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How Gamification Influences Intrinsic And Extrinsic Motivation Among College Students: A Mini-Experiment Study

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Abstract

This study examines the effects of gamified learning environments on the intrinsic and extrinsic motivation of college students. Using a mini-experimental design, students were divided into two groups: one group used a gamified platform with progress tracking and rewards, while the other group used a regular, non-gamified system. Prior to and following the session, motivation levels were assessed using a standardized questionnaire. The results suggest that gamification can have a moderate impact on intrinsic motivation and a positive impact on extrinsic motivation, depending on how the game elements are created.

Keywords: Gamification, Intrinsic Motivation, Extrinsic Motivation, College Students, Higher Education, Student Engagement, Educational Technology.

Introduction

By incorporating game aspects into non-gaming environments, gamification has become a popular approach in educational settings in recent years with the goal of improving learning outcomes, motivation, and student engagement. Educators and researchers are investigating gamification as a tool to influence both intrinsic motivation, which is driven by internal satisfaction and interest, and extrinsic motivation, which is fueled by external rewards or recognition, as college students are exposed to more digital and interactive learning environments.

For students to succeed academically, persistently, and generally, motivation is essential. Gamified systems add features like points, badges, leaderboards, and challenges to make learning more dynamic and rewarding, whereas traditional teaching techniques frequently rely on grades and assessments to motivate learning. It is still up for debate, though, how these factors affect various forms of motivation psychologically. While some say that gamification may weaken intrinsic motivation by reorienting attention toward outside rewards, others maintain that it increases it by making learning more pleasurable and self-driven.

In a controlled academic setting, this mini-experiment attempts to investigate how gamification affects college students' internal and extrinsic motivation. This study aims to advance knowledge of the motivational mechanisms at work by contrasting the motivating reactions of students engaged in gamified learning activities with those engaged in conventional, non-gamified tasks. The results could provide educators with useful information for creating dynamic, student-centered learning settings that encourage both individual interest and goal-oriented success.

Purpose of the Study

In contrast to conventional, non-gamified training, this study attempts to evaluate the effects of incorporating gamified features into a learning platform on college students' intrinsic and extrinsic motivation.

Research Question

To what extent does gamification influence intrinsic and extrinsic motivation among college students in an academic setting?

1. Understanding Motivation in Education

Student involvement and academic success are significantly influenced by motivation. Deci and Ryan's (1985) Self-Determination Theory (SDT) distinguishes between two main categories of motivation:

• Intrinsic motivation: Propelled by inner incentives like delight, curiosity, and a sincere desire to learn.

• Extrinsic motivation: Driven by outside forces like competition, accolades, awards, or grades.

According to SDT, students do better when they feel connected, capable, and independent—three psychological requirements that gamification may assist to satisfy.

2. Gamification in Educational Contexts

The use of game features in non-gaming environments, or gamification (Deterding et al., 2011), has become more and more common in higher education as a means of increasing student motivation. The following are typical gamified components: • Points and badges (reward systems)
• Social comparison leaderboards
• Progress bars, which provide visual feedback
• Challenges, avatars, and quests (engagement mechanisms)
According to studies, gamification can boost motivation, engagement, and enjoyment; however, the results depend greatly on the kind and layout of the game features (Hamari, Koivisto, & Sarsa, 2014).

3. Gamification and Extrinsic Motivation

Gamification has a significant impact on extrinsic motivation, according to most research. According to a meta-analysis by Subhash and Cudney (2018), gamification made students more eager to finish assignments and engage in active learning. Reward-based mechanisms, which may not encourage long-term learning unless combined with relevant material, are primarily responsible for this.
The issue of shallow learning when extrinsic motivators predominate is highlighted by Domínguez et al. (2013), who found that students using gamified platforms performed better in practical projects but did not significantly improve in conceptual comprehension.

4. Gamification and Intrinsic Motivation

Gamification's impact on intrinsic motivation is more complex. Some students may feel manipulated or under pressure, particularly when competitive aspects like leaderboards are overused (Hanus & Fox, 2015), while others report greater fun and deeper involvement (Barata et al., 2013).
Gamified systems are more likely to increase intrinsic motivation:
• Give pupils liberty by letting them select their own assignments.
Foster relatedness (e.g., cooperative missions) and a sense of competence (e.g., progress tracking, constructive feedback).

5. Challenges and Criticisms

Gamification is not a one-size-fits-all approach, despite its potential. According to Nicholson (2015), educators should avoid "pointsification," which undermines intrinsic motivation by relying just on surface-level rewards. Additionally, pupils who don't place highly on leaderboards may become demotivated by features that are excessively competitive.
Students' reactions to gamified learning environments are also influenced by their topic area, age, personality, and cultural background (Sailer et al., 2017).

MMethodology Used

Participants

A total of **30 undergraduate students** from a general education course were randomly assigned to two groups:

- **Group A (Gamified)**: Engaged with a gamified platform including points, badges, progress bars, and a leaderboard.
- **Group B (Control)**: Used a non-gamified platform with the same content but without game-like features.

Procedure

- **Week 1:** All participants completed a **pre-test motivation questionnaire** using the **Academic Motivation Scale (AMS)**.
- **Weeks 2–3:** Group A accessed learning materials through the gamified platform (e.g., Classcraft, Kahoot, or Quizizz), while Group B used a standard platform (e.g., Google Docs, PowerPoint).
- **End of Week 3:** All participants completed a **post-test motivation questionnaire**.

Game Elements Used

- **Points** for completing activities
- **Badges** awarded for performance milestones
- **Leaderboard** for visual ranking
- **Progress tracker** showing learning completion

Results (Hypothetical Summary)

• Extrinsic Motivation: Group A's extrinsic motivation scores were much higher than Group B's. Pupils said they were more motivated by rewards and competitiveness.

• Intrinsic Motivation: Students in Group A showed a moderate boost in intrinsic motivation, particularly those who enjoyed and found the gamified features personalized.

• Quality Feedback: Group A students characterized the experience as "engaging," "rewarding," and "motivating," however some pointed out that scoreboard pressure was present.

Discussion

The findings are consistent with previous research indicating that gamification might improve student motivation, especially extrinsic motivation. By making learning more engaging and participatory, gamification can also enhance intrinsic motivation when done well.
The results, however, point to a serious issue: not all students react well to competitive features like leaderboards, which can make some students anxious. As a result, gamification design needs to balance autonomy with incentive.

Limitations

- Small sample size
- Short study duration (2–3 weeks)
- Limited to one course and subject area

Future research should explore long-term effects, different types of gamification (e.g., narrative-based vs. competitive), and its impact across disciplines.

Conclusion

Gamification has the potential to improve internal and extrinsic motivation when successfully incorporated into collegiate learning environments. Thoughtful design can encourage deeper involvement and internal happiness, its effects are more noticeable right away in areas linked to outward rewards. Teachers and instructional designers must to think carefully about implementing gamified components, adjusting them to fit the requirements of their students and the goals of the course..

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