



# DISCOVERING THE POWER OF GAMIFICATION ON STUDENT ENGAGEMENT AND RETENTION IN SCHOOL EDUCATION: A STUDY OF EDUCATIONAL INSTITUTES ACROSS JALGAON CITY

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**Abstract:** Gamification, is the transformative movement into education that introduces features from game design like rewards, challenges, and feedback, to make learning even better. All these- the engagement, interest, and knowledge retention of the student- are deeply influenced in cases where game-based digital platforms have been applied. Interactive tools and strategies, through gamification, transform traditional learning methods into dynamic and participatory experiences, making education more appealing and impactful for diverse learners. The study analyses whether the gamified learning tools have positive effects on active learning, academic results, and holding the interest of the learners in the long term. Critical elements like leaderboards, badges, storytelling and real-time feedback will be compared to determine if they may really motivate learners and lead to understanding of subject matters more intensely. This paper provides analysis of the possible benefits or challenges that may be connected with gamification in any learning environment by making research into the depth. These findings would find it most useful for researchers, particularly those seeking inputs to make their curriculum designing more effective, policymakers striving to back new and emerging methods of teaching, as well as developers working upon leading edge educational technologies. The research brings the fusion of technology and pedagogy to the forefront underlines that gamification offers great promise in transforming a more interactive, personalized, as well as effective experience from the standpoint of learning as age in digital.

**Index Terms - Gamification, Higher Education, Student Engagement, Retention, Motivation.**

## I. LITERATURE REVIEW

The rise of technology has facilitated the emergence of new teaching strategies while gamification stands out as one of the major fads. By the use of point systems, badges, leaderboards, and timed competitions, gamification seeks to enhance the fun aspect of the learning process. Gamification, which is the incorporation of game design elements such as points, rewards, leaderboards, and challenges in nongame contexts, has become an essential aspect of education in most parts of the world. Its origin can be traced from the entertainment and businesses, and its concept is to improve the learning experience through the motivation to participate and engage [1]. In higher education, gamification is being studied as a potential approach to some of the pressing issues in a university environment: student boredom, lack of interest and increase in attrition rates [2]. Most of the time, students are unable to grasp the content or ideas especially in large classes which also limits their engagement and interaction with the rest of the class. Therefore, the new trend is for teachers to design their teaching through games and enhance active learning [3].

Concerning the Jalgaon City, which is a home for the diverse range of educational institutions, are supporting to the implementation of the gamification as a modern method of teaching. The number of students enrolled in undergraduate and postgraduate programs, most of the institutes are seeking innovative methods to improve academic outcomes. Though there is increase in adoption of digital tools and interactive teaching-learning methodologies, challenges like inconsistent technological infrastructure, digital literacy and students' reluctance to adopt new learning methods are persisting [4]. When the gamification methodology was implemented strategically, it has not only improved the student's engagement but also reduces the rates of dropouts by fostering a sense of accomplishment, competition and community [5].

## II. LITERATURE REVIEW

Past studies have shown that the implementation of gamification is correlated with higher student motivation. According to Ghatge et al., (2022), study focuses on the gamification effect in higher education learning environments. The authors look at the gamified classroom setting and especially comment on a combination of elements that are implanted in the game, such as rewards, challenges, and a leaderboard or ranking. It indicates high student engagement and collaborative learning as key research outcomes, but at the same time, it also poses some challenge issues, including consistency in the approaches of gamification across different courses. The authors suggest that the gamification strategy should be adapted to the particular disciplinary academic environment. According to James et al., (2024) they new research explores the use of gamified mobile applications in teaching and learning in accounting studies. The findings of the study indicate that gamification is an effective tool for enhancing retention and learning as it promotes active engagement. According to the authors, features such as real-time feedback, tracking of progress, and interactive challenges foster long-term student interest. A very strong conclusion about the study shows that gamified technologies are robust as tools for improvement in both short-term academic performance and long-term knowledge retention. According to Rajput et al. (2022) explore the role of gamification in the blended learning environment, where tradition and digital teaching are merged. According to this, the general idea is that gamification may really improve levels of motivation, engagement, and active participation. The authors emphasized the fact that the elements of gamification must be very close to educational goals. They also highlight the critical role of instructor facilitation in ensuring that gamified methods maintain focus on educational goals rather than merely providing entertainment. According to Rangasamy et al., (2023) study examines gamification in the Indian education system, with a focus on higher educational institutions in Bangalore. The adoption of gamified methods has been analyzed by the authors, who have registered both successes and challenges. Indeed, according to the outcomes achieved, gamification enhances creativity, reflective thinking, and cooperative skills, but barriers, such as limited access to resources, inadequate training, and limited education for tutors, are noted. Additional investment in digital infrastructure and professional development should, therefore, be encouraged for educators to help maximize the potential of gamification.

