ENHANCING STUDENT MOTIVATION WITH KAHOOT! - A CASE STUDY IN ENGLISH AND MATHEMATICS

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Abstract

In the last few decades, technology has advanced in multiple fields, including Education. Some of its benefits include improving student performance and motivation, fostering active learning and tracking student progress. With a new generation of digital natives, profound changes to the role and function of both lecturers and students are particularly vital, so active, cooperative and participative methodologies of learning must be privileged. Given that most higher education students are technology savvy and very receptive to the integration of Web 2.0 tools in class, the lecturers involved in this study began using Kahoot! in their classes as an alternative teaching methodology. The participants in the study, which encompassed the curricular units of Statistical Analysis and English, are undergraduate students from a Portuguese higher education institution. The aim of the study is to investigate students' perceptions of how Kahoot! can be used as a tool for reviewing class content. A quantitative survey is being conducted to gather information about students' insights on the use of Kahoot!. Similar studies have shown that students are generally receptive to the use of this tool and find it useful to increase their motivation.

Keywords: students, educational games, higher education, motivation.

1 INTRODUCTION

Nowadays, we live in a world of constant change. The educational context is no exception, and requires a renewal of paradigms [1]. The greatest challenge that lecturers face today is to motivate students to learn, get them to commit and take an active role in their learning journey [2].

Mathematics, considered one of the basic areas of various formations, has been the subject of concern for many authors and researchers due to its tremendous academic and educational failure [3]. Its significance in day-to-day life and in the formation of individuals is incontestable. One of the problems identified in the failure of mathematics teaching is the lack of motivation that students feel towards the discipline. According to several authors, motivation is an essential factor in any learning since the quality of learning is not only related to the capacity to learn, but also to the level of motivation that we must carry out this same learning [4].

Learning a foreign language is a hard work and can sometimes be frustrating. It is therefore important for English language faculties to implement teaching methods and learning strategies in their classes that will maintain students' motivation and that will help improve students' confidence in the use of English [5]. Using games in the English language classroom can help lecturers to create contexts in which the language is useful and meaningful [6]. Since games are both challenging and amusing, they constitute highly motivating learning strategies [7]. According to Kim, there are many advantages of using games in the classroom: (i) games are a welcome break from the usual routine of the language class; (ii) they are motivating and challenging; (iii) learning a language requires a great deal of effort and it helps students to make and sustain the effort of learning; (iv) games provide language practice in the various skills; (v) they encourage students to interact and communicate; (vi) they create a meaningful context for language use. [8]

A "new learning generation" is around and new approaches to learning and teaching should be considered. One of them is gamification, which can be defined as "the use of game design elements in non-game contexts" [9] and its main advantages include increasing motivation [10]. Kahoot! is one of the tools that has been increasingly used in higher education with good results [6] [11]. We believe it is suitable for testing new vocabulary or designing warm-up activities, besides reviewing class content.

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2 METHODOLOGY

The purpose of this study is to investigate students' perspectives on the use of Kahoot! in higher education, specifically in the areas of Statistics / Mathematics and English. The authors decided on a case study, with essentially exploratory intentions, involving three groups. In order to develop this experience, the following instruments were used: survey; computerized registration of the students' results in the Kahoot! application and field notes. In this article, we present the questionnaire results.

The Kahoot! application was used in three lecture classes, each corresponding to the conclusion of a syllabus topic. All Kahoot! quizzes were applied in the end of the lecture and lasted for roughly 20 minutes, as a resource for content review and a consequent starting point for clarifying questions about the topics taught.

Quantitative data were collected through a survey. Some general questions were adapted from Esteves et al. [12] and other questions were added in order to analyse the impact of Kahoot! in the specific areas of Mathematics and English. The questionnaire included thirteen 5-point Likert scale questions, three closed questions and one open-ended question. Statistical analyses were performed with Statistical Package for the Social Sciences (SPSS).

2.1 Participants

The case study was developed in a Portuguese higher education institution. It involves students from the undergraduate courses in the area of Tourism and encompasses the classes of the curricular units (CU) of Statistics and English, which took place in the second semester of this academic year, 2017-2018. The case study included a total of 135 students, distributed as shown in the table below (Table 1).

Table 1. *Distribution of participants.*

	Participants	Respondents
English for Events II	25	14
English for Recreation IV	23	18
Statistics	60	54
Total	108	86

The participants in the questionnaire were 86 undergraduate students (76,7% female and 23,3% male respondents) and 86% were enrolled for the first time in the CU. This was a convenience sample, as participants were easily accessible to researchers.

