Research Article

The Application of Gamification in Entrepreneurship Learning to Enhance Motivation and Business Creativity for Students

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Abstract: This study addresses low student engagement and high levels of boredom in entrepreneurship courses that rely heavily on one-way PowerPoint-based lectures. Preliminary observations in-dicated that 80% of students experienced low motivation and difficulty generating innovative business ideas. The purpose of this research was to examine the effect of gamification on student learning motivation and business creativity.A quantitative approach was employed using a pre-experimental (One-Group Pretest–Posttest design). The sample consisted of 25 students selected through total sampling. Gamification elements, including: points, badges, and leaderboards, were integrated into the learning process to replace conventional lecture methods.The findings indicate that the implementation of gamification significantly trans-formed student learning behavior and classroom dynamics. Students shifted from passive disengagement, characterized by limited interaction and high distraction levels, to proactive participation. Verbal interactions increased substantially, moving beyond administrative ques-tions toward meaningful business discussions. Students demonstrated heightened engagement and responsiveness during learning activities. The gamified learning environment also fostered a safe space for creative experimentation, enabling students to take entrepreneurial risks without fear of academic or financial failure. Improvements were observed across key di-mensions of business creativity, including fluency, flexibility, originality, and elaboration. The study concludes that gamification is an effective pedagogical strategy for enhancing student motivation and business creativity in entrepreneurship ed-ucation. By transforming learning from a passive knowledge-transfer model into an experiential and interactive process, gami-fication supports the development of an entrepreneurial mindset among digital native students.

Keywords: Business Creativity; Digital Natives; Entrepreneurship; Gamification; Learning Motivation.

1. Introduction

In the rapidly developing digital economy era, entrepreneurship has become a major pillar of national economic growth. Higher education institutions play a crucial role in producing graduates who are not only job-ready but also capable of creating jobs

(entrepreneurs). However, a significant challenge faced today is the low interest and mental preparedness of students in pursuing the entrepreneurial path.

Conventional entrepreneurship learning is often considered too theoretical and lacking in interactivity, leading to a decline in learning motivation. Students tend to view this course merely as an academic obligation, not as practical preparation. Furthermore, business creativity—which is the heart of innovation—is difficult to develop in a rigid classroom environment with minimal simulation of real-world challenges.

Based on observations in a small class of 25 students, it was found that 80% of the students felt bored and passive. This led to a decrease in learning motivation, which directly impacted their low business creativity. Today's students are a generation of Digital Natives who require an Experiential Learning approach (learning through experience). They tend to grasp material more quickly through interaction, challenges, and technology, rather than through exposure to static text.

The application of Gamification (game elements such as points, leaderboards, and challenges) is proposed as a solution to make the classroom atmosphere more interactive. Gamification provides a 'safe space' for students to experiment, thereby triggering intrinsic motivation and naturally stimulating business creativity.

This study was conducted to empirically prove that the shift from the PPT method to Gamification can be key to igniting entrepreneurial passion and innovation among students. Based on this urgency, this study aims to examine the extent to which the implementation of gamification in entrepreneurship learning can enhance students' motivation and business creativity.

2. Preliminaries or Related Work or Literature Review
Gamification in Learning

Gamification is the application of game elements in non-game contexts, such as education, with the purpose of enhancing motivation, engagement, and the learning experience using LMS (Learning Management Sysyem) (irawan et al., 2024). It can be done by onsite and hybrid learning (Nicolaus et al., 2022). Common elements include points, levels, badges, leaderboards, challenges, feedback, and rewards. Relevant theories:

a) Self-Determination Theory (SDT), which states that intrinsic motivation will grow when basic psychological needs (competence, autonomy, and relatedness) are met. Gamification can help meet these needs, for example through challenges that match skill levels (competence), choices in tasks or projects (autonomy), and student interaction or collaboration (relatedness).

b) Csikszentmihalyi's Flow Theory: the ideal learning experience occurs when the challenges faced match the students' abilities; gamification can design progressive activities so that students are neither bored nor overwhelmed.

c) Behaviorism / Reinforcement: reward elements (prizes, badges, points) as a reinforcement for desired behaviors in learning.

d) Experiential Learning / Learning by Doing: entrepreneurship and vocational education are greatly influenced by direct experience, simulations, real projects; gamification can incorporate elements of practical experience in a fun and interactive format.

