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Educational Breakout Based on Star Wars for Learning the History of Spanish Sign Language

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Abstract: Although educational breakout has been implemented in pre-university stages, there is little evidence in subjects related to history in postsecondary levels. The aim of this paper was to present the results obtained after implementing an educational breakout, under the premises of Universal Design for Learning, in a history subject that belongs to the university degree in Spanish Sign Language and Deaf Community. A descriptive and comparative ex post facto study (N = 59) was developed to quantify the impact of an educational breakout activity on the students' commitment, establishing a pre- and post-comparison. Significant differences were found with respect to the perception of the speed of the passage of time and with respect to sustained attention, where there was a statistically significant difference between the time before and the time after the educational breakout. The predisposition of university students to participate in gamified or game-based activities was positive and in subjects such as history, and offers good results, both attitudinal and learning.

Keywords: educational breakout; active methodologies; universal design for learning; higher education



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1. Introduction

The use of active methodologies allows students to perceive that they have freedom of choice and action, allowing them to act with initiative. In addition, it fosters creativity, responsibility over oneself, individuality, and autonomy [1,2]. Therefore, the holistic view provided by active methodologies is important because “there are students who are unaware of their capacity to learn and the unique contributions they can make.” [3].

Gamification could be one of these active methodologies. Its main purpose is to involve the use of game dynamics in contexts that are not of a playful nature [4]. Other authors such as Kapp [5], Zichermann and Cunningham [6], Werbach and Hunter [7], Marczewski [8], and Borrás-Gene [9] have also referred to the use of game mechanics, aesthetics, and strategies to encourage involvement, motivate action, promote learning, and solve problems. In this way, the pedagogical environment is transformed into a space endowed with learning enrichers, which becomes more motivating because of the use of playful dynamics. Within the field of gamification, there are different variations, one of them being educational breakout.

The main goal of educational breakouts is to solve different problems, in a lapse of time, with the aim of deciphering codes that, as a final element, lead to the opening of a locked box [10,11]. Furthermore, educational breakouts are integrated into a story. In this sense, it is important to develop a narrative that is attractive to students. Usually, educational breakouts begin with a video (it can be also a voice recording or a text) in which a character presents a general challenge related to opening a box. To do so, it is necessary to resolve specific tasks. These tasks have to be challenging for students and have to follow a storyline. As soon as students can resolve the main challenge, there is usually a reward inside the unlocked box. Different tasks can involve the use of codified messages, puzzles, and maps [10]. Educational breakouts can be used during a class

(as an activity) but they can also be integrated in a whole didactic unit as progressive challenges [10]. Although educational breakouts present similar characteristics to escape rooms, educational breakouts do not have the objective of leaving a space, but to unlock a box. For Nicholson [12], this type of methodology presents different advantages as it is based on collaborative games and focused on a task for which there is a limited time. Negre [10] specified how, through this type of activity, curricular content can be worked on while enhancing problem-solving skills, teamwork, deductive thinking, work under pressure, or the development of critical thinking.

Although educational breakouts are more frequent in stages prior to higher education, different initiatives of educational breakouts have been developed with promising results in a variety of subjects. In this sense, Moreno-Ramón and Ibañez-Asensio [11] conducted an educational breakout with a sample of 173 students in the degrees of Forestry and Agronomic Engineering at Universitat Politècnica de Valencia. Findings indicated an increase in motivation. Furthermore, it is necessary to highlight the study of Savvidou and Alexander [13], who carried out research after a breakout experience with 127 students enrolled in English language courses at a university in Cyprus. Results showed that this experience impacted five areas: emotional/affective, moral/ethical, social, pedagogical, and technological.

Another example of educational breakout used for improving English language in higher education is the research conducted by Fernández-Portero and Castillo-Rodríguez [14] with a sample of 95 pre-service English teachers. Their results indicated that the students had a positive attitude toward the tasks given. Furthermore, almost everyone finished the activity and wanted to use educational breakout as a teaching method in the future. Furthermore, it impacted positively on the use of new technologies and motivation. Moreno [15] also gamified a pre-service teacher subject by using educational breakout. Again, the results showed a high level of motivation in students while they were learning key competencies and content through collaboration.

Tshihouridis, Batsila, Tshihouridis, and Vavougios [16] developed a virtual breakout with 327 students, improving aspects such as their disposition, class participation, communication, and cognitive level. Maroto [17] also conducted a study of similar conditions in microeconomics subjects. In this case, the online educational breakout provided students with central knowledge about the subject and skills such as collaborative work, imagination and creativity, the resolution of practical problems, and critical reasoning.

However, although some educational breakout initiatives related to the learning of history have been implemented in pre-university stages with positive results [18–23], there is scarce evidence of its use in these type of subjects in higher education [19]. Nonetheless, similar techniques such as escape rooms have brought about interesting data in the teaching–learning process of history subjects at the university level. In this sense, Calle-Carracedo et al. [24] used an educational escape room in a subject on the history of education with a sample of 261 future teachers. As in other fields, the students highlighted the potential to promote motivation and the strengthening of the learning process in this type of subject.

Even when the evidence addressed could be relevant, it is important to acknowledge that there are still students who cannot participate equally in these kinds of activities, just because gamification experiences and educational breakouts are frequently not designed for a diversity of learners. In this sense, students with disabilities and/or special educational needs usually find barriers to participation. This is why it is important to remark on Universal Design for Learning (UDL) as an interesting approach to pursue that goal [25–28]. UDL focuses on three main areas [28–30]: to provide multiple means of engagement to provide multiple means of representation and to provide multiple means to action and expression. Each of these guidelines offers concrete instructions that can be used regardless of the discipline to ensure that everybody can participate in a meaningful way [29].

