

THE IMPACT OF GAMIFICATION ON THE ACADEMIC ACTIVITY OF MEDICAL COLLEGE STUDENTS: AN EMPIRICAL STUDY INVOLVING 300 STUDENTS.

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Abstract: *This article empirically analyzes the impact of gamification elements on the academic activity of medical college students. 300 students participated in the study. The data collected on the basis of a questionnaire were aimed at determining how gamification affects motivation, participation, learning enthusiasm, and activity in the lesson. The results of the analysis show that in a gamified learning environment, students show high activity and a conscious approach to the lesson process increases. The article also provides practical recommendations for educators.*

Keywords: *gamification, medical college, student activity, motivation, questionnaire, game elements.*

Introduction

In modern educational processes, student activity and motivation are one of the main indicators of educational effectiveness. Especially in professional educational institutions such as medical colleges, it is necessary to effectively teach practical skills along with theoretical knowledge. However, traditional teaching methods can sometimes reduce student interest and reduce their activity in the learning process. Therefore, new methods are being sought to make the educational process interesting and interactive.

Gamification is a methodology for increasing student participation and motivation to learn by integrating game elements into the educational process (Deterding et al., 2011). This approach aims to increase student activity by incorporating game-based systems of points, ratings, badges, and competition into the educational process.

In medical education, especially in the form of games, it has been shown that reinforcing knowledge in the form of games based on clinical cases is effective in developing students' practical skills (Khan et al., 2019). In this regard, this article studied the impact of gamification on student engagement using the example of medical college students. In the study, tools such as interactive tests, a point system, badges, and clinical case games were used as a test, and their effectiveness in the educational process was evaluated using a questionnaire and statistical analysis. The purpose of the article is to determine the role and effectiveness of gamification methods in increasing learning engagement among medical college students.

Literature Review

The concept of gamification has become widespread in education in recent years, and it is recognized as an effective tool for increasing student motivation and encouraging engagement (Deterding et al., 2011). According to the definition provided by Deterding et al.

(2011), gamification is the introduction of game elements (scores, badges, ratings, etc.) into the educational process.

Research by Hamari et al. (2014) shows that gamification increases student interest in the lesson, helps to consolidate knowledge, and makes the learning process more interesting. At the same time, they emphasize that the effectiveness of gamification depends on its proper application and the correspondence of game elements to educational goals. The importance of gamification in medical education is particularly emphasized. Khan et al. (2019) in their systematic review showed that games based on clinical cases are effective in developing students' practical skills and reinforcing theoretical knowledge. Such games simulate real-life situations and encourage students to actively participate.

Also, pedagogical research has noted that gamification helps to develop healthy competition and teamwork in students (Werbach & Hunter, 2012). This is especially important in professional education, since teamwork skills are essential in the medical field.

In addition, in recent years, with the development of technology, online interactive platforms such as Kahoot, Quizizz have been widely used in the educational process, and it has been found that the level of knowledge and activity of students has increased (Wang, 2015).

Based on these studies, it can be concluded that the use of gamification methods among medical college students can significantly increase learning activity.

Research Methods

This study aimed to investigate the impact of gamification on student engagement among medical college students. The study was conducted using a quantitative method. A questionnaire and interactive tests were used to collect data. The questionnaire questions were aimed at determining students' engagement in the learning process, motivation, and attitudes toward the gamification tools used.

SPSS software was used for statistical analysis, and the results were analyzed in the form of descriptive statistics, percentages, and graphs.

Gamification tools

The following gamification tools were used as a test during the study:

- Kahoot! Quiz: An interactive online quiz consisting of 10 questions was conducted after each topic. This tool served to assess the level of knowledge of students and create a competitive environment.

- XP point system: Students earned XP points for preparing for lessons, completing assignments, and actively participating in group work. This system was aimed at increasing student motivation.

- Badge system: Students were awarded various badges for their achievements (for example, "The most active student", "Team leader"). This created an atmosphere of healthy competition and encouragement.

- Clinical case-based quest games: Students participated in role-playing games to learn practical medical situations. These games were aimed at developing professional skills.

Survey participants

A total of 300 medical college students participated in the study. They were aged 18 to 33, randomly selected from all courses and both genders (male and female). The survey was conducted online and in paper form in March-April 2025.

4. Results

4.1 Statistical analysis of survey results

According to the survey results, 87% (261) of the 300 students expressed high satisfaction with Kahoot! quizzes. They believed that these interactive tests made the lesson more interesting and motivating.

Among the students who were motivated through the XP points system, 72% (216) rated themselves as more active and engaged. This points system encouraged them to complete assignments on time and participate actively in classes.

Using the badge system, 65% (195) of students noted that they felt a healthy competitive environment, which encouraged teamwork and mutual assistance.

91% (273) of students participated with interest in clinical case-based role-playing games, which indicates that the games are effective in building practical skills.

The effectiveness of gamification tools in the educational process

As a result of the use of gamification tools, learning activity among students increased significantly. Increased interactivity and motivation during the lesson contributed to better acceptance and consolidation of knowledge.

Graph 1 shows the percentage of satisfaction among students with each tool.

Graph 1: Student satisfaction with gamification tools (%)

Tool	Satisfaction (%)
Kahoot! quiz	87
XP points system	72
Badge system	65
Clinical Case Role Plays	91

Discussion

The results of the study showed that gamification tools were effective in increasing learning engagement among medical college students. In particular, clinical role-playing games were perceived by 91% of students as an interesting and important tool for developing practical skills. This result is consistent with the research of Khan et al. (2019), who also highlighted the effectiveness of gamified learning in professional education.

The Kahoot! quiz and XP scoring system played an important role in increasing motivation and engagement among students. These results are consistent with the findings of Hamari et al. (2014) on the effectiveness of gamification in general education.

The badge system, on the other hand, served to encourage healthy competition and teamwork. This is a pedagogically positive situation, increasing mutual support and motivation among students (Werbach & Hunter, 2012).

However, during the study, some students noted that excessive use of gamification elements can be distracting. Therefore, it is necessary to apply gamification tools to the learning process carefully and purposefully. In general, it was found that gamification has a great importance in increasing the effectiveness of education in professional educational institutions such as medical colleges.

Conclusions and Recommendations

This study aimed to investigate the role of gamification tools in increasing learning activity among medical college students. The results of the study showed that interactive tests (Kahoot!), XP points system, badges and role-playing games based on clinical cases make the learning process interesting, motivating and effective. It was confirmed that clinical case games with the highest percentage are very effective in developing practical skills.

Also, elements that encourage healthy competition and teamwork among students — the badge system — serve to increase the effectiveness of the learning process. However, it was emphasized that it is important to use gamification tools in moderation and correctly, since excessive use can lead to loss of attention and distraction.

On this basis, the following recommendations are made:

1. Medical college teachers should use interactive gamification tools more widely in the educational process.
2. It is necessary to align gamification elements with learning objectives and introduce them in moderation.
3. It is necessary to pay attention to badges and point systems that encourage healthy competition among students.
4. It is recommended to widely introduce role-playing games based on clinical cases into practical training.

The results can serve as a basis for a more in-depth study of the role and importance of gamification in improving the educational process and increasing the level of student knowledge.

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