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Coin-Based Reward Systems and Game-Driven Progression for Raising Educational Outcomes in Private Learning Centers

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Abstract. Private learning centers operate in a highly competitive market where learner retention, attendance and measurable progress determine institutional success. This paper proposes an integrated framework that combines a virtual coin economy with game-based level progression to increase learner motivation and academic performance in such centers. Drawing on self-determination theory, operant conditioning, flow theory and the gamification literature, the framework defines how coins should be earned, spent and capped; how levels, badges and quests should be structured; and how both mechanisms can be aligned with learning objectives rather than with participation alone. Implementation guidelines, risks (including the overjustification effect) and an evaluation plan based on a quasi-experimental design are presented. The paper is conceptual: it offers a practical, theory-grounded model that center managers and researchers can adopt and test empirically.

Keywords: gamification, virtual coins, learner motivation, learning centers, level progression, educational technology, reward systems

1. Introduction

Private learning centers, including language schools, exam-preparation academies and STEM clubs, have become a major complement to formal schooling in many countries. Unlike public schools, these institutions depend on voluntary attendance and on parents' perception of value. Consequently, they face a persistent set of problems: irregular attendance, low homework completion, declining motivation after the first months and learner dropout. Traditional tools such as grades, verbal praise and periodic tests are often insufficient to sustain engagement, especially among children and adolescents who are accustomed to the immediate feedback of digital games.

Gamification, defined as the use of game design elements in non-game contexts (Deterding et al., 2011), offers a systematic response. Among its most widely used elements are points, badges, leaderboards and levels (Hamari et al., 2014). A virtual coin system extends the notion of points by adding an economic dimension: learners do not merely accumulate scores but earn a currency that can be saved, exchanged or invested. Combined with game-like progression, such as levels, quests and missions, this creates a continuous feedback loop in which effort becomes visible and rewarded.

The purpose of this paper is to present a coherent model for learning centers that integrates a coin economy with game-driven progression. The paper addresses three questions: (1) What theoretical principles should guide the design of coin and level systems? (2) How can these systems be structured to reinforce learning rather than superficial participation? (3) How should their effectiveness be monitored and evaluated?

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2. Theoretical Background

2.1 Motivation and self-determination

Self-determination theory distinguishes intrinsic from extrinsic motivation and identifies three basic psychological needs: autonomy, competence and relatedness (Deci & Ryan, 2000). Well-designed game elements can support all three. Choice among rewards and quests supports autonomy; levels and immediate feedback signal growing competence; team challenges and shared goals foster relatedness. However, rewards that are perceived as controlling may reduce intrinsic interest. Lepper, Greene and Nisbett (1973) showed that children who expected a reward for an activity they already enjoyed later showed less interest in it, a phenomenon known as the overjustification effect. A coin system must therefore be designed to inform learners about their competence rather than to control their behavior.

2.2 Reinforcement and feedback

Operant conditioning holds that behavior followed by positive consequences is more likely to recur (Skinner, 1953). In classrooms, delays between effort and reward weaken this link. Coins provide a fast, frequent and flexible reinforcer that can be awarded immediately for specific behaviors such as completing homework, helping a peer or mastering a new skill. Variable and unexpected bonuses can additionally maintain attention, although they should be used carefully to avoid fostering reward-seeking for its own sake.

2.3 Flow and optimal challenge

Csikszentmihalyi (1990) describes flow as a state of deep absorption that occurs when the challenge of a task matches the person's skill. Level systems are a practical way of calibrating challenge: tasks at each level are slightly harder than the previous one, and progression occurs only after demonstrated mastery. This resembles the structure of video games, where players are rarely overwhelmed or bored for long, and it supports the development of self-efficacy (Bandura, 1997).

2.4 Empirical evidence

Systematic reviews report generally positive but heterogeneous effects of gamification on engagement and learning (Dicheva et al., 2015; Hamari et al., 2014). The meta-analysis by Sailer and Homner (2020) found small to moderate positive effects on cognitive, motivational and behavioral outcomes, with the strongest effects when game elements were combined with narrative and social interaction. Hanus and Fox (2015), however, observed that a semester-long course using badges and leaderboards led to lower motivation and final exam performance than a non-gamified version, illustrating that poorly designed systems can backfire. Taken together, these findings suggest that the design and context of gamification matter more than the mere presence of game elements.

3. A Coin Economy for Learning Centers

3.1 Design principles

The proposed coin system rests on five principles. First, coins should reward learning-relevant behaviors and mastery, not only attendance. Second, the earning rules must be transparent and consistent so that learners perceive them as fair. Third, the economy must be balanced: the supply of coins and the price of rewards should be monitored to avoid inflation.

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Fourth, learners should have meaningful choices about how to spend coins. Fifth, the system should be accessible to all learners, including those who progress more slowly, by rewarding personal improvement as well as absolute performance.

3.2 Earning and spending

Table 1 presents an example structure. Values are indicative and should be calibrated to each center's context and age groups.