Taking all of these into consideration, UDL could be an interesting approach to combine with educational breakouts because it allows students to both participate by eliminat-

ing barriers, while implication and motivation also play an important role. As explained by Majdoub [31], the UDL framework is well-applied when it is combined with other instructional frameworks. In the case of gamification, the principle related to engagement tend to be well-worked, as remarked by Zainuddin, Chu, Shujahat, and Perera [32]. Nonetheless, usually gamified experiences contain access barriers and challenges to learners who present hearing, cognitive, physical, or visual disabilities, among others [33].

Considering the lack of studies on this issue, this work was conducted to ascertain whether the use of an educational breakout in a history subject in higher education and designed under UDL principles could be an appropriate approach to improve both the level of engagement and knowledge of content in students.

These goals can be described more precisely in the following research questions:

Do higher education students consider active methodologies, specifically educational, as a motivating approach for the history teaching–learning process?

Does an educational breakout in a subject of history in higher education improve the learning acquisition?

2. Materials and Methods

2.1. Design of the Educational Breakout

At the beginning of the academic year, together with the diagnostic evaluation of the students' previous knowledge, stereotypes, and beliefs about the deaf community, information was collected about T.V. series and/or movies of reference for the group. The results indicated that 49% of the participants showed a preference for series such as "The Mandalorian", "The book of Boba Fett", and the Star Wars saga. A total of 14% indicated movies and series from the Marvel and DC Universe, and another 13% of the participants highlighted the series "Money Heist", 12% were interested in the world of "Harry Potter" or "Fantastic beasts", 6% responded to "The Rings of Power", and the remaining 6% indicated other types of series or movies in a dispersed manner (such as "The Umbrella Academy", "Cobra Kai", "The Squid Game", or different seasons of "The Walking dead").

An educational breakout was designed for the basic training subject "History of disability and Spanish Sign Language", which has a duration of six ECTS and is taught during the first year of the degree in Spanish Sign Language and Deaf Community, the only experience at a Spanish university in this area of knowledge. This activity was designed to be carried out 8 weeks after the beginning of the course, that is, in the core period of the subject. The structure of the course allowed the participants to study the specific contents of the subject matter of the specific competence ("Mastering aspects related to the historical evolution in the interpretation of Spanish Sign Language and the technique of sighted guide and those related to the deaf and deafblind community") and, at the same time, to develop instrumental competences such as information search, management and curation, teamwork, time management, analysis, and problem-solving skills.

As previously mentioned, the educational breakout was set in the Star Wars Universe, in response to the interests detected in the group of participants about series and/or movies, with an opening video that provided instructions for the development of the task. Information of this video was represented in different ways (audio, video, and Spanish Sign Language). The main purpose of the game is to solve a set of eight missions, in each of which they must solve a historical enigma and rescue, from each of the solutions, a specific letter. Once the letters have been collected, they must arrange them to construct a meaningful word and translate it into Aurebesh (the alphabet of reference in the Star Wars Universe) to open a holocron (a box), assuming success in the mission.

The initial instructions warn about the interception of a message that shows the use of sign language among the Tusken tribes; a maximum time of one hour is given to develop the activity and the whole group is asked to divide into two factions: the Galactic Empire or Rebel Alliance. This initial distribution was made with the help of the gamemasters, who distributed the participants in a heterogeneous way, taking as a basis the knowledge they already had of the students, with whom they have already developed different activities in

the classroom following other active methodologies (such as cooperative learning through the construction of concept maps and 1-2-4 sessions, flipped learning, or Socratic debate). In turn, each faction was divided into four subgroups composed of four or five people, each of which have to face two missions (see Table 1). Once each subgroup finishes their missions, they must help other subgroups of the same faction solve their missions. Finally, all members of the same faction must revise all the answers given and agree on them before guessing the final word. Therefore, the setting induces, in addition, competitive work between both sides to find the final key in the first place.

Table 1. List of missions and subgroups.

Mission	Results	Argument	Letter
Tatooine	Universidad Complutense/Ambrosio Morales	Chronicler of the Royal House of the sixteenth century that narrates the first documented experience of education of deaf people, around the figure of Fray Pedro Ponce de León.	19th-E
Dantooine	Manuel Ramírez de Carrión	First teacher of the first Marquis del Fresno, born deaf.	11th-R
Nal Hutta	“Reducción de las Letras y arte de enseñar a hablar a los mudos”/Juan Pablo Bonet	First work written, in 1620, on the education of deaf people and its author, an international reference for the approach to education.	7th-I
Geonosis	Erasmus Darwin	Inventor of “Darwin’s chair”, a device used for the treatment of chronic mental illness in the 18th century.	7th-S
Ryloth	Ambroise Paré	Surgeon of the 16th century and inventor of the technique that allowed suturing arteries in the stumps of amputated limbs.	4th-R
Jabiim	The Seven Partidas/Alfonso X the Wise	This body of law, written between 1256 and 1265, is the longest and most extensive body of law in force in Spain and Latin America, where the rights of deaf people were included.	3rd-S
Utapau	Sapir-Worf	Hypothesis about the emergence of language that states that language shapes human perception and even evolved to enable us to think.	4th-I
Dathomir	“The Hammer of Witches” (Martillo de las Brujas)	Vulgar name given to the <i>Malleus Malleficarum</i> , an exhaustive witch-hunting book published in 1497 followed by inquisitors, related to the techniques for the trial of heretics, demoniacs, and witches.	4th-T (in Spanish)

The eight missions consisted of video recordings, all translated and interpreted into Spanish Sign Language (see Figures 1 and 2), in which Star Wars characters narrated the historical enigma related to the subject the students had to solve. After that, the participants had to indicate the letter they had to rescue from the solution as well as the position that letter occupied in each word (e.g., “rescue the seventh letter of the name of the author of this statement”). For the recording of the videos, we had the direct collaboration of the Spanish Garrison 501st Legion, the Spanish delegation of the 501st Legion, an international Star Wars costume organization integrated and directed by fans of the saga that, although not sponsored by Lucasfilm Ltd., is the preferred Imperial costuming group of Lucasfilm for keeping absolute fidelity to the original designs and materials of the costumes of the saga. Each mission was set on an Outer Rim planet, chosen according to the planetary system structure provided in the original scripts of the reference filmography.



