

EFFECT OF A GAMIFIED EDUCATION INTERVENTION WITH KAHOOT ON THE LEVELS OF ABSENTEEISM FROM THE DEGREE IN PHYSIOTHERAPY

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Abstract

Introduction: High levels of absenteeism have become one of the main problems in university education, due to the difficulty it causes in the implementation of basic active strategies such as self-guided learning. Different studies have shown that students refer to the lack of use of teachers of active strategies as one of the main causes of absenteeism. The use of gamification tools has been shown as an appropriate method to increase students' motivation and learning. In this sense, the gamified education tool Kahoot has become one of the most popular methods of gamification in the classroom environment, allowing teachers the introduction of active learning, and finding improvements in results while being well accepted by the students. The aim of this study was to compare the levels of absenteeism obtained with the introduction of a gamified education methodology using Kahoot versus the traditional methodology of individual or group written tasks in the University Degree in Physiotherapy.

Methodology: The Kahoot tool was used as a gamified education strategy on the Kinesitherapy subject of the Degree in Physiotherapy of the University of Valencia, with a total of 100 students enrolled. This subject was chosen for the development of the intervention as one of the main and the last of the three annual subjects of the Degree. In the presentation of the subject, the teacher explained the students the instructions and an example of its use. Besides, they were shown the schedule indicating the content of the ten sessions of the subject. All the sessions included, in turn, a presentation of contents. In addition, five of these ten sessions included the use of a gamification intervention using Kahoot. This intervention consisted of answering ten questions at the end of the session. The students had limited time to answer the questions and their score was obtained considering the response time and the correction. The results were shown for each question as a classification of students. Class attendance was assessed using the number of students who attended each class. The effectiveness of both options was evaluated by comparing means between the number of students attending the classes in which the Kahoot tool was used versus the number of students in the classes in which a traditional methodology was applied, as well as the difference between the percentages of assistance.

Results: The analysis of the mean differences in class attendance revealed a statistically significant increase ($p = .004$) in the number of students present in the sessions with Kahoot (mean 70.8 (25.3)) with respect to the sessions without gamification (mean 52.6 (21.2)). In terms of percentage, there was a significant reduction in absenteeism in classes with Kahoot (mean 29.2%) compared to classes with a traditional approach (mean 47.4%).

Conclusions: Based on the results in class attendance, Kahoot can be used as a gamified education tool to improve the participation and reducing the absenteeism in university studies of Physiotherapy.

Keywords: Class attendance, Education, Innovation, Kahoot, Technology.

1 INTRODUCTION

High levels of absenteeism have become one of the main problems of university education. It is considered a problem due to the damage it causes when trying to implement basic active strategies such as self-guided learning. To understand why this situation occurs, it is necessary to consider the context in which it takes place.

In the last decades, several attempts have been made to change the methods of university education,[1] in an effort to adapt it to the reality and needs of society and of the labor market. Therefore, degrees have adopted a more practical and professionalized orientation, in contrast to what traditionally happened in university classes, where education was transmitted in a unidirectional way and in a master class format. In this sense, the predominant training model in university education was eminently academic (focused on teaching and not on learning). The main role was played by the teachers, who were in charge of selecting the knowledge they considered relevant, instead of trying to guide the student in his or her own process of discovery, search and learning. In turn, the motivation, interest, development of the professional project or the job prospects, among other factors, often modulate student's participation in their own learning process.[2]

In this context, a high rate of absenteeism has been observed. A significant percentage of students attend class infrequently and are less involved in academic tasks, making little use of the tools offered by the university environment. A student's prolonged absence from class may be motivated by a variety of causes, including illnesses, but also problems between students and teachers or between students and their own classmates. The lack of interest by the student towards the learning process, or finding difficulties in meeting academic requirements, are other possible causes of this absenteeism.[2]

When students are asked about their perception of the reasons for high levels of absenteeism, they refer to teachers' lack of use of active strategies as one of the main causes.[3] The use of gamification tools has previously shown to be an appropriate method of increasing student motivation and learning. In this sense, the Kahoot gamified education tool has become one of the most popular methods of gamification in the classroom environment, allowing teachers to introduce active learning strategies, and finding improvements in results[4] while being well accepted by the students.[5]

The aim of this study was to compare the levels of absenteeism obtained with the introduction of a gamified education methodology using Kahoot versus the traditional methodology of individual or group written tasks in the University Degree in Physiotherapy.

