns, but also something that can be worked on and developed. So, for those teachers who might be interested in using these methodologies, but they are afraid of not being able to succeed in them, I would encourage them to try to do it. The trial-and-error process is something common in the teacher's lifestyle. It is true that sometimes you can fail, but in the long term the benefits are higher, because the width of possibilities that you will have for teaching will make the lessons more meaningful and motivating for the students. In this way you will avoid monotony in your lessons, which is going to benefit both you as a teacher and your students.

What I can conclude, is that there is an evident benefit in using games as a resource regularly. Several studies, such as the ones I mentioned in the theoretical framework (resources) put into practice games of different kinds and the outcome was positive. The most positive aspect is that there are already good results from the use of games, when it is a field that has not been deeply studied. Despite the fact that games have existed since long time ago, the extended use of them is not that far away and the development of technologies widen the possibilities and variety of games in education.

In short, I expect from this research and proposal that, apart from proving the point that games are an excellent communicative resource and accomplishing the objectives, to be useful for other teachers and encourage them to keep working in this topic, as I will do. This people can either do further research to share it with the rest of the educative community or to investigate and learn for themselves in order to use it to design games for their students.

What I have learnt during these years studying primary school teaching, is that a teacher must be self-critical and self-demanding. Therefore, settling for a traditional way of teacher is not

the best thing to do. Instead, researching and trying to find new and innovative ways of teaching that motivate children is the attitude that a teacher should have. Fortunately, after reading lots of articles about games in education, I have realised that there are many teachers and researchers that are on the right track, trying to improve and innovate, and I hope to keep on that track too along the years. As I said, being self-critical is important, so, even though I have some knowledge about several apps for creating games, I can improve a lot on that. I would like to learn something else about video games design, because I only have a basic knowledge about Scratch, but I have not used it for educational games. Another factor that I consider important is to keep making these games, so that I can work on my creativity to make activities about many other subjects and contents.

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7. APPENDICES

Appendix 1: Trivial

Image 1

Trivial Board English (Source: Own creation)
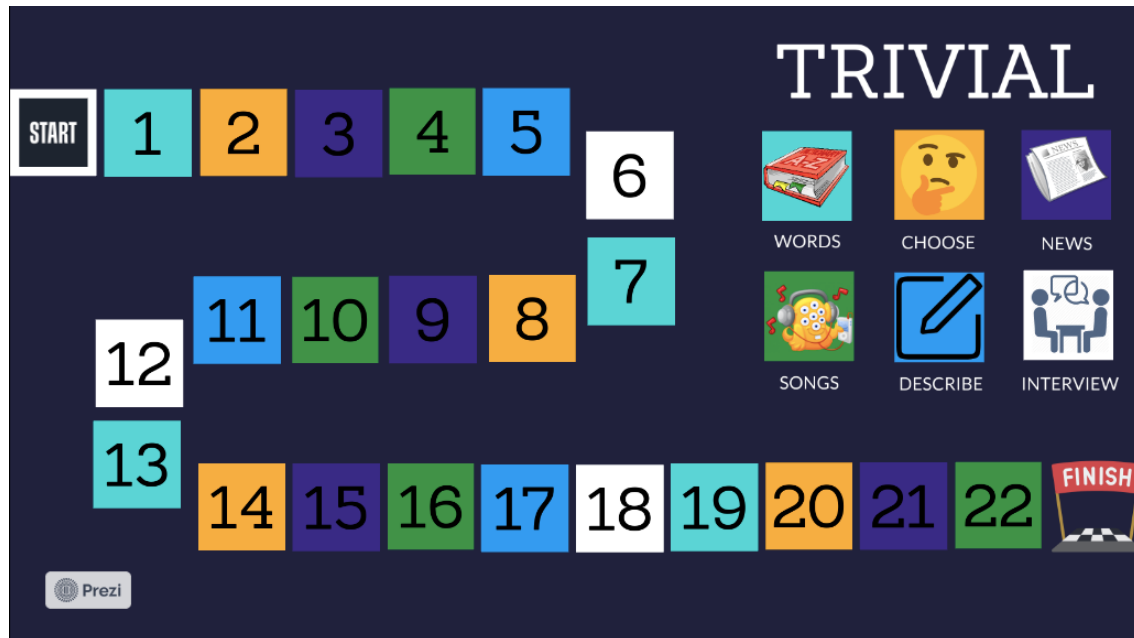
Image 2

