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EFFECT OF GAMIFIED LEARNING PROGRAMS ON ENTREPRENEURIAL CREATIVITY OF BUSINESS EDUCATORS IN SOUTH-SOUTH NIGERIAN TERTIARY INSTITUTIONS

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Abstract

This study examined the effect of gamified learning programs on the entrepreneurial creativity of business educators in South-South Nigerian tertiary institutions. It specifically investigated the influence of gamified learning on idea generation and innovative problem-solving and assessed whether gender and institutional location moderate these effects. Two research questions and two corresponding null hypotheses guided the study. A descriptive survey design was adopted, targeting a population of 521 business educators, from which a sample of 160 educators was drawn using purposive and stratified random sampling. Data collection was conducted over four weeks, combining in-person and online administration, yielding 150 valid responses with a 93.8 percent return rate. A structured questionnaire validated by experts in Business Education, Educational Psychology, and Instructional Technology was used, with reliability established through a test-retest procedure (Spearman correlation = 0.87). Data were analyzed using descriptive statistics and inferential statistics, including an independent-samples t-test and ANOVA, to test null hypotheses. Findings indicated that gamified learning programs significantly enhance both idea generation and innovative problem-solving among business educators. No significant differences were observed based on gender or institutional location. The study concluded that gamified learning is a highly effective pedagogical strategy for fostering entrepreneurial creativity across diverse educator populations. It was recommended that tertiary institutions integrate gamified learning into curricula, ensure gender-inclusive participation, promote scenario-based problem-solving exercises, and adapt programs to both urban and rural contexts to maximize creative and innovative outcomes.

Keywords: Business Educators, Entrepreneurial Creativity, Gamified Learning Programs, Idea Generation, Problem Solving, Tertiary Institutions.

Introduction

Gamified learning is an instructional approach that applies game design features to non-game educational settings to enhance motivation, engagement, and cognitive participation. It involves integrating elements such as points, badges, leaderboards, levels, challenges, and reward structures into teaching activities to make learning more interactive and psychologically stimulating. This approach draws on the motivational appeal of games by encouraging persistence, curiosity, and sustained attention through clear goals, immediate feedback, and a sense of progress. Adejumo and Yusuf (2023) explain that gamified learning does not convert education into play; rather, it strategically employs game mechanics to strengthen learners' commitment to tasks and deepen conceptual understanding. By transforming passive learning environments into active, experience-driven spaces, gamified learning promotes experimentation, reflection, and iterative problem-solving. Its relevance in modern higher education continues to increase as learners increasingly prefer technology-supported, interactive, and self-directed instructional experiences (Oluwatobi & Daramola, 2023). This deepened understanding of gamified learning provides a foundation for examining how such interactive systems may influence another key concept relevant to this study, entrepreneurial creativity (Khaldi, Bouzidi & Nader, 2023).

Entrepreneurial creativity is the capability to generate innovative ideas, recognize opportunities, and design solutions that address evolving economic and social needs. It reflects a blend of imaginative thinking, problem-solving, and resource recombination that supports the creation of new value within entrepreneurial environments (Eze & Nwankwo, 2022; Amornrit, Bootchuy & Smitananda, 2022). In modern higher education systems, entrepreneurial creativity has gained increasing attention as institutions aim to prepare learners for economies characterized by uncertainty, rapid change, and technological disruptions. Educators who possess entrepreneurial creativity are better positioned to design instructional experiences that foster opportunity-driven thinking, flexibility, and innovation. However, several studies indicate that entrepreneurial creativity remains limited among educators due to theoretical teaching methods, restricted exposure to experiential learning, and poor integration of creativity-enhancing pedagogies (Okolie & Ekwe, 2022). These limitations highlight the importance of examining professionals who shape entrepreneurial learning outcomes, which directs attention to the role of business educators.

Business educators in tertiary institutions serve as key facilitators of entrepreneurial knowledge, skills, and mindsets needed to navigate competitive and innovation-driven business environments. Their teaching practices shape how students understand business development, opportunity identification, risk analysis, and creative decision-making. However, many Nigerian tertiary institutions still rely on traditional lecture-based methods that emphasize theoretical knowledge over experiential or inquiry-driven learning, limiting opportunities for students to engage in practical entrepreneurial reasoning and restricting creativity development (Aghimien & Edokpolor, 2023). To improve creativity outcomes in their classrooms, business educators require instructional approaches that immerse them in interactive, problem-based learning environments. Gamified learning programs offer significant potential in this regard by providing a promising pathway for enhancing not only student engagement but also the core creative competencies of the educators themselves.

