

THE USE OF ESCAPE ROOMS AS A DIDACTIC TOOL FOR LEARNING THE SPECTRUM OF TEACHING STYLES

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Abstract

Twenty-first century education demands teacher innovation in classroom management. The teaching approach shifts from being centered on the teacher as the transmitter of knowledge to focusing on the student as the protagonist of the learning process. The application of active methodologies to create interesting didactic experiences which seem to increase students' motivation has gained ground in the last few years. The entry into the European Higher Education Area (EHEA) brought change to Higher Education. The competences deriving from the EHEA are of a practical nature and therefore must be worked on by means of active methods. Furthermore, university legislation establishes that their fundamental challenge is to transform the processes of learning and teaching to continuously adapt to the demands posed by society. For this purpose, innovative active methodologies are specified for the development of the structure of the curriculum, including the inverted classroom, learning based on project work or case studies, or gamification, among others. Gamification consists of playing games in non-traditional or face-to-face environments and helps to stimulate motivation, interest, attention, pleasure in learning and fun, among other aspects. An example of a gamification activity is the escape room, which consists of creating a situation that requires the collaboration of a group of people to solve a series of challenges aimed at 'escaping from a room'. The main objective in this research was to analyze the implementation of an escape room as a didactic tool for learning teaching styles in the subject Physical Education Didactics from the Primary Education Degree. This research followed a quantitative methodology of a descriptive type with a post-test after the intervention. A total of 44 university students participated, of whom 54.5% were men and 45.5% women, with an average age of 20.11 ± 1.52 years. The students experienced a teaching unit about the spectrum of teaching styles, involving 4 theoretical lessons and 4 practical lessons with different episodes. After this unit students had an escape room session in which they had to solve four challenges related to the unit. The questionnaire was administered after the lesson to evaluate the students' perceptions of the escape room technique. This questionnaire had 12 items, 3 dimensions, motivation, learning and evaluation and a Cronbach's alpha of .957. Among the most relevant results, it is worth highlighting that the students considered this didactic tool to be useful for improving learning (4.75 ± 0.60), followed by evaluation (4.47 ± 0.53) and lastly as a tool for increasing motivation (3.84 ± 0.77). There are no statistically significant differences in any variable ($p > 0.05$) according to gender.

Keywords: Teaching styles, pedagogical method, escape room, higher education.

1 INTRODUCTION

In recent years, there has been a trend in the educational community that revolves around the replacement of traditional teaching models with more innovative methodologies, whose tendency is oriented towards giving more prominence to students in the teaching-learning process, enhancing their sociability and teamwork, meaningful learning, critical thinking and interactive learning [1].

Among the different methodologies, gamification is gaining increasing prominence [2]. Authors such as Guamangallo [3] explain that gamification consists of carrying out games in non-traditional environments and that it helps to stimulate motivation, interest, attention, pleasure in learning and fun, among other aspects. On the other hand, Torres et al. [4] state that there is currently no great consensus on its definition. However, following these authors, in general terms it is a technique that consists of transferring game mechanics to the educational environment. In addition, it incorporates ludic techniques such as points, levels and challenges that seek to encourage participation and engagement, improving knowledge retention, the development of practical skills and teamwork [3].

Gamification, as an educational methodology, creates attractive and interesting didactic experiences to increase students' motivation, their commitment and learning of the contents of the subject or their enjoyment of the pedagogical tasks themselves [5]. In this way, the student will be the main protagonist of the teaching, having to cooperate with their peers and make decisions to overcome the different challenges proposed.

An example of a gamified activity is the escape room [2], which consists of creating a situation that requires the collaboration of a group of people to solve a series of challenges that aim to permit them "to escape from a room" [6]. The objective of this activity is to promote more active participation on the part of the students to better assimilate and understand the contents [7].

