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RESEARCH ARTICLE OPEN ACCESS

GAMIFICATION STRATEGY IN HIGHER EDUCATION: EXPERIENCE REPORT OF THE KAHOOT APPLICATION IN THE SCIENTIFIC METHODOLOGY DISCIPLINE

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ABSTRACT

This article aims to analyze the impact on learning to apply active methodologies, using the gamification strategy, in teaching the discipline of scientific methodology. The Kahoot platform was used in four classes of the 9th period of the Bachelor of Law course at a private higher education institution in the city of Belém in the State of Pará. The methodology for preparing this research is characterized as an exploratory applied research with the procedure the case study. Data collection took place in May, in the first semester of 2021. The survey monkey software was used to apply the questionnaire with open and closed questions for 19 students of the Course. After analyzing the results collected, we concluded that the experience had a positive result, changing the behavior of the class from passive to active participation. New technologies combined with active methodologies become the strategy for the current context of transformation of the society in which we live.

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INTRODUCTION

We are living in a moment of transition with profound changes taking place. The old paradigm based on the classical approach, whose focus was isolated analysis of the parts of a system, was replaced by the systemic paradigm, where the interpellation and interdependence between the parts is the basis of reasoning (CHIAVENATO, 1993). It is at this moment that organizations must become aware of the new space that emerges, with profound implications for the international economic and political order (GOUVEIA; NEVES; CARVALHO, 2009). This is the civilization of knowledge and information, if organizations are not now aware of this paradigm shift, there will be no future for them, they will all be fatally doomed to failure, a position that is defended by several authors as pointed out by Gouveia, Neves and Carvalho (2009). The development of ICT causes transformations in society in all sectors, including education. While the school, in an attempt to keep up with changes in society, seeks to connect with technology, adapting in order to meet social demands, however, the use of the computer in some schools tends to be based on the simple act of teaching the technical handling of the machine, without considering its real pedagogical potential. Thus, institutions that work in the area of education should also be aware of and following up on these changes. Education based on the transmission of knowledge and acceptance of teacher authority no longer fits into this new context. We are moving towards an interaction where the practical component and the demonstration of knowledge must be allied to a teacher's behavior in which he moves from the one who knows everything, who helps and facilitates learning, guiding pedagogical strategies to make students more active. The problem question that guides this research asks: How does the use of active methodologies, using the Kahoot platform, impact the learning of the discipline of scientific methodology in higher education? This research aims to analyze the impact on learning of the application of active methodologies, using the gamification strategy in teaching the discipline of scientific methodology, through the kahoot program, presenting the possibilities of this program using a quiz-format questionnaire.

Using Kahoot as an active Methodology Strategy: In contrast to the traditional teaching method, in which the focus is centered on the teacher and the student presents a passive behavior, a differentiated perspective emerges based on the active participation of the student,