Figure 1. Screenshots of the missions (Tatooine).



Figure 2. Screenshots of the missions (Dathomir).

These missions addressed authors from different periods related to the education of deaf people and the history of Spanish Sign Language as well as publications of special importance, theories, or institutions. Selecting one letter from each of them, as explained above, the word (“Resistir”) was built, which allowed them to develop a final reflection of the concepts of resistance and resilience of the Deaf community, as aspects maintained over time in the face of the lack of accessibility to information and the violation of their linguistic rights as a result of the lack of appreciation of the hearing community toward sign language, which is an identity aspect of the Deaf community and deaf culture (see Table 1).

During the development of the educational breakout, the two professors of the subject played the role of gamemaster to answer any doubts that each of the groups might have. No information was provided to obtain additional clues to solve the missions, but the participants were guided toward a comprehensive analysis of the statement.

As soon as the breakout was over, a brief discussion was held with the students to clarify the contents of the subject that had been addressed with the activity. Students were guided toward a reflection on the instrumental competencies and soft skills they had developed during the session: information search and retrieval, information curation, teamwork, problem solving, analytical skills, and digital competencies. In addition, the concept of hearsplaining was discussed based on the idea of resilience built from the missions.

One month after the activity was carried out, a brief informal evaluation was made to the participants to analyze the permanence of the learning developed because of the activity. Simultaneously, the same evaluation was made to the group of second year students who had received training on these contents through more traditional and passive methodologies (master class and oral exposition). Therefore, the designed breakout was not only oriented to the development of significant learning specific to the subject (related to the specific competence of the subject), but also intended to enhance the development of transversal competencies through the active participation of students.

To sum up UDL principles used in this activity, these were used in order to promote an accessible and more engaging activity. Regarding the “Multiple means of representation”, students had the choice to access information by different ways. A video with oral instruction also signed by a Sign Language interpreter was displayed. Additionally, students had a written description of the activity. In addition, “Multiple means of action and expression” was considered as students could express the answers of different enigmas written, orally and by using Spanish Sign Language. Regarding “Multiple means of engagement”, it was

tackled by considering the students preferences when designing the educational breakout theme (Star Wars). Apart from that, the activity was customized following this theme and instructional videos were described by members of the 501st Legion, as explained below. Moreover, students had the opportunity of choosing from among different characters of the Star Wars Universe to form groups. Apart from that, gamemasters were provided with continuous feedback during the task aimed at engagement and self-regulation.

2.2. Data Collection

An ex post facto descriptive and comparative study was developed in which the impact of an educational breakout activity on the students' engagement was quantified by establishing a comparative pre- and post-completion. Before starting the breakout, the enrolled students had to fill in the form offered. Once completed, they developed the activity in their daily classroom. Once it was completed, the students were asked to fill out the post-scale questionnaire.

The participants were not informed about the activity they were going to carry out in the classroom and two ad hoc questionnaires were designed to collect information.

One of them was administered one week before the development of the activity; the second was administered at a post moment, when the activity was finished. A period of seven days was given to answer both questionnaires.

On the other hand, one month after the activity was carried out, an informal evaluation was made to analyze the learning acquisition. A question was formulated based on the elements collected in the "Justification" column of Table 2, offering three response alternatives (two of them wrong and one correct). This same system was used with the second-year group, who received training on these aspects from a traditional and passive perspective during the previous course.

Table 2. Pre-questionnaire items.

Dimension	Total of Items	Items No.
Use of active methodologies in history subjects	3	1, 2, 3, 11, 12
Previous knowledge about active methodologies	2	13, 14
Engagement in history subjects	7	4, 5, 6, 7, 8, 9, 10

2.3. Tools

Two ad hoc tools were designed for the collection of information, which were generated with Microsoft and made available to the participants in the virtual classroom of the course seven days before the activity (in the case of the prequestionnaire) and during the following seven days after the day selected for educational breakout (in the case of the post questionnaire). Data collection was anonymous, with no information collected other than that provided in the responses.

These questionnaires allowed us to analyze the previous experience of the subjects in the participation in active methodologies, beliefs about the learning of history content, the level of motivation toward the subject, and level of engagement with the subject with the aim of establishing a comparison between the moments before and after the development of the educational breakout. On the other hand, the activity itself implies the deployment of instrumental competences and soft skills such as information search and retrieval, information curation, teamwork, problem solving, analytical skills, and digital competences.

The pre-questionnaire aimed to understand the level of motivation of the participants toward the use of active didactic strategies and methodologies in traditionally theoretical subjects, as is the case of history. It consisted of 15 items, divided into three dimensions, as stated in Table 2, of which 12 were Likert-type questions with a scale of four response options ("totally disagree", "disagree", "agree", and "totally agree"), one was an open question that was conditional on the response to the previous item, one was a multiple-choice question with six response options (the last one being open to be able to specify),

and the penultimate one was dichotomous (“yes” or “no”) and conditioned the response to the last item if it was marked affirmative. Statements of each of the items can be seen in Appendix A.