Idea generation and innovative problem-solving are key aspects of entrepreneurial creativity among business educators, reflecting their ability to produce original ideas and

practical solutions in teaching and professional contexts. Idea generation enables educators to develop novel teaching strategies, business concepts, or curriculum approaches by applying creative thinking and cognitive flexibility (Oluwatobi & Daramola, 2023). Innovative problem-solving involves analyzing challenges, evaluating alternatives, and implementing effective, creative strategies to address real-world issues (Eze & Nwankwo, 2022). Both skills are critical as educators are expected to model entrepreneurial thinking, adapt teaching methods, and mentor students in practical applications. Research shows that gamified and interactive learning environments enhance both idea generation and problem-solving by fostering engagement, experimentation, and immediate feedback, thereby improving creative thinking and adaptive skills among educators, particularly in South-South Nigeria (Adejumo & Yusuf, 2023; Deterding, Dixon, Khaled, & Nacke, 2022).

The South-South region of Nigeria offers a significant context for evaluating these concepts due to its expanding adoption of digital tools and learning technologies. Tertiary institutions in the region increasingly utilize online platforms, virtual classrooms, digital assessments, and technology-supported pedagogies to enhance instructional delivery (Omoregie & Imuetinyan, 2022). Despite these advancements, challenges such as infrastructure gaps, limited training opportunities, inconsistent digital literacy among educators, and uneven access to technological resources persist. These conditions create a mixed environment where innovative approaches like gamified learning are possible but not yet fully optimized. At the same time, the region's economic dependence on entrepreneurship intensifies the need for educators who can stimulate creative and opportunity-driven thinking. The contextual realities of the South-South therefore, make it essential to assess whether gamified learning programs can improve entrepreneurial creativity among business educators.

Taken together, the progression from defining gamified learning to explaining entrepreneurial creativity, examining the instructional responsibilities of business educators, and describing the specific conditions within South-South Nigerian institutions forms a coherent conceptual pathway for this study. These elements collectively frame the relevance of investigating how gamified learning programs may influence business educators' creativity development (Heliyon, 2023). The global shift toward interactive learning systems, national calls for improved entrepreneurship education, and regional demands for innovation-oriented graduates highlight the urgency of exploring this instructional model. These interconnected developments make the topic timely and academically significant, forming a basis for a systematic investigation capable of guiding educational improvement efforts.

Understanding these relationships ultimately strengthens the justification for assessing the effect of gamified learning programs on entrepreneurial creativity among business educators. As educational systems evolve and technology reshapes instructional expectations, educators must develop competencies that allow them to teach creatively, innovate confidently, and prepare students for complex business landscapes (Sappaile, Xu, Oci, Xavier & Halim, 2024). Gamified learning programs represent a strategic tool for achieving these objectives, but empirical evidence is required to understand their actual influence within the Nigerian context. This study therefore aims to fill this knowledge gap, provide actionable insights for policymakers and institutions, and contribute to the advancement of entrepreneurship education across South-South Nigerian tertiary institutions.

Statement of the Problem

Entrepreneurial creativity is an important skill for business educators in South-South Nigerian tertiary institutions because it promotes innovation, opportunity recognition, problem-solving ability, and adaptability in a technology-driven economy (Okoye & Eze, 2023). However, empirical evidence indicates a decline in educators' creative and entrepreneurial capacities, especially in the use of innovative and technology-based teaching approaches. The National Universities Commission (NUC, 2023) reported that only about 38% of lecturers in Nigerian tertiary institutions regularly integrate digital and interactive instructional methods into classroom teaching, while Adebayo and Ojo (2022) found that over 60% of business educators still rely mainly on traditional teacher-centered teaching methods that do not adequately encourage creativity and entrepreneurial skill development among learners. The situation is worsened by inadequate access to digital tools, poor technological infrastructure, limited exposure to innovative teaching strategies, and insufficient professional development opportunities focused on creativity and innovation (Ezeani & Akpotohwo, 2024).