Table 1. Example coin earning and spending structure

Category	Examples	Indicative value
Earning: routine	Attendance, punctual arrival, homework completion	5–10 coins per event
Earning: mastery	Passing a unit quiz, improving a previous score, completing a speaking task	20–50 coins
Earning: collaboration	Peer tutoring, team project contribution	10–30 coins
Earning: challenge	Weekly quest or optional advanced task	30–100 coins
Spending: privileges	Choose a class activity, extra game time, seat choice	50–150 coins
Spending: learning support	Extra feedback session, hint card for a test, deadline extension token	100–200 coins
Spending: recognition	Certificate, name on the center's wall of achievement, small stationery items	200–500 coins

Spending options that enhance learning, such as feedback sessions or choice of topic, are preferable to purely material prizes because they align the reward with the educational goal and reduce the risk of undermining intrinsic motivation. Weekly or monthly caps on routine coins prevent learners from accumulating large balances through low-effort behaviors. Optional "coin investment" mechanics, in which learners pledge coins toward a personal goal and receive a bonus if it is achieved, can encourage goal setting and self-regulation.

3.3 Fairness and transparency

Each learner should have access to a personal digital wallet or a printed ledger showing earned and spent coins and the reasons for each transaction. Public leaderboards should be used with caution; ranking by total coins can discourage low-ranked learners. Alternatives include personal-progress dashboards, team-based totals and leaderboards that display only a window around the learner's own position.

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4. Game-Based Level Progression

Coins capture short-term behavior, whereas levels represent long-term mastery. In the proposed model, each course is divided into levels aligned with curriculum standards. Learners earn experience points (XP) through assessed activities and advance when they reach the XP threshold and pass a short mastery check. Unlike coins, XP cannot be spent, which keeps the level a reliable indicator of competence. Table 2 outlines a sample four-tier structure.

Table 2. Sample level structure with game-based activities

Tier	Learning focus	Game-based activities	Advancement criterion
Explorer (Levels 1–3)	Foundations and vocabulary or basic concepts	Quiz battles, memory and matching games, digital flashcard challenges	80% on mastery check
Builder (Levels 4–6)	Application and practice	Escape-room tasks, role-play missions, problem-solving puzzles	Project plus 80% check
Strategist (Levels 7–9)	Analysis and communication	Team debates, simulation games, case-based quests	Team task plus individual test
Mentor (Level 10)	Leadership and consolidation	Designing a game for juniors, peer tutoring	Portfolio and mentoring record

Game activities should be tightly linked to learning objectives. A vocabulary quiz played as a team race, a mathematics “boss battle” requiring a sequence of correctly solved problems, or a science escape room built around laboratory concepts all provide immediate feedback and a sense of narrative while practicing curriculum content. Quests and storylines give meaning to progress, and badges can mark specific skills such as “Grammar Detective” or “Fraction Master”. The final tier, in which advanced learners design or lead activities for younger peers, reinforces mastery and relatedness and gives high achievers a continued challenge.

5. Implementation Guidelines

Introducing the system in stages reduces resistance and allows adjustments. The following steps are recommended:

- Diagnose: analyze current attendance, homework completion, test scores and dropout rates to establish a baseline.
- Design: define target behaviors, coin values, level thresholds and rewards in collaboration with teachers; consult learners and parents where possible.
- Pilot: run the system for one or two groups for at least eight to twelve weeks, using a simple tool such as a spreadsheet, printed cards or a learning-management or classroom-gamification platform.
- Train: prepare teachers to award coins consistently, give informative feedback and avoid favoritism.

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- Review and scale: adjust the economy based on data, then extend to other groups and subjects.

Technology can reduce the administrative burden. Digital platforms can automate coin transactions, track XP, issue badges and provide dashboards for teachers and parents. Nevertheless, effective implementation depends less on software than on clear rules, teacher commitment and regular communication with learners and families. Data privacy must be respected, particularly when learners are minors: only necessary data should be collected, and access should be limited to authorized staff.

6. Risks and Ethical Considerations

Several risks require attention. The overjustification effect may emerge if learners begin to study only for coins; this can be mitigated by rewarding mastery and progress, offering learning-related rewards, and gradually reducing the frequency of tangible rewards as habits form. Excessive competition may harm weaker learners and social climate; cooperative challenges and individualized goals help to balance this. Inflation or exploitation of loopholes can devalue coins; periodic audits and caps maintain integrity. Finally, equity concerns arise if rewards involve cost or if learners differ in access to digital devices; centers should provide low-cost or no-cost rewards and offer non-digital alternatives. Parents should be informed that coins are an educational tool and not a monetary payment.

7. Proposed Evaluation Design

To test the effectiveness of the framework, a quasi-experimental design with intervention and comparison groups is recommended. Participants would be learners of similar age and level in the same center or in comparable centers. Outcome measures include (a) academic achievement, measured by standardized pre- and post-tests; (b) behavioral engagement, measured by attendance and homework completion; (c) motivation, measured by validated instruments such as the Intrinsic Motivation Inventory; and (d) retention, measured by re-enrollment rates. Mixed-methods data, including learner interviews and teacher observations, can reveal how learners interpret the system. Analysis may use ANCOVA or multilevel models controlling for baseline scores. Researchers should also examine whether effects differ by age, gender and initial achievement, and whether benefits persist after rewards are reduced.

8. Conclusion

A coin economy combined with game-based level progression can provide private learning centers with a structured, motivating and measurable approach to learner development. The central claim of this paper is that the success of such systems depends on design quality: coins should reward effort and mastery transparently, levels should reflect genuine competence, and game activities should be integrated with curricular goals. When grounded in motivational theory and monitored for unintended effects, the framework can raise engagement, support self-efficacy and strengthen retention. Future empirical studies across different subjects, age groups and cultural contexts are needed to validate and refine the model, and to determine how gamified reward systems can be gradually faded in favor of sustained intrinsic motivation.

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