On the other hand, the post questionnaire aimed to find out the participants’ assessment of their participation in the activity. It also sought to understand aspects such as previous similar experiences in relation to history and to detect whether the level of motivation and engagement with the subject was modified. It consisted of 15 items of which three were dichotomous (“yes” or “no”), 11 were Likert-type questions with a scale of four response options (“totally disagree”, “disagree”, “agree”, and “totally agree”), and the last one was a scale from 1 to 10 where a numerical evaluation of the experience was requested. Dimensions of the questionnaire are shown in Table 3. Items of the questionnaire can be seen in Appendix B.

Table 3. Items of the post questionnaire.

Dimension	Total of Items	No.
Previous experiences in educational breakouts	3	1, 2, 3
Educational breakout as an active methodology	4	4, 5, 12, 13
Educational breakout and engagement	6	6, 7, 8, 9, 10, 11
Views on the activity	2	14, 15

The Delphi methodology was used to make the final version of the questionnaire. The collaboration of different profiles related to the type of research program was requested: a Professor of Medieval History, a psychologist with extensive training and professional experience using role games, an occupational therapist, and two teachers of primary education with experience using active methodologies. All of them served as a panel of experts to confirm the content validity of the items that made up the questionnaire.

Three rounds of anonymous consultation were carried out, each separated by a time interval of 15 days. Initially, each of the experts was given a description of the training program and all the elements to be measured with the items proposed. During the validation process, each of the experts received the questionnaire design that would be used to measure engagement, motivation, previous experience, and previous beliefs.

They also received a table with all the proposed items with the objective of evaluating the suitability, importance, and observability of each one of them using a Likert-type scale from 1 to 4, with 1 being “totally disagree”, 2 “disagree”, 3 “agree”, and 4 “totally agree”.

Items were considered valid when they obtained a score of 3 or more from 80% of the experts. Following their considerations, corrections were made to the wording of the items and by removing some of them until the final version of both questionnaires was obtained, which, in the last round, obtained an overall average score of 3.9.

On the other hand, the gamemasters followed the “Guide for the self-assessment of inclusive teaching strategies” [33], which comes from the adaptation of theoretical and practical approaches derived from different tools and studies [8,34–37], consisting of nine dimensions composed of five items each measurable on a Likert-type scale from 1 to 4, which allow for the self-assessment of the mainstreaming of the principles of Universal Design for Learning, facilitating the identification of the elements that it recommends addressing and/or addressing to strengthen the teaching–learning process in any training environment and context.

3. Results

3.1. General Results and Results of Learning Permanence

The sample universe was $N = 59$ people, all belonging to the first year of the degree in Spanish Sign Language and deaf community, taught at the Universidad Rey Juan Carlos. In the pre-questionnaire, a participation of $n = 59$ subjects were obtained, while in the post-questionnaire, the sample was $n = 47$. The activity was rated with a mean of 8.53 out of 10, with a minimum of 5 and a maximum of 10 points, and a mode of 9.

As for the informal evaluation of learning, one month after the activity, 97% of the participants provided the eight correct answers on the contents. In the case of the second-year students, who followed a more traditional and passive methodology, only 36.5% answered eight questions correctly, 17% only three of them, and 79.2% only one of them, without being able to group the percentages in another proportion of answers different from the one indicated.

The application of the “Guide for self-evaluation of inclusive teaching strategies”, which allows a maximum score of 180 points and a minimum of 45 to be reached, presented a score of 172 points for the subject as a whole.

3.2. Evaluation before Activity

With respect to the information gathered in the pre-evaluation ($n = 59$), the participants in general considered that this subject of history (not history in general) was attractive for their learning (71.2% of the accumulated participants affirmed this) and 67.8% did not perceive that they had a passive role in the learning of the subject, being fundamentally in disagreement with the statement “History is fundamentally theoretical and of memoristic learning” in an identical percentage.

A total of 71.2% of the participants indicated that history did not directly connect with their interests compared to 28.8%, who considered that it was in line with their learning interests, but, in spite of this, 81.4% indicated that they could keep their attention on the task most of the time. This is related to the fact that 81.3% said that they were motivated to learn history (16.9% of the participants totally agreed with this statement) and 96.6% considered that their motivation would increase if active methodologies were used during the teaching–learning process. A total of 91.5% believed that learning history could be attractive and, furthermore, 94.9% thought that they could learn history in a playful way. However, only 39% of the participants were aware of gamification or gamification applied to learning. Of these, 64.3% agreed and 35.7% totally agreed that gamification was a good method for learning history.

3.3. Evaluation after Activity

Regarding the collection of information after the activity ($n = 47$), 57.4% stated that they had previously participated in an escape room activity outside the educational setting and only 10.6% had participated in an educational breakout or escape room in the educational setting. The percentage was even lower when asked if such participation had been in a subject such as history or similar, where only 2.1% (a single participant) answered in the affirmative.

The general opinion was that the educational breakout would have been a good tool to consolidate the contents seen in the subject of the History of Disability and Spanish Sign Language (46.8% agreed and 44.7% of the participants totally agreed). After the activity, 97.9% agreed or strongly agreed (42.6% and 55.3%, respectively) that history could be learned in a playful way.

A total of 51.1% and 42.6% agreed or strongly agreed that the activity had succeeded in motivating them to learn history, and 87.2% considered that it had allowed them to connect better with the subject, in contrast to the previous evaluation where only 16.9% strongly agreed with the statement of being motivated to learn history. However, it should be noted that a small percentage (6.4% of the participants) had not seen that the activity influenced their motivation for learning the contents of the subject and 12.7% indicated that they had not connected better with the subject after the activity.