2 METHODOLOGY

2.1 Procedures

As a way to increase the motivation of the students regarding the class contents and their attendance, the Kahoot tool was proposed as a gamified education strategy on the Kinesitherapy subject of the Degree in Physiotherapy of the University of Valencia.

The first day of class, during the presentation of the subject, the teacher explained the students how the tool worked and an example of its use. Besides, the students were shown a schedule indicating the contents of the ten sessions of the subject. The calendar presented information about which sessions would include the use of Kahoot and which sessions would not.

All the sessions included a presentation of contents. In addition, five of these ten sessions included the use of a gamification intervention with Kahoot. This intervention consisted of answering ten questions related to the class content at the end of the session. The students were given limited time to answer the questions and their score was obtained considering the response time and the correction (Fig. 1). The results were shown for each question as a classification of students.



Figure 1. Sample question used when applying Kahoot as a gamified education strategy on the Kinesitherapy subject of the Degree in Physiotherapy. Question: In rehabilitation from injury, the applied exercise load: A) It can lead to pain; B) It must respect the principle of no pain; C) It must be gradual; D) B and C are correct. (Own creation, using the tools of www.kahoot.it)

The Kinesitherapy subject was chosen for the development of the intervention as one of the main and the last of the three annual subjects of the Degree. As one of the main and basic subjects of the degree, and of an eminently practical nature, the results obtained in the analysis of strategies in this subject can be of great importance and can be extrapolated to other subjects of the degree.

In total, 100 students were enrolled in the subject and participated in the study.

2.2 Outcomes

Class attendance was assessed using the number of students who attended each class. The effectiveness of both options was evaluated by comparing means between the number of students attending the classes in which the Kahoot tool was used versus the number of students in the classes in which a traditional methodology was applied, as well as the difference between the percentages of assistance.

3 RESULTS

The game-based learning strategy increased class attendance on the Kinesitherapy subject of the Degree in Physiotherapy.

Table 1 shows the number of students who attended each of the scheduled sessions, both those that included the Kahoot tool and those that did not, individually. Comparison of the results of class attendance, assessed with the number of students, showed a significant difference in the compared methodologies (Table 2). The analysis of the mean differences in class attendance revealed a statistically significant increase ($p = .004$) in the number of students present in the sessions with Kahoot (mean 70.8 (25.3)) with respect to the sessions without gamification (mean 52.6 (21.2)). In terms of percentage, there was a significant reduction in absenteeism in classes with Kahoot (mean 29.2%) compared to classes with a traditional approach (mean 47.4%).

4 CONCLUSIONS

This study led us to the following conclusion: based on the results in class attendance, Kahoot can be used as a gamified education strategy to promote the participation and interaction of the students, increasing the class attendance and reducing absenteeism, in university studies of Physiotherapy.

A limitation of this study may be that the introduction of any novel tool could lead to increased student interest, regardless of the specific ability of the Kahoot tool to increase student interest in the content of the classes. However, the maintenance of the increase in attendance in the various sessions, and not only in the first one, supports the use of Kahoot as a good tool to reduce absenteeism.

Future studies should study whether this tool is additionally capable of increasing the acquisition of content by students, as well as compare it with other gamified education strategies.

Table 1. Class attendance per session.

		Number of students (Class attendance)	Percentage of absenteeism
Sessions with Kahoot	1	27	73%
	2	81	19%
	3	73	27%
	4	82	18%
	5	91	9%
Sessions without Kahoot	1	15	85%
	2	65	35%
	3	58	42%
	4	64	36%
	5	61	39%

Table 2. Mean results and difference in class attendance.

	Number of sessions	Class attendance (Mean)	Standard Deviation	Percentage of absenteeism
Sessions with Kahoot	5	70.80	25.3	29.2%
Sessions without Kahoot	5	52.60	21.2	47.4%
Difference		18.2	6.94	81.8%
p		0.004		

ACKNOWLEDGEMENTS

The dissemination of this paper has been supported by a grant from the University of Malaga.

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