Words section trivial (Source: Own creation)

Image 3

Choose section trivial (Source: Own creation)
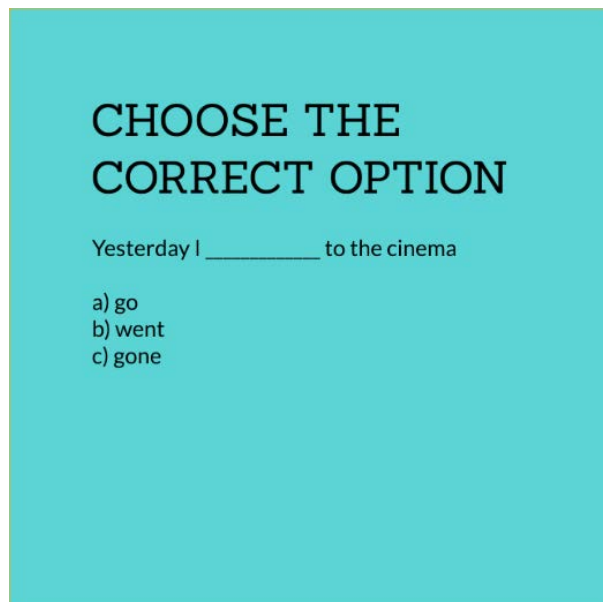
Image 4

News section trivial (Source: Own creation)
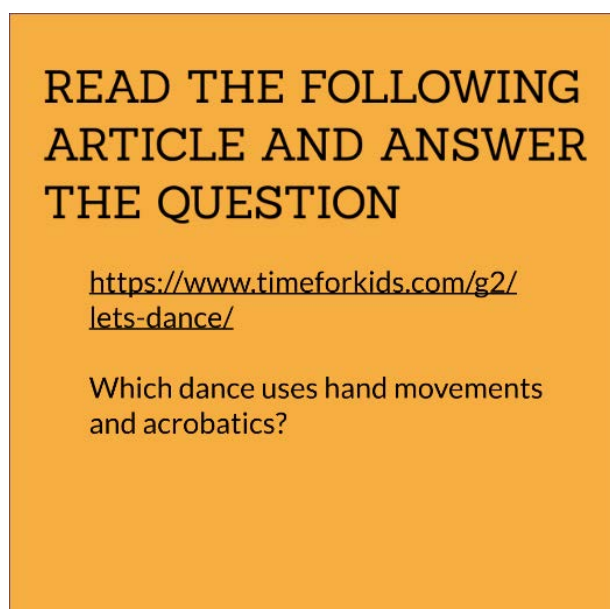
Image 5

Songs section trivial (Source: Own creation)

Image 6

Describe section trivial (Source: Own creation)

Image 7

Interview section trivial (Source: Own creation)

Image 8

Trivial Population (Source: Own creation)
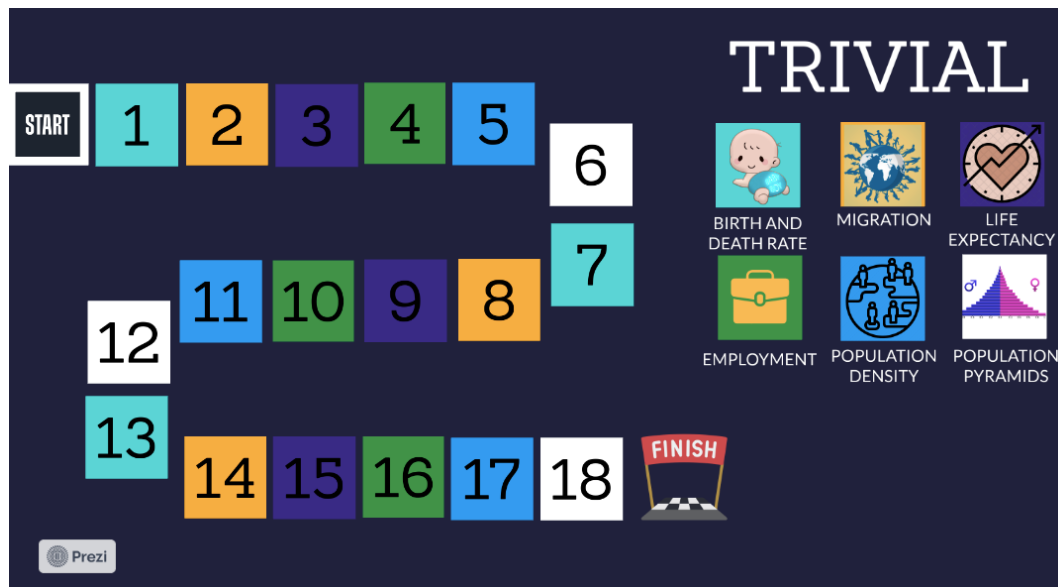
Appendix 2: *Who is who game: population edition*