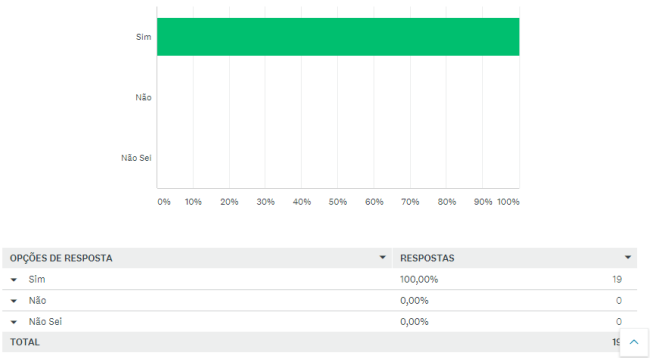
who is encouraged to act more directly in the learning process, in the protagonist role of their learning. This new perspective is called active methodology (BUSS; MACKEDANZ, 2017). According to Gomes et al (2010), Active Methodologies are based on interactive educational processes of knowledge, analysis, research, examinations and individual or collective decisions, which, through educational strategies, encourage the student to act actively in the search for a solution to a contextualized problem. Furthermore, they also innovate by using technologies as a basis for learning. There are several active methodology techniques, among the main ones we mention: Inverted Classroom Problem-Based Learning, Project-based Learning, Peer Tutoring, Question Technique, Gamification, Storytelling, Case Studies, Action Maze, Critical Incident, among others (BECK, 2018). Citing Cavaigna, Gouveia and Reis (2019), Gamification, from the English gamification, is the use of game mechanics and characteristics to engage students, motivating actions and behaviors in environments outside the context of games, facilitating learning. For our case study we used Kahoot [https://kahoot.com], because in addition to being free, fun and easy to use, it works with a ranking concept, classifying students in category scores, making the class more interactive and dynamic. For Wang [2015, p. 221], Kahoot "is a student-response-based game that temporarily turns a classroom into a game show." Thus, the teacher assumes the role of the game's presenter and the students of opponents. The questions and alternative answers are presented to the students, who must answer correctly and as quickly as possible, as the shorter the time, the more points the student receives. At the end of the questions, the platform displays a screen with the podium, listing the names of the students and their scores, categorizing into 1st, 2nd and 3rd places. The Kahoot app can be accessed from any device connected to the internet. The activities created can be carried out in the computer lab, inside the classroom, in the auditorium or in any academic environment. Students can use computers, tablets and even their cell phones to send responses.

METHODOLOGY

This research is characterized as applied, exploratory, using procedures of bibliographic survey and case study (KALTOS; MARCONI, 2003). The research subjects were 19 students of the 9th semester of the Bachelor of Law Course, in a private higher education institution, in the city of Belém do Pará. The application and data collection took place in May, in the 1st semester of 2021. The conceptual test developed in kahoot consisted of 10 questions – x being a choice between 4 alternatives and x being right or wrong, according to the default settings provided by the software. Students were given 1 minute to answer each question. Students participated individually, being notified 1 month in advance, so that they could study the content. The activity was not assigned a score, but there was a symbolic award according to the kahoot classification. To evaluate the active methodology used, a questionnaire consisting of 05 closed and 2 open questions was applied. The questionnaire applied to the students was based on the research by Cavaignac, Gouveia and Reis (2019), consisting of seven questions, five closed and two open. The choice to use such a data collection instrument is anchored in the concepts of Amaro, Póvoa and Macedo (2005, p.02) when they state that "the use of questionnaires has proven to be an important tool in data collection and analysis". The questionnaire was prepared in the Survey Monkey app and the answer link was shared after the students finished the quizz on kahoot, through the chat in the google meet classroom. Students had time during class time to answer the questionnaire, preventing them from leaving it for later, and thus eliminating the possibility of forgetting the task.

ANALYSIS AND DISCUSSION OF RESULTS

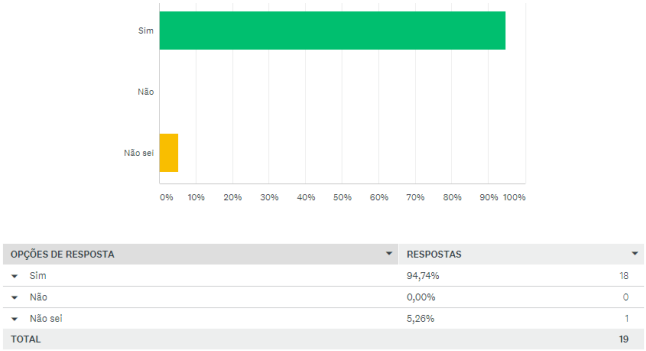
In this topic we present the data collected and the analysis carried out to investigate the problem. The graphs were generated by the survey monkey application itself.



Source: Authors (2021)

Graph 1. Students' perception of the methodology (gamification) used

Question 1: Did you like the methodology used?, aimed to verify the opinion of students in relation to the application of the gamification strategy in class. As a result, we had 100% approval of the methodology, as shown in the chart below.