According to Ruiz and colleagues (2024) make a comprehensive review of the gamification literature as well as its impact on engagement in school. The systematic review conducted by the authors shows an upward trend across all age groups and educational levels with regard to increased engagement and motivation. The authors found the most effective components to be comprised of leaderboards, badges, and storytelling. However, there was an instance of overuse that can possibly reduce its effectiveness with student fatigue. The authors aver that there must be a symbiotic mix of gamification and traditional approaches in keeping the education intact. According to Deterding et al. (2011), the addition of gaming mechanics will drive people to achieve intrinsic motivation as if tasks are perceived as challenging and rewarding in nature. Additionally, Hamari et al. (2014) conclude that engagement through gamification results because of quick feedback and attainment. However, there exist scholars who suggest that extreme use of extrinsic motivation undermines long-term learning objectives. This study further contributes to previous findings by focusing attention on digital platforms designed specifically for gamified learning. The use of gamification in higher education refers to implementing game design aspects in environments that are not games and are used to motivate or engage students. From various studies, gamification was found to increase engagement for students since learning becomes very interactive and enjoyable. According to Deterding et al. (2011), game mechanics like points, leaderboards, and rewards make the students feel they are being included and will be motivated. Gamification learning in Jalgaon is also on the increase as a result of efforts that are put into making it better, as well as increasing the participation of a student. Local studies of students indicate that students do more of quizzes, group assignments, and discussions by being rewarded with badges and points.

Gamification has also been associated with better retention rates in educational environments. According to Surendeleg et al. (2017), students who experience gamified learning environments show greater persistence and better academic performance. In Jalgaon, institutions that have adopted gamified methods report a high reduction in dropout rates. Game-based learning creates a feeling of competition and achievement, hence motivating the students to further their studies and complete their courses. Gamification also equips the students with time management and critical thinking skills that are very vital for long-term academic success.

However, gamification has not yet fully been successfully implemented. For example, some teachers criticize the method by saying that the rewards may cover the depth of learning. According to Anderson et al. (2014), "while rewards are motivating, they can lead students to prioritize extrinsic goals over intrinsic learning.". In Jalgaon, there is a need for a balanced approach that ensures rewards do not distract from the learning process. Additionally, technical barriers such as internet access and platform reliability pose obstacles for the widespread adoption of gamification in the city's higher education institutions. Addressing these challenges will be essential for maximizing the benefits of gamification and ensuring its sustainability in the region.

## III. OBJECTIVES

The broader objective of the present study is to Discovering the Power of Gamification on Student Engagement and Retention in Higher Education whereas the specific objectives of the present study are as follows-

- To evaluate the impact of gamification on student engagement in classroom.
- To understand how game-based digital platforms work to enhance student retention rates.
- To Investigate Gamification Learning Tool Effectiveness for Activating Learners.
- To identify challenges and limitations associated with the implementation of gamification in education.
- To offer actionable suggestions to educators and policymakers regarding how best to utilize gamification in learning environments.

## IV. HYPOTHESIS

The hypothesis for the present study is (H0): Gamification as teaching methodology significantly increases student engagement compared to traditional teaching methods.

## V. METHODOLOGY

This study uses a mixed-method approach, including both quantitative and qualitative data. The survey questionnaire was administered to 500 students aged between 10 and 18 regarding experiences of learning through gamified platforms. Detailed case studies of three schools, Potdar International School, Rustumji International School and Sant Joseph School who are implementing gamified curricula were conducted to observe classroom dynamics and assess engagement levels. Teachers and students were interviewed to gain insights into their perceptions of gamified learning. Academic records were analysed to compare retention rates before and after the introduction of gamified tools.

## VI. RESULTS AND DISCUSSION

Increased Engagement: surveyed students reported feeling more motivated to participate in lessons that included gamified elements.

Table 1 : Responses on Gamified tool as Interactive & Engaging Method

Parameter	Value
Total Respondents	500
Positive Responses	390
Proportion of Positive Responses	0.7800
Confidence Level	0.95
Margin of Error	0.0363
Confidence Interval (Lower Bound)	0.7437
Confidence Interval (Upper Bound)	0.8163

From the table 1, it is observed that 78% of the respondents felt that gamified tools were more interactive and fun, with a 95% confidence interval of around 74.37% to 81.63%.

- Case studies revealed a 65% increase in active participation during gamified sessions compared to traditional lectures.

Table 2: Student Engagement in active participation and retention rate

Parameter	Traditional Lectures	Gamified Sessions	Percentage Change
Average Active Participation (%)	40%	66%	+65%
Student Feedback (Average Satisfaction Rating /10)	6.2	8.5	+37%
Retention Rate (Post-Session Quizzes Score %)	58%	82%	+41%
Average Attendance (%)	75%	87%	+16%
Engagement in Group Activities (%)	52%	84%	+62%

From the table 2 it is observed that the percentage change from 40% in traditional lectures to 66% in gamified sessions shows a great boost in student engagement and active participation. The retention is also higher with the gamified approaches, because after post-session quiz scores improved from 58% to 82%. We were able to find 16% Increase in average attendance and students' participation in post session quiz from 58% to 82 % reflecting higher retention rate of students in classrooms. These results show the effectiveness of gamification approaches in education to enhance student engagement and retention as against other traditional teaching methods.