Image 9

Who is who game (Source: Own creation)

Image 10

Who is who game characters' information (Source: Own creation)

MARK
Mark is 30. He is an architect who works in Teruel, but he was born in the United Kingdom. He came here to live 6 years ago.

ROSE
Rose is 12. She studies in the Primary School of Las Anejas. She would like to become a teacher in the future.

DAVE
Dave is 67. He worked as a lawyer, but 2 years ago he retired and moved to Italy because his daughter is living there.

WENDY
Wendy is 35. She works as a vet in Teruel. She came from the United States 10 years ago. He has a 5-year-old son called Dan.

MIKE
Mike is 28. He was a policeman, but he doesn't work now because he is in wheelchair.

LUCY
Lucy is 68. She has lived her whole life in Teruel. She retired three years ago.

PETER
Peter is 7. He was born in the Dominican Republic, but 5 years ago he came to Spain. He is studying year 4 in the primary school Las Anejas

ROBIN
Robin is 26. She is working as a politician in Germany. She was born in Spain, but moved to Germany 8 years ago.

Image 11

Who is who game characters' information 2 (Source: Own creation)

Appendix 3: Time-travellers genially

Image 12

Time-travellers portrait (Source: Own creation)

Image 13

Plot of the story (Source: Own creation)
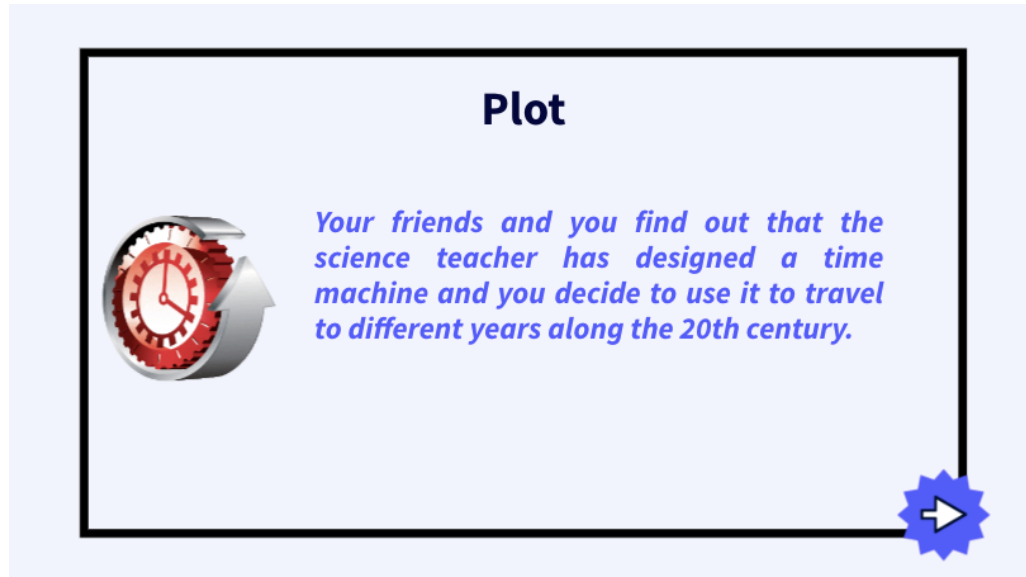
Image 14

Main slide (Source: Own creation)

Image 15

Question stop 1 (Source: Own creation)

Image 16

Question stop 2

Image 17

Question stop 3 (Source: Own creation)