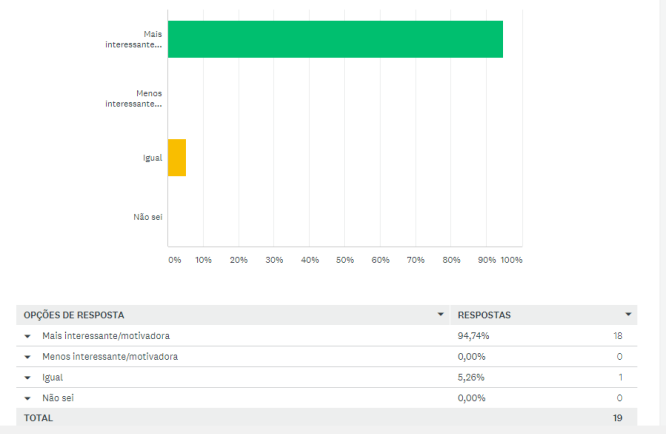


Source: Authors (2021)

Graph 2. Students' perception of the contributions of Conceptual Tests

Question 2: Did the quizzes help in the understanding of the contents?, verified the student's perception about the contributions of the applied Conceptual Tests. The result was 100% positive, as shown in graph 2.

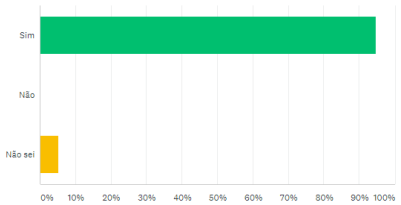
Question 3: Is the methodology applied when compared to the traditional methodology more interesting/motivating? , aimed to verify the student's opinion in relation to their level of motivation with the adopted methodology. 94.74% of the students answered that they consider the active methodology more interesting, with only 1 student out of the 19 participants responding that they consider it equal, that is, the new methodology did not impact their motivation to participate in the class, as shown in graph 3.



Source: Authors (2021)

Graph 3. Students' perception of involvement with the methodology

In Question 4: Did you enjoy using the Kahoot app to answer quizzes? , the objective was to verify the student's opinion regarding the use of the kahoot platform in the classroom. 94.74% of the students responded that they liked using the platform, and only 1 student out of the 19 participants responded that they cannot say, as shown in Graph 4.

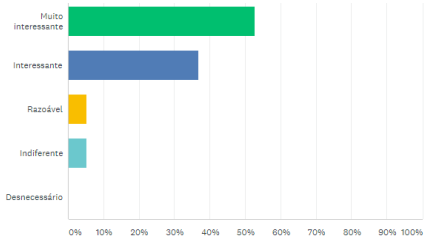


OPÇÕES DE RESPOSTA	RESPOSTAS	
Sim	94,74%	18
Não	0,00%	0
Não sei	5,26%	1
TOTAL		19

Source: Authors (2021)

Graph 4. Perception of students regarding the use of the Kahoot application

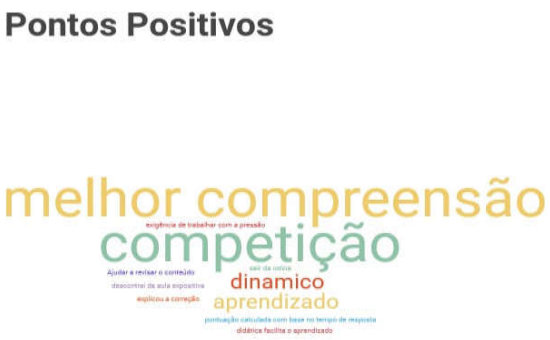
Question 5: What did you think about having created a competition between the teams to obtain the quizzes score?, aimed to verify the student's opinion regarding the use of the competition to motivate participation in the applied Conceptual Tests. 17 students demonstrated that it was positive, 2 as reasonable and indifferent, as shown in the graph below. To analyze the results collected through the open questions, the word cloud generated by the software was used. As for the 1st open question, as positive points, competition, better understanding, dynamism and facilitating learning were cited more often (Fig. 1). As for the negative points, few were listed. Focusing on: difficulties with the internet, the time allocated to answer the questions, the fact that the student is watching the class on his cell phone and the slide appears small on the student's monitor (Fig. 2).