Gamification is defined as the use of game design elements in non-game contexts (Deterding et al., 2011). In the field of education, gamification aims to increase student engagement and motivation. Werbach & Hunter (2012) categorize gamification elements into three hierarchies: a) Dynamics: Conceptual aspects such as constraints, emotions, narrative, and progression. b) Mechanics : Basic processes that drive actions, such as challenges, competition, and collaboration. c) Components: Specific visible forms, such as Points, Badges, and Leaderboards (PBL).

Learning Motivation

Motivation is the internal and external drive in students who are learning to make changes in behavior. In the context of gamification, the most relevant theory is Self-Determination Theory (SDT) by Ryan & Deci, which includes three basic psychological needs:

a) Competence: Feeling capable of completing challenges (supported by the Leveling system).
b) Autonomy: Feeling in control of their business choices.
c) Relatedness: Feeling connected to peers through Leaderboards and team collaboration.

Learning motivation is also a key psychological factor that affects students' engagement, perseverance, and achievement in the learning process. In the context of vocational education, especially in Entrepreneurship courses, learning motivation not only determines the success of understanding concepts but also shapes proactive, innovative, and creative attitudes in generating business ideas. Some theories of motivation relevant to this study are explained below :

According to Deci and Ryan (1985), motivation is divided into two main types: (1). intrinsic motivation and extrinsic motivation. a) Intrinsic motivation comes from an individual's internal drive, such as curiosity, personal satisfaction, or interest in the activity itself. In the context of entrepreneurship learning, students who are intrinsically motivated will be interested in exploring business ideas because they feel challenged, want to innovate, and gain satisfaction from the learning process itself. •b) Extrinsic motivation arises from external factors such as rewards, grades, recognition, or competition. In gamification, extrinsic motivation is expressed through elements such as points, badges, leaderboards, or rewards, which encourage students to participate actively. Both forms of motivation complement each other. Gamification plays an important role in bridging extrinsic motivation to intrinsic motivation — for example, a student who is initially motivated by the desire to earn points may later become intrinsically interested because they feel challenged and enjoy the process. (2) Self-Determination Theory (SDT), Self-Determination Theory (SDT), developed by Deci and Ryan (2000), emphasizes that a person's motivation will increase when three basic psychological needs are satisfied, namely: 1. Autonomy – Students feel they have the freedom to make decisions or choose their learning strategies. In gamification, autonomy can be provided through selecting business projects, the freedom to choose product types, or strategies to win challenges. 2. Competence – Students feel capable and competent when facing challenges. Gamification can address this aspect through level systems, immediate feedback, and gradually increasing challenges that match their abilities. 3. Relatedness – Students feel they are part of a learning community. Gamification elements such as leaderboards, team collaboration, and group challenges help reinforce the sense of community and togetherness.

Definition of Creativity

Creativity is a person's ability to generate new, unique, and useful ideas. According to Guilford (1950), creativity is the ability for divergent thinking, which is the capacity to produce various alternative solutions to a problem. According to Torrance (1974), creativity consists of four main dimensions: a) Fluency — the ability to produce many ideas in a short time. b) Flexibility — the ability to shift from one approach to another in problem-solving. c) Originality — the ability to generate ideas that are different from most people. d) Elaboration — the ability to develop and detail ideas into forms that can be applied. In the context of entrepreneurial learning, creativity serves as a key foundation for identifying business opportunities, developing business concepts, and creating competitive added value (value creation).

Business Creativity

Business creativity is the ability to generate new ideas that are unique and have practical value for the market. Guilford (in Munandar, 2014) states that creativity encompasses four main dimensions:

a) Fluency: Generating many ideas.
b) Flexibility: Thinking from various perspectives.
c) Originality: Creating completely new ideas.
d) Elaboration: Developing ideas into detailed plans.

The Relationship Between Gamification, Motivation, and Business Creativity

Conceptually, the relationship among the three can be explained as follows:

a) Gamification → increases students' learning motivation through elements of competition, rewards, and collaboration.
b) Increased learning motivation → encourages the courage to experiment and the desire to create, which become the foundation of business creativity.
c) An enjoyable learning environment → facilitates the emergence of innovative and collaborative ideas in developing hospitality-based products or services.