A total of 95.8% indicated having maintained a high level of concentration during the resolution of the task (compared to 81.4% in the previous evaluation). This corresponds to the percentage of participants who in the previous evaluation indicated that their motivation would increase if active methodologies were used in the teaching–learning process (96.6%). In turn, 97.8% stated that they had developed active participation during the development of the educational breakout. This helped the class time to pass more

quickly than normal (14.9% of the participants agreed with this idea and 85.1% totally agreed), which is in contrast with the information obtained in the previous evaluation, where 64.4% agreed and 16.9% totally agreed).

A total of 55.3% agreed that the proposed activity challenged them and 34% totally agreed. In addition, most of them wanted to participate in an educational breakout again (19.1% and 78.7% agreed or totally agreed to do it again).

The activity also seems to have helped to create a better connection between classmates: 44.7% and 42.6% agreed or strongly agreed that the educational breakout helped them to get to know their classmates better and to have a better connection. On the other hand, 57.4% agreed that the activity helped them become aware that they had more knowledge than they thought (10.6% also strongly agreed with this idea), although 25.5% disagreed with this statement.

Due to the size of the sample, parametric tests for the statistical analysis of the data were performed, applying the Student's *t*-test for paired samples, in search of statistically significant differences ($p < 0.05$). Significant differences were found with respect to the perception of the speed of the passage of time ($p = 0.000$) and with respect to sustained attention ($p = 0.000$), where there was a statistically significant difference between the time before and the time after the educational breakout.

Motivation for learning the content of the subject also revealed statistically significant differences ($p = 0.007$), producing an increase in the general levels of motivation toward learning.

Finally, the group's opinion about whether it is possible to learn history in a playful way also revealed statistically significant differences ($p = 0.02$) with a favorable change in opinion after the educational breakout.

4. Discussion

Teaching history by using a breakout experience seems to have contributed to improving several aspects in the learning process of higher education students.

First of all, although a wide number of students thought that the subject of history was connected with their interest and that their role was active, their level of motivation increased after the breakout experience. This could be due to the trend of this kind of experience (escape room and breakout) outside the educational field; 57.4% had participated in a escape room and/or breakout previously. This could be related to its popularity, since it was implemented in 2007, first in Japan, and has become famous worldwide since its implementation in the United States in 2015 [38]. Furthermore, it is important to notice that students were asked about their interests before the design of the breakout experience. In this sense, Star Wars and its universe was widely known by the students. This is important when designing an activity, not only under the precepts of gamification [4,9,39], but also to Universal Design for Learning [40–42].

In this way, connecting with the interest of students brings about higher levels of motivation as gamification tries to adapt different structures and dynamics from games in another situation. This is why similar results have been considered in previous studies [11–15,17]. In this case, it is important to note that some of the factors could be the limit of time to resolve different problems, teamwork, and competition between teams. As a result, the students developed both extrinsic and intrinsic motivation. The main goal related to motivation was to be developed mainly an intrinsic one, as it is considered as a fundamental piece of significative learning, allowing students to initiate and maintain the whole process [43].

By designing this activity under the parameters of Universal Design for Learning, not only have we tried to motivate every student, but also to achieve the presence, participation, and learning of every person in the class [44]. In this sense, it is really important to examine gamification by anticipating possible barriers. After developing the experience, this is an important point to examine as a great number of courses empowered with gamification do not consider the diversity of students [40].

Apart from that, students acknowledged that the task was a challenge for them as they were actively participating and the time passed really fast. All of these are related to a bigger concept: engagement. As a matter of fact, engagement is directly associated with the quality of university education. Students with high levels of engagement tend to be more proactive, can cope with the demands of the learning process, and look for new challenges. Also they are able to maintain a correct connection with their academic work and take initiative [45–48].

Moreover, students acknowledge that learning history can be fun, in contrast to the other studies carried out [19]. Although there is a lack of evidence in this subject, these results could be connected to the fact that this study was placed within a higher education context and that the subject of history is focused on Deaf community, Sign Language, and people with disabilities (specific contents highly related to the degree that the students have freely chosen).

Another aspect to bear in mind is whether students considered having more knowledge about the aspects of the subject than they thought before the experience. Even when they were inside the game context, students were able to solve different puzzles and enigmas under pressure. This could bring about higher levels of self-efficacy. Different studies have highlighted this same aspect [48–50]. Furthermore, the gamemaster role allowed students to have continuous and immediate feedback, which could also lead to an increment in this sense of self-efficacy, [37,51], as two professors were available to answer questions and guide the students to solve the enigmas.

Last, but not least, and similar to other studies [52,53] this experience was a good opportunity to connect and to interact among students, improving teamwork. It is important to remark that the subject is taught during the first semester of the first course. Students barely know each other, being probably one of their first experiences in this regard. This is why educational breakouts and other gamified activities could also be interesting to implement during subjects placed at the beginning of the degree.

5. Conclusions

One of the main objectives of the use of an educational breakout is to increase the level of motivation and interest of the students as well as promote engagement and general involvement in the subjects, thus facilitating the development of more effective and lasting meaningful learning. The design and implementation of this experience, based on the majority interests of the target group, seems to have been successful in light of the data collected. It should not be forgotten that it is important to align the activity with the preferences of the participants to ensure the greatest possible success.

On the other hand, it can be affirmed that the transversal implementation of strategies derived from the UDL as well as the use of strategies conducive to inclusion in the classroom were notably implemented by the teachers of the subject. Not only in multiple forms of content representation (combining electronic formats, the use of audiovisual material and paper support) with multiple forms of expression that allow express learning in different formats and supports, but also in the principle of the UDL, related to the involvement and motivation of students through the use of affective networks. By influencing their motivation and interests through activities such as educational breakouts, it favors involvement in the subject as well as the development of other soft skills such as teamwork, problem solving, or information search.