Image 18

Question stop 4 (Source: Own creation)

Image 19

Question stop 5 (Source: Own creation)

Image 20

Question final stop (Source: Own creation)

Image 21

Answer question 4 (Source: Own creation)

Image 22

Answer question 5 (Source: own creation)

Image 23

Answer question 6 (Source: own creation)

Image 24

Answer question 1 (Source: own creation)
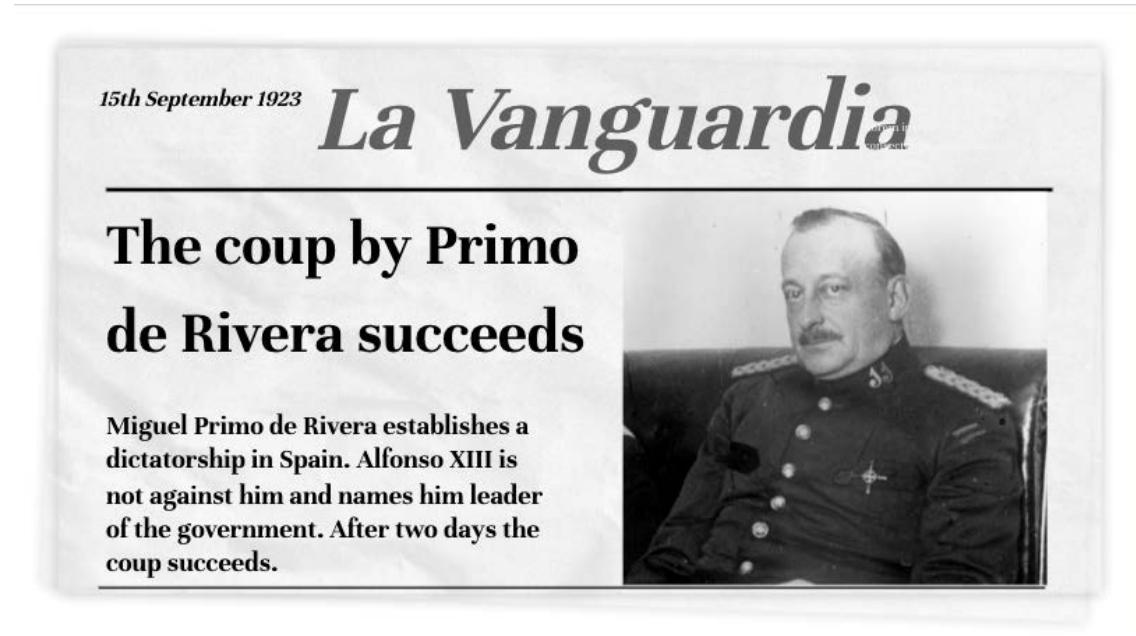
Image 25

Answer question 2 (Source: own creation)

Image 26

Answer question 3 (Source: own creation)

Image 27

Final slide (Source: own creation)

Appendix 4: Social Science Quizzes

Image 28

Quiz 1 Natural Science (Source: own creation)

Different types of animals

Can you name the different types of animals?

By **jesusvalero4**   15 Plays   0   ...   3.0 /5   RATE QUIZ
                                                                                                            1

MORE INFO ∨   Classic

Enter Enter a type of animal:

                                                                SCORE ∨   TIMER ∨

                                                                1/6 ⏸ **04:44**
                                                                                Give Up

Examples of animals	Type of animal
Lion and dog	Mammal
Eagle and hawk	
Clownfish and salmon	
Frog and toad	
Komodo dragon and iguana	
Ant and fly	

Image 29

Quiz edit (Source: Own creation)

Image 30

Quiz Options (Source: Own creation)

Image 31

Quiz Data (Source: own creation)

Image 32

Quiz Style (Source: own creation)

Image 33

Quiz 2 Natural Science (Source: own creation)
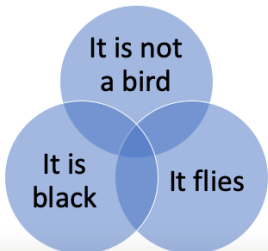
54

Image 34

Quiz 3 Natural Science (Source: own creation)

Image 35

Quiz 3 Solutions (Source: own creation)