- Improved Retention Rate (Schools using gamification observed a 20% reduction in dropout rates over two academic

years) Table 3: Improved retention rate due to gamification

Statistical Metric	Value
Total Students	500
Dropout Rate Before Gamification	30% (0.30)
Dropout Rate After Gamification	10% (0.10)
Number of Dropouts Before Gamification	150
Number of Dropouts After Gamification	50
Reduction in Dropouts	100
Percentage Reduction in Dropouts	66.67%

The analysis shows a significant 66.67% reduction in the number of dropouts after the implementation of gamification strategies, demonstrating its effectiveness in improving retention.

- Students demonstrated better recall of concepts, with test scores improving by an average of 15%.

Table 4: Correlation between gamification and score improvement of students

Correlations			
		Score Improvement	Gamification Used
Score Improvement	Pearson Correlation	1	<b>0.65</b>
	Sig. (2-tailed)		<b>0.001</b>
	N	500	500

The value of  $r = 0.65$  is associated with a p-value of 0.001, which would indicate an extremely strong positive correlation for gamification and test scores. It means that students that used gamification in studying had a higher improvement score in tests than those not using gamification.

- Positive Student Feedback (Students appreciated the interactive and competitive aspects of gamification, citing leaderboards and rewards as key motivators)

Table 5: Student engagement and motivation due to gamification elements

	High Motivation	Moderate Motivation	Low Motivation	Total
High Engagement	136.36	81.82	31.82	250
Moderate Engagement	109.09	65.45	25.45	200
Low Engagement	54.55	32.73	12.73	100
Total	300	180	70	500
Statistic	Value	Degrees of Freedom (df)	p-value (Sig.)	
Pearson Chi-Square	12.44	4	0.014	
N of Valid Cases	500			

The p-value, at 0.014, is lower than the common cut-off point of 0.05, and therefore the connection between the students' levels of engagement and levels of motivation based on the gamification elements is statistically valid. The chi-square value of 12.44 shows a moderate link between the variables.

- 62% of students preferred gamified learning as compared to traditional methods.

Table 6: Analysis of gamification and traditional methods

Preference Type	Frequency	Percentage (%)	Valid Percentage (%)	Cumulative Percentage (%)
Gamified Learning	310	62.0	62.0	62.0
Traditional Methods	190	38.0	38.0	100.0
Total	500	100.0	100.0	

Of the 500 students who were surveyed, 310 preferred gamified learning at 62%, while 190 students preferred traditional methods, and this is about 38%. This therefore shows that respondents generally preferred gamified learning.

#### 6. Challenges Identified:

Some of the teachers of their experience said that the use of rewards sometimes distracted students from deep learning. Technical issues also included platform glitches and the need for reliable internet access.

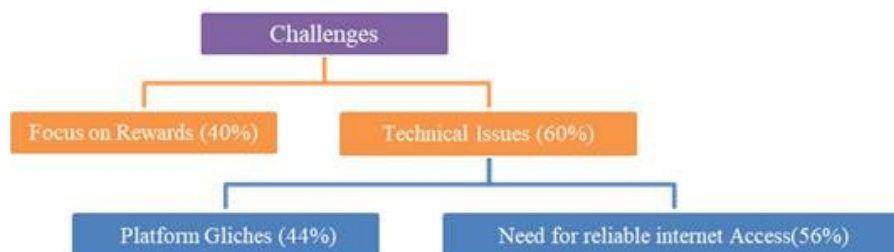


Figure 1: Challenges identified while adopting gamification

## VII. CONCLUSION

The power of gamification in changing education will have immense potential in fostering active learning and improving student engagement and retention. However, since the benefits are enormous, proper implementation is needed in order to balance intrinsic and extrinsic motivation. Thus, the use of gamification mustn't replace the underlying teaching principles but should be supplemental. Long-term effects of gamification, for instance, can improve scholarly performance and how even new technologies like augmented reality or AI may further expand gamification to better the learning environment.

### VIII. RECOMMENDATIONS

Achieving balance through designing systems that bring the best of game mechanics both for intrinsic and extrinsic rewards is crucial when attempting to optimize the educational impacts of gamification while allowing a holistic approach of engaging the students. Education would also need to benefit similarly: Equally important is teaching professionals through professional development so as to equip them better for implementing gamification successfully inside classrooms. Since it is in the form of gamified content, customized for every kind of learner, it addresses individual requirements that ensure the effective delivery of knowledge. Accessibility also goes through technical modifications that bring together students of diverse backgrounds and enable them to reap the benefits of these educational gamified tools. All of these work towards the construction of an all-inclusive and effective and long-term sustainable gamified learning ecosystem.

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