The use of active methodologies in general and, in particular, of educational breakout, seems to have a significant influence on the permanence of learning, which means that the quality of learning is higher than that of learning acquired through traditional or passive methods. In this work, it was shown that when a group of students who received this training following a traditional methodology was asked about the same content, learning was less effective than in students who followed an active methodology.

In general, the predisposition of university students to participate in gamified or game-based activities is positive and in subjects such as the one we are dealing with, with a large

amount of content covering a very broad historical period (about 600 years of study), they seem to be very useful in achieving the specific competencies of the subject. Furthermore, it offers good results, both attitudinal and learning.

It is worth considering the advisability of repeating the follow-up on the permanence of learning after an academic year as well as repeating this work using a different setting technique that reaches a greater proportion of participants, since the more unfavorable percentages in the scores may be due to the fact that some of the participants did not feel particularly linked to the selected theme: a neutral theme, closer to the escape room and to tasks of solving clues and challenges, could offer different results. On the other hand, it is necessary to explore what the results would be like if, instead of designing an activity with competitive challenges between two teams, an activity had been designed in which such competition did not exist, opting for a more collaborative or cooperative vision of the whole group.

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Appendix A. Pre-Questionnaire Items

Dimensions	Item No.	Statement
Active methodologies in history	1	I consider that, in general, the teaching of subjects related to history is based only on the master class.
Active methodologies in history	2	I consider that in subjects such as history, the role of the student is passive, making it difficult to participate and construct knowledge in a practical way.
Active methodologies in history	3	I consider that subjects related to history are theoretical and, in order to learn, it is necessary to apply only rote learning.
Engagement in history subjects	4	I consider that subjects related to history are not very attractive for learning.
Engagement in history subjects	5	History-related subjects connect with my interests.
Engagement in history subjects	6	In case you totally disagree or disagree with the above statement how could they better connect with your interests?
Engagement in history subjects	7	During history classes, I find myself engrossed in the subject and the time passes very quickly.
Engagement in history subjects	8	During history classes, I tend to be focused most of the time.

Dimensions	Item No.	Statement
Engagement in history subjects	9	During history classes, I find myself motivated to learn.
Engagement in history subjects	10	I think that learning subjects related to history can be attractive.
Active methodologies in history	11	I think that history can be learned in a playful way.
Active methodologies in history	12	My motivation toward the subject would increase if active methodologies were used to help me participate directly in the learning process.
Previous knowledge about active methodologies	13	Do you know any of the following learning techniques? Educational escape room, project-based learning, problem-based learning, inverted classroom, cooperative learning, other (indicate which)
Previous knowledge about active methodologies	14	Are you familiar with gamification/ gamification applied to learning?
Knowledge about active methodologies	15	If yes, I think that gamification can be a good method for learning this subject.

Appendix B. Post-Questionnaire Items

Dimension	Item No.	Statement
Previous experiences in educational breakouts	1	Have you ever participated in an escape room/breakout before outside the educational setting?
Previous experiences in educational breakouts	2	Have you ever participated in an educational breakout before?
Previous experiences in educational breakouts	3	If yes, in any subject related to history?
Educational breakout as an active methodology	4	I consider that the activity has been a good tool to consolidate the contents seen in history.
Educational breakout as an active methodology	5	After doing this activity, I think that history can be learned in a playful way.
Educational breakout and engagement	6	The experience has motivated me to learn history.
Educational breakout and engagement	7	The experience has allowed me to connect better with the subject.
Educational breakout and engagement	8	During the activity I have been focused on the resolution of the challenge.
Educational breakout and engagement	9	During the activity I consider that I have shown an attitude of active participation.
Educational breakout and engagement	10	During the activity, the class time passed faster than usual.
Educational breakout and engagement	11	I consider that the activity has been a challenge for me.
Educational breakout as an active methodology	12	After doing the activity, I realized that I have more knowledge of the subject than I thought I had.
Educational breakout as an active methodology	13	The activity helped me to connect/get to know my classmates better.
Views on the activity	14	Would you like to repeat this experience?
Views on the activity	15	Rate the experience from 1 to 10