3 RESULTS

To assess students' satisfaction regarding the use of Kahoot! in classes, we applied a satisfaction survey to 86 students. Looking at the question about how comfortable students feel using electronic gadgets, we can verify that they are confident about using technology (*m* = 4,70, *sd* = ,615). The survey results corroborate that students find it fun to use Kahoot! (*m* = 4,68, *sd* = ,517), that it provides a less rigid method of learning, making it more interactive and interesting (*m* = 4,43, *sd* = ,624), that it makes classes more active, lively and dynamic (*m* = 4,52, *sd* = ,568) and that students recommend using Kahoot! (*m* = 4,42, *sd* = 694). A lower number of students believe that the use of this tool contributes to having a better grade in the CU (*m* = 3,43, *sd* = ,861). Despite being the lowest score, the mean is relatively high.

The results on the importance of visualising the scoreboard (*m* = 3,95, *sd* = 1,034) show that students' opinions are not consensual because they present a high value of standard deviation. The same is true for the adequate response time in Kahoot! (*m* = 4,10, *sd* = ,900) and for the application's contribution to a more positive view of the CU (*m* = 4,18, *sd* = ,965). The survey results are presented in Table 2.

Table 2. *Results of individual survey.*

	Mean (1 to 5)	Std Dev	Median
1 - I feel comfortable using electronic gadgets.	4,70	,615	5,00
2 - I believe that Kahoot! contributed to consolidate the contents of the CU.	4,06	,904	4,00
3 - Using Kahoot! will contribute to having a better grade in the CU.	3,43	,861	3,00
4 - It was fun using Kahoot!.	4,68	,517	5,00
5 - The response time in Kahoot! was adequate.	4,10	,900	4,00
6 - I find it important to be able to see the scoreboard.	3,95	1,034	4,00
7 - I recommend using Kahoot! in the classroom.	4,42	,694	5,00
8 - It contributes to a more positive attitude towards English/ Mathematics.	4,18	,965	4,00
9 - It makes learning more challenging, interesting and stimulating.	4,24	,754	4,00
10 - It provides a less rigid learning method making it more interactive and interesting.	4,43	,624	4,50
11 - It contributes towards more active, lively and dynamic classes.	4,52	,568	5,00
12 - It facilitates the interaction between lecturer and student.	4,06	,894	4,00
13 - I find it important for lecturers to use different strategies such as Kahoot! in the classroom.	4,48	,808	5,00

Regarding the question "Do you consider the use of Kahoot! in classes to be important?", 93% of the respondents considered it to have been important or very important and only 7% thought it was not important (Fig. 1).

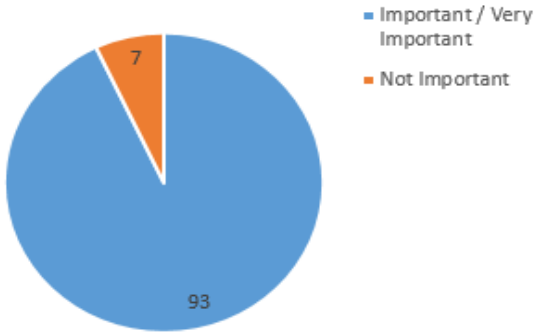

Figure 1. Do you consider the use of Kahoot in classes to be important?

Analysing the results presented in Table 3, it is observed that most students agree that resorting to Kahoot! has helped them like the CU better.

Table 3. *Did Kahoot! help you like the CU better?*

	frequency	percent	cumulative percent
Yes	59	68,6	68,6
No	27	31,4	100
Total	86	100	

However, if we consider only those students who had attended the CU in previous years (when Kahoot! was not used), the percentage of students who agree that resorting to Kahoot! has helped them like the CU better increases to 75% (as can be seen in Table 4).

Table 4. *Responses from students who weren't enrolled in the CU for the first time to the question "Did Kahoot! help you like the CU better?"*

	frequency	percent	cumulative percent
Yes	9	75	75
No	3	25	100
Total	12	100	

In the open-ended question, in which the students could add a comment about the use of Kahoot! in the classroom, several respondents suggested a more frequent use of this tool.

4 CONCLUSIONS

Results show that students are very receptive to the use of Kahoot! in the classroom. Regarding this tool specifically, as the participants recommend its use and find it interactive and dynamic in class, we can say it increases their motivation for learning, by making learning fun. Other studies show similar results [6] [12] [13].

As far as Mathematics and English are concerned, most students find it important to use Kahoot! in these CU and more than two thirds believe it helps them like the CU better, which is another motivating factor that should be noted. Further research in this area may be conducted to investigate the use of Kahoot! in collaborative contexts and if it contributes to improving students' grades, for instance.

The use of game-based tools like Kahoot! has been growing and the fact that they can be easily accessed via a smartphone/tablet can be a great asset. In our perspective, these tools don't work as a distraction, but in fact enhance students' concentration and desire to learn. With this study, we hope to contribute to improving teaching practice, as we believe the use of technology can increase students' engagement and motivation, the most important factors that lead to their success.

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