The entry into the European Higher Education Area (EHEA) brought about a change in Higher Education. The competences derived from the EHEA are of a practical nature and, therefore, must be worked on through active methods. In addition, university legislation establishes that their fundamental challenge is to transform the learning and teaching processes in order to continuously adapt to the demands posed by society. To this end, innovative active methodologies are specified for the development of the structure of the curriculum, including the inverted classroom, learning based on project work or case studies, or gamification, among others.

In this context, the main objective in this research was to analyze the implementation of an escape room as a didactic tool for learning teaching styles in the subject Physical Education Didactics from the Primary Education Degree.

2 METHODOLOGY

2.1 Research design

This research followed a quantitative methodology of a descriptive type with a post-test after the intervention. A total of 44 university students participated during the 2023/2024 and 2024/2025 academic years, of whom 54.5% were men and 45.5% women, with an average age of 20.11 ± 1.52 years. The sample of students was selected non-probabilistically for convenience from the course taught by the faculty participating in the present study. The instrument "questionnaire for the evaluation of students' perceptions of the escape room technique" [2] was administered after the lesson to evaluate the students' perceptions of this technique. This questionnaire had 12 items, 3 dimensions, motivation, learning and evaluation and a Cronbach's alpha of .957. For each item there were 5 response options on a Likert scale (1= strongly disagree; 5= strongly agree).

In relation to the materials to implement the escape room, we used, on the one hand, self-made materials to guide the students so that they could solve the problems posed and, on the other hand, a template made by the course teachers with the Genially application to enter the codes obtained in the different challenges (4 challenges per team) to "open the doors" of the rooms. Finally, the questionnaire was provided to the students through a link to Microsoft forms that they all filled out in the time provided for this purpose.

2.2 Procedure

The students experienced a teaching unit about the spectrum of teaching styles, involving 4 theoretical lessons and 4 practical lessons with different episodes. After this unit, the students had an escape room session in which they had to solve four challenges related to the unit.

Each group had 10 "credits", so when they thought they had the solution, one of the members had to go to the teacher's desk and enter a code in the Genially application designed for this purpose (see Figures 1 and 2). If the code was not correct, the group lost one credit. If the code was correct, the door opened and they moved on to the next challenge.



Figure 1. Door to be opened by the students.



Figure 2. Check box where the students were asked to enter the codes.

2.3 Data analysis

The SPSS V.29 program was used for statistical analysis. After testing the normality of the sample by means of the Kolmogorov Smirnov test (K-S sample), a normal distribution was not found, so nonparametric statistics were used to analyze the variables. First, a descriptive analysis was performed. Subsequently, the U Mann-Whitney test was carried out to test the differences between the three dimensions, motivation, learning and evaluation, according to gender. Spearman's Rho test was used to analyze the relationships between the different variables.

3 RESULTS

Table 1 shows the descriptive analysis of the results. If we examine the data provided, we can see that, in general, the students showed a good degree of acceptance of the escape room activity. In relation to the dimension "motivation" (items 1-3), the results show that the majority of students were motivated to work with the escape room and that, in general, it fulfilled their initial expectations. Looking at the 'learning' dimension (items 4-7), it can be seen that in all cases, students agreed or strongly agreed, with percentages of over 90%. With regard to the "evaluation" dimension (items 8-12), there was also a high level of acceptance by the students of this educational tool as a means of evaluation, with high percentages also being obtained in this field.