References

1. Baena Extremera, A.; Ruiz Montero, P.J. *Metodologías Activas en Ciencias de la Educación*; Wanceulen Educación: Seville, Spain, 2019.
2. Jiménez Hernández, D. *Métodos Didácticos Activos en el Sistema Universitario Actual*; Dykinson: Madrid, Spain, 2018.
3. Bain, K. *Lo que Hacen los Mejores Profesores Universitarios*; PUV: Valencia, Spain, 2007.
4. Deterding, S.; Khaled, R.; Nackle, L.; Dixon, D. Gamification: Toward a Definition. In Proceedings of the CHI 2011 Gamification Workshop Proceedings, Vancouver, BC, Canada, 7 May 2011.
5. Kapp, K.M. *The Gamification of Learning and Instruction Fieldbook: Ideas into Practice*; John Wiley & Sons: San Francisco, CA, USA, 2013.
6. Zichermann, G.; Cunningham, C. *Gamification by Design: Implementing Game Mechanics in Web and Mobile Apps*; O'Reilly Media: Sebastopol, CA, USA, 2011.
7. Werbach, K.; Hunter, D. *The Gamification Toolkit: Dynamics, Mechanics, and Components for the Win*; University of Pennsylvania Press: Philadelphia, PA, USA, 2015.
8. Marczewski, A. *Even Ninja Monkeys like to Play*; Blurb Inc.: London, UK, 2015.
9. Borrás-Gené, O. *Introducción a la Gamificación o Ludificación (en Educación)*; Servicio de Publicaciones de la Universidad Rey Juan Carlos: Madrid, Spain, 2022.
10. Negre, C. BreakoutEdu», Microgamificación y Aprendizaje Significativo. 2017. Available online: <https://www.educaweb.com/noticia/2017/07/26/breakoutedu-microgamificacion-aprendizaje-significativo-15068/> (accessed on 20 December 2022).
11. Moreno- Ramón, H.; Ibañez-Asensio, S. Gamificación en el entorno universitario: Un breakout educativo en asignaturas de Génesis de Suelos. In *In-Red. V Congreso de Innovación Educativa y Docencia en Red*; Universidad Politécnica de Valencia: Valencia, Spain, 2019.
12. Nicholson, S. Creating engaging escape rooms for the classroom. *Child. Educ.* **2018**, *94*, 44–49. [CrossRef]
13. Savvidou, C.; Alexander, K. It has potential but . . . ’—exploring university students’ experiences and perceptions of breakout rooms during the COVID-19 pandemic. *Teach. Engl. Technol.* **2022**, *22*, 3–26. [CrossRef]
14. Fernández-Portero, I.; Castillo-Rodríguez, C. Gamification in the English Language Class: Analysis of Teachers’ Perceptions. *Comput. Assist. Lang. Learn. Electron. J. CALL-EJ* **2022**, *23*, 425–444.
15. Moreno, E. El “Breakout EDU” como herramienta clave para la gamificación en la formación inicial de maestros/as. *EDUTEC. Rev. Electrónica Tecnol. Educ.* **2019**, *67*, 66–79. [CrossRef]
16. Tshihouridis, C.; Batsila, M.; Tshihouridis, A.; Vavougios, D. Learning to be Together Again—Using Virtual Breakout Rooms to Fill the Communication and Cognitive Gap in Online Classrooms. In *Mobility for Smart Cities and Regional Development—Challenges for Higher Education, Proceedings of the 24th International Conference on Interactive Collaborative Learning (ICL2021)*; Springer: Dresden, Germany, 2022.
17. Maroto, A. Oportunidades digitales educativas a raíz del COVID-19: Del escape room al BreakOut online. *E-Pública* **2021**, *29*, 27–57.
18. Cambroner, S. Mejora Educativa Para Fomentar la Empleabilidad a Través del Trabajo de Competencias Transversales Mediante un BreakOut Edu. Master’s Thesis, Universitat Jaume I, Castellon, Spain, 2019. Available online: <http://repositori.uji.es/xmlui/handle/10234/185346> (accessed on 1 December 2022).
19. Guijarro, A. Uso de Breakout Para Facilitar el Aprendizaje y Potenciar la Motivación por la Asignatura de Historia en Alumnos de 4o de Educación Secundaria Obligatoria. Master’s Thesis, Universidad Católica de Murcia, Murcia, Spain, 2022.
20. Corrales, M. Experiencias de gamificación en la didáctica de las ciencias sociales en Educación Secundaria. In *Repensando la Profesión de los Profesionales de la Educación: (Libro de actas del 1º Congreso Caribeño de Investigación Educativa)*; ISFODOSU: Santo Domingo, Dominican Republic, 2020.
21. Garver, J.; Muladore, S. Prime Suspects: Unlocking History’s Mysteries with Primary Sources, Presented at National Council for the Social Studies 2018. Available online: <https://issuu.com/nccss/docs/nccss2018chicagoprogram?e=24887827/65800934> (accessed on 3 December 2022).
22. Van Sledright, B. *Assessing Historical Thinking and Understanding: Innovative Designs for New Standards*; Routledge: New York, NY, USA, 2014.
23. Santarelli, L. Breakout and Escape Room Instructional Methods in History Education: A Critical Analysis. 2019. Available online: <https://uh.edu/education/research/jsshe/spring-2019-issue/breakout-box-lsantarelli.pdf> (accessed on 29 November 2022).
24. Calle-Carracedo, M.; López-Torres, E.; Miguel-Revilla, D.; Carril-Merino, M.T. Escape romos en la formación inicial del profesorado de Ciencias Sociales: Valoración y potencial educativo. *Educ. XXI* **2022**, *25*, 129–150. [CrossRef]
25. McGuire, J.M.; Scott, S.; Shaw, S.F. Universal Design and Its Applications in Educational Environments. *Remedial Spec. Educ.* **2006**, *27*, 166–175. [CrossRef]
26. Diaz-Vega, M.; Moreno-Rodríguez, R.; Lopez-Bastias, J.L. Educational Inclusion through the Universal Design for Learning: Alternatives to Teacher Training. *Educ. Sci.* **2020**, *10*, 303. [CrossRef]
27. Lopez-Bastias, J.L. Strategies for teachers to improve the learning process with users with disabilities: Principles and guidelines based on Universal Design for Learning. In *Patrimonio Cultural e Inclusión Social: Marco Pedagógico y Guía Para la Autoevaluación de Estrategias Docentes Inclusivas*, 1st ed.; Octaedro: Barcelona, Spain, 2022; Volume 1, pp. 63–78.
28. Moreno-Rodríguez, R.; Diaz-Vega, M.; Lopez-Bastias, J.L.; Espada-Chavarría, R. Online Training in Accessibility and Design for All: A Tool to Train Post-COVID Inclusive Graduates. *Int. J. Environ. Res. Public Health* **2021**, *18*, 12582. [CrossRef]