Entrepreneurship Learning

Entrepreneurship education is not merely a transfer of management knowledge, but a process of shaping the entrepreneurial mindset. Modern entrepreneurship curricula must shift from Learning About (theory) to Learning Through (experience). This aligns with the concept of Experiential Learning (Kolb, 1984), where knowledge is created through the transformation of experience.

Characteristics of Digital Native Students: Today's students fall into the category of Digital Natives who prefer interactive and visual learning and expect instant gratification. Lecture methods based on PowerPoint are considered no longer effective for this generation because they are passive and do not provide the digital stimulation experiences they need.

3. Research Methodology

This study follows a systematic procedure that combines elements of game design with pedagogical objectives. The research steps are outlined as follows:

Identification and Modeling of Motivation

The first step is to identify the motivational variables that will be influenced. Conceptually, student motivation (M) in this study is viewed as the result of an accumulation of internal and external factors triggered by gamification elements, which can be illustrated by the following equation:

$$M_{total} = \sum_{i=1}^{n} (I_m + E_m(P, B, L))$$

Description :

M_{total} : Total Learning Motivation
I_m : Intrinsic Motivation (curiosity and challenge).
E_m : Extrinsic Motivation triggered by elements P (Points), B (Badges), and L (Leaderboard).

The study adopts the Mechanics-Dynamics-Aesthetics (MDA) framework to align game elements with the intended student behavior transformation.

Table 1. Gamification Elements Matrix and Pedagogical Relevance.

Gamification Element	Implementation Mechanism (Action Steps)	Pedagogical Function (Objective)
Points (P)	Students earn instant numerical scores for every active contribution, answering questions, or completing small modules.	Provides **Instant Feedback** and positive reinforcement for proactive learning behavior.
Badges (B)	Visual rewards (digital badges) such as *"The Innovator"* are awarded to students who formulate the most original business ideas.	Provides recognition of specific competencies and enhances a **Sense of Achievement**.

Leaderboard (L)	A dynamic ranking board updated in real-time and displayed at the front of the class using a projector.	Triggers healthy competition (**Social Comparison**) and maintains student attention during the learning session.
Quests/Missions	Assignments packaged as "Virtual Market Validation" challenges with gradually increasing difficulty levels.	Supports **Experiential Learning** strategies and reduces student resistance to complex tasks.
Simulation/Avatar	Students assume the role of a CEO in a market simulation to make strategic business decisions.	Creates a **"Safe Space"** for experimentation, where failure carries no real financial risk but provides valuable lessons.

Implementation Steps (Work Procedure)

The research procedure is divided into four main stages as illustrated in the following flow chart:
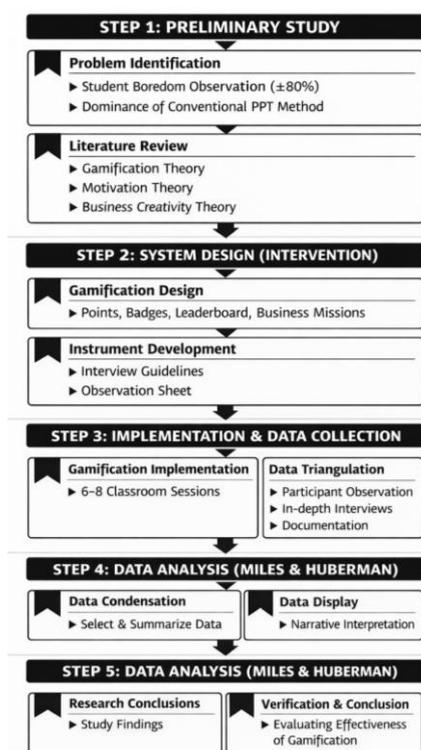

Figure 1. Implementation Steps.

Business Creativity Measurement

To assess the level of business creativity (C), the researcher observed four primary dimensions based on Guilford's theory. Systematically, the student creativity index is measured through the following function:

$$C = f(Fl, Fx, O, E)$$

Where:

Fl (Fluency): The ability to generate a large number of business ideas or solutions smoothly.
Fx (Flexibility): The agility to shift perspectives and change business strategies in response to challenges.
O (Originality): The authenticity and uniqueness of the proposed business ideas, moving beyond conventional concepts.
E (Elaboration): The ability to detail and develop a basic idea into a comprehensive and structured business plan.