Table 1. Students' answers

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1. I felt very motivated doing this activity with the escape room.	6.8%	0%	6.8%	29.5%	56.8%
2. I believe that the use of this methodological tool has encouraged group work.	2.3%	2.3%	2.3%	15.9%	77.3%
3. I consider that the level of satisfaction with the escape room did not meet the initial expectations.	27.3%	29.5%	15.9%	11.4%	15.9%
4. I believe that the activity carried out through the escape room empowers the student as a protagonist in their learning.	6.8%	0%	2.3%	22.7%	68.2%
5. The escape room has allowed me to develop my problem-solving skills in a cooperative way.	0%	2.3%	4.5%	25%	68.2%
6. I consider that through this methodological tool I have developed my competence to learn to learn in a playful way.	0%	2.3%	4.5%	20.5%	72.7%
7. I consider the escape room to be a useful tool for learning in university classrooms.	0%	0%	6.8%	18.2%	75%
8. I feel that doing this activity has helped me to reinforce my knowledge.	0%	0%	9.1%	36.4%	54.5%
9 I think there should be more of these activities in the classroom.	0%	0%	2.3%	20.5%	77.3%
10. I consider this methodological tool to be useful to evaluate the contents worked on in class.	0%	2.3%	11.4%	29.5%	56.8%
11. This escape room has allowed me to identify the contents that I have not passed and that I need to review more.	0%	0%	2.3%	47.7%	50%
12. The level of difficulty of the escape room activities was appropriate to the content worked on in class.	2.3%	2.3%	13.6%	27.3%	54.5%

Note. The items that make up the dimensions are: motivation (1-3); learning (4-7) and evaluation (8-12).

Figure 3 shows the median of the different variables. The highest scoring variable is learning (4.75), followed by evaluation (4.47) and finally motivation (3.84).

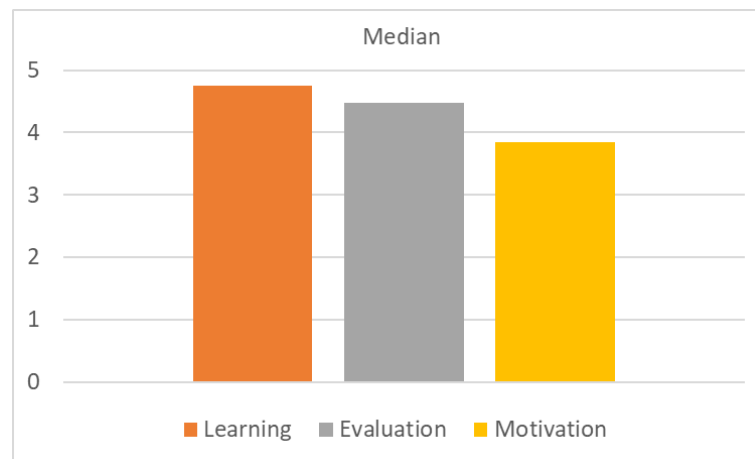


Figure 3. Median of the dimensions

When analyzing the correlations between the variables (Table 2) following the use of the escape room as a teaching tool, a strong positive relationship was observed ($r = .725$; $p < .001$) between learning and assessment. Furthermore, a positive relationship was observed ($r = .354$; $p < .05$) between learning and motivation.

Table 2. Correlations between Evaluation, Motivation and Learning

			<i>Evaluation</i>	<i>Motivation</i>	<i>Learning</i>
Spearman's rho	Evaluation	Correlation coefficient	1	.138	.725**
		Sig. (bilateral)	.	.372	<.001
		N	44	44	44
	Motivation	Correlation coefficient	.138	1	.354*
		Sig. (bilateral)	.372	.	.018
		N	44	44	44
	Learning	Correlation coefficient	.725**	.354*	1
		Sig. (bilateral)	<.001	.018	.
		N	44	44	44

** The correlation is significant at the 0.01 level (bilateral).

* The correlation is significant at the 0.05 level (bilateral).

Finally, it was found that there were no statistically significant differences in any variable ($p>0.05$) according to gender.

4 CONCLUSIONS

The great majority of university students perceive the escape room as a motivating and useful tool for their learning. Moreover, the students show a good predisposition towards the use of this tool for evaluation purposes. Therefore, in response to the objective of this research, we can conclude that the escape room is an effective didactic tool, mainly for the learning of students in vocational training.

Finally, the results obtained in this study should be interpreted with caution due to the small sample with which the research was carried out. However, this study could serve as a starting point for other university lecturers to carry out an educational escape room, implementing the questionnaire used in this research, allowing them to reach a much larger sample and compare the results obtained between the different groups and university degrees.

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