29. CAST. Universal Design for Learning (UDL) Guidelines Version 2.2. 2018. Available online: <https://udleguidelines.cast.org/> (accessed on 3 December 2022).
30. Roski, M.; Walkowiak, M.; Nehring, A. Universal Design for Learning: The More, the Better? *Educ. Sci.* **2021**, *11*, 164. [CrossRef]
31. Majdoub, M. Applying gamification to enhance the Universal Design for Learning Framework. In *Handbook of Research on Transformative and Innovative Pedagogies in Education*; Publisher IGI Global: Pensilvania, USA, 2022.
32. Zainuddin, Z.; Chu, S.K.W.; Shujahat, M.; Perera, C.J. The Impact of Gamification on Learning and Instruction: A Systematic Review of Empirical Evidence. *Educ. Res. Rev.* **2020**, *30*, 100326. [CrossRef]
33. Espada-Chavarria, R.; Moreno-Rodríguez, R.; Lopez-Bastias, J.L.; Diaz-Vega, M. Guide to self-evaluation of inclusive teaching strategies. In *Patrimonio Cultural e Inclusión Social: Marco Pedagógico y guía para la Autoevaluación de Estrategias Docentes Inclusivas*, 1st ed.; Octaedro: Barcelona, Spain, 2022; Volume 1, pp. 79–81.
34. Lopez-Bastias, J.L.; Moreno-Rodríguez, R.; Díaz-Vega, M. Attention to the special educational needs of university students with disabilities: The CAUSSEN tool as part of the educational inclusion process. *Cult. Educ.* **2020**, *32*, 27–42. [CrossRef]
35. Lombardi, A.R.; Murray, C.; Dallas, B. University faculty attitudes toward disability and inclusive instruction: Comparing two institutions. *JPED* **2013**, *26*, 221–232.
36. Dalmau, M.; Guasch, D.; Sala-Bars, I.; Llinares, M.; Dotras, P.; Álvarez, M.H.; Giné, C. *Diseño Universal para la Instrucción: Indicadores para su Implementación en el Ámbito Universitario*; Càtedra d'accessibilitat de la Universitat Politècnica de Catalunya: Catalonia, Spain, 2015.
37. Rao, K.; Edelen-Smith, P.; Wailehua, C.U. Universal design for online courses: Applying principles to pedagogy. *Open Learn. J. Open Distance e-Learn.* **2015**, *30*, 153–166. [CrossRef]
38. Nicholson, S. A RECIPE for Meaningful Gamification. In *Gamification in Education and Business*; Springer Science and Business Media LLC: New York, NY, USA, 2015; pp. 1–20.
39. French the Unbelievably Lucrative Business of Escape Rooms. 2015. Available online: <https://www.marketwatch.com/story/the-weird-new-world-of-escape-room-businesses-2015-07-20> (accessed on 5 December 2022).
40. Delgado, M.J.; Martínez, R.; Rodado, M.C. Diseños de entornos de aprendizaje activo basados en la gamificación: El juego Fiscal Re-Game. *E-Pública. Rev. Electrónica Sobre La Enseñanza Econ. Pública* **2019**, *24*, 19–36.
41. Alba, C. Educación Inclusiva y Enseñanza para Todos: El Diseño Universal para el Aprendizaje. In *Alba, C (coord.) Diseño Universal para el Aprendizaje: Educación para Todos y Prácticas de Enseñanza Inclusivas*; Editorial Morata: Madrid, Spain, 2018.
42. Lohmann, M.; Boothe, K.; Hathcote, A.; Turpin, A. Engaging graduate students in the online learning environment: A universal design for learning (UDL) approach to teacher preparation. *Netw. Online J. Teach. Res.* **2018**, *20*, n2. [CrossRef]
43. Ospina, J. La motivación, motor del aprendizaje. *Motivation, the Engine of Learning. Rev. Cienc. Salud. Bogotá Colomb.* **2006**, *4*, 158–160.
44. Smith, K.; Abrams, S.S. Gamification and accessibility. *Int. J. Inf. Learn. Technol.* **2019**, *36*, 104–123. [CrossRef]
45. Manzano, G. Burnout y engagement. Relación con el desempeño, madurez profesional y tendencia al abandono de los estudiantes. *Rev. De Psicol. Soc.* **2002**, *17*, 237–249. [CrossRef]
46. Salanova, M.; Schaufeli, W.; Martínez, I.; Bresó, E. How obstacles and facilitators predict academic performance: The mediating role of study burnout and engagement. *Anxiety Stress Coping* **2010**, *23*, 53–70. [CrossRef]
47. López-Aguilar, D.; Álvarez-Pérez, P.R.; Garcés-Delgado, Y. El engagement académico y su incidencia en el rendimiento del alumnado de grado de la universidad de La Laguna. *RELIEVE* **2021**, *27*, art. 5. [CrossRef]
48. Banfield, J.; Wilkerson, B. Increasing Student Intrinsic Motivation And Self-Efficacy Through Gamification Pedagogy. *Contemp. Issues Educ. Res. CIER* **2014**, *7*, 291–298. [CrossRef]
49. Ahmed, H.D.; Asiksoy, G. The Effects of Gamified Flipped Learning Method on Student's Innovation Skills, Self-Efficacy towards Virtual Physics Lab Course and Perceptions. *Sustainability* **2021**, *13*, 10163. [CrossRef]
50. De Fabricio, C. Using gamification in education: A systematic literature review. In *Proceedings of the International Conference on Information Systems 2018—ICIS 2018, San Francisco, CA, USA, 13–16 December 2018*.
51. Chen, B.; Bastedo, K.; Howard, W. Exploring Design Elements for Online STEM Courses: Active Learning, Engagement & Assessment Design. *Online Learn.* **2018**, *22*, 59–75.
52. Subhash, S.; Cudney, E. Gamified learning in higher education: A systematic review of the literature. *Comput. Hum. Behav.* **2018**, *87*, 192–206. [CrossRef]
53. López-Martínez, A.; Meroño, L.; Cánovas-López, M.; García-de-Alcaraz, A.; Martínez-Aranda, L.M. Using Gamified Strategies in Higher Education: Relationship between Intrinsic Motivation and Contextual Variables. *Sustainability* **2022**, *14*, 11014. [CrossRef]

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