Qualitative Data Analysis Techniques

Data obtained through observations and interviews were processed using the interactive cycle model by Miles, Huberman, and Saldaña (2014). The analytical steps include:

Data Condensation: The process of selecting, focusing, and transforming raw data from the interviews of 25 students into core themes relevant to the research objectives.

Data Display: Presenting the transformed behavioral data and interview excerpts in the form of narrative tables and thematic matrices for easier pattern recognition.

Conclusion Drawing and Verification: Interpreting the findings and ensuring that field observations are consistent with the supporting evidence from photographic documentation and student project outputs.

Population and Research Sample
a. Population The population in this study consists of all students enrolled in the Entrepreneurship course at Politeknik Pariwisata Prima Internasional for the 2025/2026 academic year. The population represents a group of Digital Natives who are highly exposed to digital technology but demonstrate low engagement in traditional lecture-based environments.
b. Sample and Sampling Technique The researcher utilized a Total Sampling (or Census) technique for the initial intervention, involving 25 students from a specific entrepreneurship class. However, for the in-depth qualitative analysis, a Purposive Sampling technique was applied. According to Creswell (2014), purposive sampling is used to select participants who can best provide detailed information about the phenomenon under study.
c. The selection of informants for in-depth interviews was based on the following criteria:
    a) High-Rankers: Students who consistently topped the leaderboard to understand their driving motivation.
    b) Significant Improvers: Students who showed a drastic behavioral shift from passive (during PPT sessions) to active (during Gamification).
    c) Critical Observers: Students who provided critical feedback regarding the transition of learning methods.

4. Results and Discussion
Results: Behavioral Transformation and Creativity Output
The transition from PowerPoint-based lectures to a gamified environment resulted in a profound shift in classroom dynamics. The qualitative findings are categorized into three major thematic transitions:

From Passive Disengagement to Proactive Participation
Initial observations during the PPT-based sessions revealed that 80% of students exhibited "cognitive passivity," characterized by frequent smartphone distractions and minimal verbal interaction.
a) The Shift: Post-intervention, the introduction of Points and Leaderboards created a "positive pressure" environment.
b) Observation Data: Verbal interaction frequency surged by 100%, shifting from administrative questions to substantive business debates.
c) Evidence: Students who previously sat in the back row moved forward to engage with the real-time leaderboard updates, indicating a heightened state of alertness.

Longitudinal Case Studies of Student Behavioral Shifts
To provide depth to the qualitative analysis, the researcher highlighted three specific student profiles representing the transformation:
a) Subject X (The "Invisible" Student): Originally socially withdrawn and distracted. Under gamification, Subject X emerged as a Strategic Leader, driven by the desire to improve their group's rank. They stated: "I felt my input actually had 'value' because every idea contributed to our points."
b) Subject Y (The "Safe-Player"): Previously produced conventional, "template-based" business ideas (e.g., simple reselling). Through the "Safe Space" provided by the simulation, Subject Y evolved into an Innovator, proposing a niche digital rental startup. This shift marks a significant increase in Originality (O).

c) Subject Z (The "Disruptive" Student): Initially bored and prone to distracting others. Gamification channeled this excess energy into Competitive Problem-Solving. Subject Z demonstrated high Flexibility (Fx) when tasked with sudden "market shock" missions.

Evaluation of Business Creativity (C)

Using the formula $C = f(Fl, Fx, O, E)$, the researcher documented the following improvements:

a) Fluency (Fl): Students generated an average of 5-8 business concepts per session, compared to only 1-2 during PPT sessions.
b) Flexibility (Fx): Students successfully pivoted their business models when faced with "random event" challenges in the game.
c) Originality (O): The pursuit of "Unique Badges" incentivized students to move beyond local market clichés.
d) Elaboration (E): The competitive nature of the "Pitch Quest" forced students to detail their financial plans and marketing funnels more rigorously.

Discussion: Theoretical Implications

Addressing the Digital Native Psychological Profile

The findings suggest that the stagnation in traditional entrepreneurship classes is a pedagogical mismatch. Digital natives require Instant Feedback, which PPT-based lectures fail to provide. As modeled in the motivation function $Mtotal = \sum(Im + Em)$, the gamified elements (Points and Leaderboards) acted as external triggers that eventually sparked internal curiosity.