OPÇÕES DE RESPOSTA	RESPOSTAS	
Muito Interessante	52,63%	10
Interessante	36,84%	7
Razoável	5,26%	1
Indiferente	5,26%	1
Desnecessário	0,00%	0
TOTAL		19

Source: Authors (2021)

Graph 5. Perception of students regarding the use of gamification

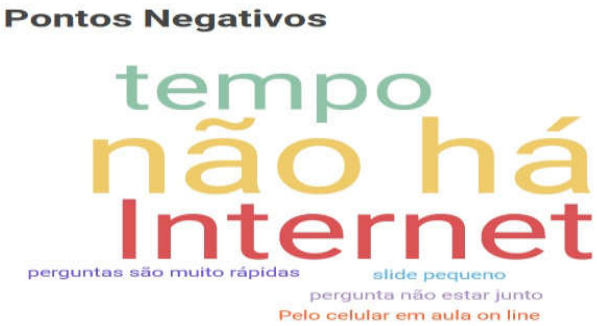


Source: Authors (2021)

Figure 1. Word Cloud Positives of Using Kahoot

2	competição	4
3	exigência de trabalhar com a pressão	1
4	melhor compreensão	4
5	pontuação calculada com base no tempo de resposta	1
6	descontrai da aula expositiva	1
7	Ajudar a revisar o conteúdo	1
8	explicou a correção	1
9	dinamico	2
10	sair da rotina	1
11	didática facilita o aprendizado	1
12	aprendizado	2

Table 1. Consolidation of words by group and number of times they are mentioned



Source: Authors (2021)

Figure 2. Word cloud Downsides of using Kahoot

2	tempo	4
3	Internet	5
4	não há	6
5	slide pequeno	1
6	pergunta não estar junto	1
7	perguntas são muito rápidas	1
8	Pelo celular em aula on line	1

Source: Authors (2021)

Table 2. Consolidation of words by group and number of times they are mentioned

CONSIDERATIONS

Higher education can be considered a complex stage in an individual's educational process, considering that it has a heterogeneous audience, as well as the fact that many students already need to work or are even inserted in the labor market. This makes the relationship between theory and practice even more challenging, between knowledge and the knowledge gained from experience. The use of active methodologies, combined with information and communication technologies, has proven to be a successful strategy to meet this new reality in higher education. The use of digital games as a tool in the learning process promotes motivation, curiosity, interactivity, reasoning, collaboration, communication and critical thinking. This study presented an approach for teaching the subject of Scientific Methodology, using information and communication technologies combined with active methodologies. From the analysis of the

students' responses regarding the application of Kahoot, it was verified that the program awakened the students' motivation and engagement. There was an increase in interest in the content and through the doubts when answering the quizz, a lot of questions were asked in class. In addition, the tool proved to be a good result for real-time evaluation. As difficulties encountered, we listed the question of kahoot in the free version, presenting word limitations in the texts of the question and also in the answer fields. This made it difficult to prepare the quizz, as we had to write the commentary on the question and the alternative answers in the power point software to share with the students. This difficulty was reflected in the students since they listed negative points in the student's speech in the subjective answer to the question when he placed the small slide. And in the other one, when the other student asks a question about not being together. Since the application of information and communication technologies based on active methodologies is a relatively new area, as future works we suggest that research similar to this one should be produced to investigate its impacts on the teaching of Scientific Methodology in higher education courses.

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