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GAMIFYING ACADEMIC ROUTINE: THE IMPACT OF CONTINUOUS ENGAGEMENT MECHANICS ON STUDENT MOTIVATION

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Annotation. This paper explores the integration of continuous engagement mechanics, specifically attendance streaks, into the academic routine of university students. The system was developed by combining a custom Telegram bot with the university's electronic environment to track student presence and visualize their daily attendance streaks using «fire» icons. The objective is to measure how this gamification element influences students' discipline. The experiment involves real-time tracking by group leaders and a follow-up survey to evaluate behavioral shifts, aiming to determine if simple digital rewards can effectively reduce absenteeism.

Keywords: gamification, student motivation, attendance tracking, continuous engagement, streaks, Telegram bot, educational technology.

***Introduction*.** University attendance often fluctuates throughout the semester. While some absences are unavoidable due to health or personal reasons, many stem from a simple drop in day-to-day motivation. Traditional systems rely on delayed rewards, like end-of-term grades, which often fail to motivate students to attend early morning lectures. To address this gap, developers and educators have started looking toward mechanics used in mobile applications and video games to keep users returning daily [1].

One of the most effective tools in this domain is the concept of a «streak» – an unbroken record of consecutive actions. This paper outlines an initiative to adapt the streak mechanism for the Belarusian State University of Informatics and Radioelectronics (BSUIR), testing whether the visual representation of perfect attendance can alter student habits and improve overall engagement.

Main part. The essence of gamification in education relies heavily on Self-Determination Theory (SDT), which suggests that human motivation is driven by the needs for competence, autonomy, and relatedness [2]. In the context of university attendance, «competence» is often undermined by the lack of immediate feedback; a student does not feel they have achieved anything simply by sitting through a lecture.

A visual streak counter turns attendance into an active achievement, leveraging the «Endowed Progress Effect» to make students want to protect their accumulated progress. When a student sees a streak of five days, the cost of skipping the sixth day increases significantly, shifting the motivation from external pressure (fear of the dean's office) to internal drive (desire to maintain the streak).

The core of this experiment relies on bringing gamification directly into the communication channels students already use. BSUIR operates an Integrated Information System (IIS) where schedules and official data are logged. However, to make the feedback loop immediate, we designed an intermediary tool: a custom Telegram bot.

The bot serves a dual purpose. First, it streamlines the administrative duties of the group leader (monitor). Instead of managing paper spreadsheets, the leader opens the bot during a class and selects the names of absent students from a pre-loaded list. The system immediately registers who is present. Second, the bot acts as a personal dashboard for the students. Upon checking the bot, a student sees their current attendance status represented by a «fire» emoji – their streak. Every consecutive day a student attends all scheduled classes, the number next to the fire increases. If they miss an unexcused class, the streak breaks and the counter resets to zero.

The system is built using Python, utilizing the aiogram library for asynchronous communication with the Telegram API. This choice ensures the bot can handle simultaneous requests from multiple users without latency. The backend operates on a lightweight SQLite database, which stores student unique identifiers (Telegram IDs), their current streak count, and a history of daily attendance logs.

To ensure data integrity, the bot employs a role-based access control system. Only the authorized group leader has access to the «Admin Panel» command set. Regular students have read-

only access to their personal statistics. This separation prevents unauthorized modifications of attendance records while maintaining transparency for all participants.

The effectiveness of this system relies on established behavioral concepts, primarily loss aversion. Humans naturally prefer avoiding losses over acquiring equivalent gains [3]. When a student builds an attendance streak of twenty consecutive days, the prospect of losing that progress and resetting to zero becomes a tangible psychological cost.

The fire emoji acts as a micro-reward. It does not carry official academic weight and does not directly affect a student's final average grade, yet it provides immediate visual feedback that standard grading systems lack. This mechanism mirrors the engagement loops found in applications like Duolingo or TikTok, where users are compelled to return daily to maintain their continuous digital status [4]. We hypothesize that students will make an extra effort to attend classes on days when their motivation is low simply to preserve their accumulated streak.

To validate this hypothesis, we are rolling out the Telegram bot to a specific academic group consisting of 33 students. The experiment is designed to last for one academic semester and is divided into two distinct phases to ensure data validity.

Phase 1: The Blind Baseline (4 weeks). In the first month, the group leader will log attendance through the bot, but the «streak» feature will be hidden from the students. They will not receive notifications or see the fire icons. This phase allows us to collect baseline data on the group's natural attendance habits without the influence of gamification.

Phase 2: The Active Streak (8 weeks). In the second phase, the interface will go live. Students will be able to see their fire icons and track their progress. We will measure the change in attendance rates compared to the baseline. Specifically, we will track «at-risk» days – Mondays and Saturdays – where attendance typically drops, to see if the streak mechanic mitigates absenteeism on these specific days.

Quantitative data will be drawn directly from the bot's database. However, numbers alone do not explain behavioral shifts. Therefore, qualitative data will be gathered via a structured survey at the end of the trial. The questionnaire will use a Likert scale (1–5) to ask students to rate how often they considered skipping a class but decided to attend specifically because of the streak mechanic. We will also collect feedback on the user experience and whether the gamified environment generated any unnecessary anxiety (FOMO).

If the Telegram bot proves effective in boosting attendance for the test group of 33 students, the logical next step is native integration into the university's infrastructure. The streak mechanic could be built directly into the official BSUIR IIS student dashboard. A native integration would eventually eliminate the need for manual input by group leaders. Attendance could be verified automatically through integration with electronic passes or university Wi-Fi access points. Furthermore, the university could expand the gamification model by tying high streaks to tangible micro-rewards, such as unique digital profile badges, certificates, or minor bonuses in the rating system for hostel accommodation.

Conclusion. Modifying student behavior does not always require strict punitive measures or major overhauls of the university grading system. Applying a simple, visually appealing tracking metric taps into basic human psychology, creating a daily sense of accomplishment. By testing the fire streak mechanic through a Telegram bot on a pilot group, we are taking a practical, low-cost step toward modernizing the academic routine. The data collected from this experiment will clarify exactly how much influence a simple digital flame holds over daily motivation, providing a scalable template for broader implementation across BSUIR.

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