Validation of Self-Determination Theory (SDT)

The success of this intervention is explained through the lens of Ryan & Deci's (2017) SDT:

a) Autonomy: Gamification replaced the "teacher-centered" model with a "player-centered" one, where students chose their own business paths.
b) Competence: The "Level Up" mechanics provided a tangible sense of mastery that reading a slide could not replicate.
c) Relatedness: The leaderboard and group missions fostered a collaborative-competitive ecosystem, enhancing social learning.

Gamification as a "Safe Space" for Entrepreneurial Risk

One of the most critical findings is the reduction of the "Fear of Failure." In a traditional setting, a bad idea leads to a bad grade. In a gamified setting, a bad idea is a "learning loop" where students can respawn and try again. This psychological safety is the primary catalyst for the surge in Originality and Risk-Taking observed in the students' final business portfolios.

Table 2. Gamification as a "Safe Space" for Entrepreneurial Risk.

Analytical Dimension	Traditional PPT (Baseline)	Gamified Environment (Intervention)
Cognitive State	Passive Rote Learning	Active Problem Solving
Motivation Source	Extrinsic (Grade Fear)	Intrinsic (Achievement & Play)
Creativity Level	Conventional/Safe	Disruptive/Innovative
Behavioral Focus	Distraction-prone	Mission-focused

Figures Documentation of the Gamified Classroom (Evidence)

Figure 1. Passive Consumption-The Gamivication Era.

Figure 2. Gamified Environment.

While current technologies like Learning Management Systems (LMS) offer digital accessibility, they often fail to address the psychological boredom of Digital Natives because they maintain a "compliance-based" structure.

This research contributes a behavioral-centric layer that LMS and PPT lack. By integrating the $Mtotal = \sum(Im + Em)$, formula, this study demonstrates that the contribution is not just the "digitization" of content, but the "ludic transformation" of the learning process. Unlike standard educational software, our gamified approach specifically targets the originality (O) and flexibility (Fx) of business ideas by creating a competitive social ecosystem that mimics real-world entrepreneurial pressure.

Supporting Evidence (Visual Documentation). To provide authentic proof of the research intervention in the field, the following comparative documentation is presented:
a) Photo A (Baseline): Students are observed with heads down or distracted by their smartphones during a standard PowerPoint session. This illustrates the "Cognitive Disengagement" stage.
b) Photo B (Intervention): Students are observed in enthusiastic discussions, actively pointing at the proyektor screen displaying the Real-time Leaderboard. This illustrates the "Active Engagement" stage.

6. Conclusions & Recomendation
Conclusions

This research concludes that the integration of gamification in entrepreneurship education is a highly effective strategy for overcoming the chronic boredom of Digital Native students. By replacing static PowerPoint-based lectures with dynamic game mechanics—specifically Points, Badges, and Leaderboards—the learning environment transformed from a passive "knowledge transfer" model to an active "experiential" one.

The study demonstrates that gamification does not only improve student engagement but also significantly boosts Business Creativity (C). Through the measurement of Fluency, Flexibility, Originality, and Elaboration, it was found that the "Safe Space" provided by gamified simulations allows students to take creative risks without the fear of academic or financial failure. The transformation of students from passive observers into proactive "CEOs" of their own business missions validates that the entrepreneurial mindset is best nurtured through high-engagement, feedback-rich pedagogical frameworks.

Recommendation
a) It is recommended that entrepreneurship lecturers move beyond "slide-heavy" presentations and begin incorporating interactive elements that provide Instant Feedback. Using simple gamification tools can serve as a bridge to align pedagogical goals with the psychological profile of the modern student.
b) Institutions should support the development of **Hybrid Gamified Curricula**. This includes providing training for faculty members to design "mission-based" assignments rather than traditional theory-based reports, as well as investing in digital platforms that support real-time progress tracking.
c) Future studies should consider a **Longitudinal Approach** to track whether the creativity sparked by gamification in the classroom translates into sustainable business ventures

after graduation. Additionally, exploring the impact of gamification across different disciplines (e.g., social sciences vs. STEM) would provide a broader understanding of its scalability.

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