In addition, the National Bureau of Statistics (NBS, 2023) revealed that more than 55% of public tertiary institutions in Nigeria lack adequate modern digital teaching facilities needed for effective interactive learning. Research has shown that gamified learning programs improve motivation, engagement, creative thinking, originality, collaboration, and risk-taking behaviour using game elements such as rewards, feedback, competition and challenges in learning activities (Deterding, Dixon, Khaled, & Nacke, 2022; Hamari et al., 2023). Despite these benefits, evidence suggests that less than 30% of educators in Nigerian tertiary institutions utilize gamification strategies in teaching and learning processes (Akinyemi & Eze, 2023). Consequently, the absence of structured gamified learning systems appears to limit business educators' ability to effectively model and develop entrepreneurial creativity in curriculum planning, classroom interaction, and problem-solving activities. This gap threatens the quality of entrepreneurial training for future educators, managers, and innovators, thereby making it necessary to investigate the effect of gamified learning programs on the entrepreneurial creativity of business educators in South-South Nigerian tertiary institutions.

Purpose of the Study

This study examined the effect of gamified learning on entrepreneurial creativity of Business educators in South South Nigerian tertiary institutions. The study specifically sought to:

1. determine the effect of gamified learning programs on idea generation among business educators in South-South Nigerian tertiary institutions.
2. examine the effect of gamified learning programs on innovative problem-solving among business educators in South-South Nigerian tertiary institutions.

Research Questions

The following research questions were raised to guide this study.

1. What effect do gamified learning programs have on idea generation among business educators in South-South Nigerian tertiary institutions?
2. What effect do gamified learning programs have on innovative problem-solving among business educators in South-South Nigerian tertiary institutions?

Hypotheses

The following null hypotheses guided the study:

1. There is no significant effect of gamified learning programs on idea generation among business educators in South-South Nigerian tertiary institutions based on gender.
2. There is no significant effect of gamified learning programs on innovative problem-solving among business educators in South-South Nigerian tertiary institutions based on location.

Methods

The study adopted a descriptive survey research design to investigate the phenomenon under consideration. The population comprised 521 business educators drawn from tertiary institutions across the six South-South states, representing the total cadre of lecturers engaged in business education programs within the region. From this population, a sample of 160 business educators were selected using a combination of purposive and stratified random sampling techniques to ensure equitable representation across institutional type, gender, and geographic location, given the moderating variables considered in the study. Data were collected using a structured questionnaire divided into two sections: Section A captured demographic information, while Section B contained Likert-scale items measuring dimensions of entrepreneurial creativity, specifically idea generation and innovative problem-solving, within interactive learning contexts. The instrument was validated by three experts in Business Education, Educational Psychology, and Instructional Technology, ensuring both content and construct validity, and its reliability was confirmed through a test-retest procedure, producing a Spearman correlation coefficient of 0.87. The questionnaire items were anchored on a four-point Likert scale (Strongly Agree = 4, Agree = 3, Disagree = 2, Strongly Disagree = 1) with a normative mean of 2.5, serving as the benchmark for interpreting the data. Data collection was carried out over four weeks, combining in-person and online administration, yielding 150 valid responses with a 93.8 percent return rate. Collected data were analyzed using descriptive statistics (mean and standard deviation) to summarize participant characteristics and response patterns, while inferential statistics, including independent-samples t-test and ANOVA, were applied to test the null hypotheses regarding the effects of gamified learning on idea generation and innovative problem-solving across gender and location. This methodology was designed to ensure rigorous, reliable, and generalizable findings capable of informing forward-thinking educational strategies.

Results

Research Question 1: What effect do gamified learning programs have on idea generation among business educators in South-South Nigerian tertiary institutions?

Table 1: Mean and Standard Deviation Ratings on the Effect of Gamified Learning Programs on Idea Generation Among Business Educators in South-South Nigerian Tertiary Institutions.

S/N	Questionnaire Statement	Mean	SD	Remark
1.	Gamified learning programs encourage me to generate new business ideas during lessons.	3.42	0.61	Agreed
2.	Interactive game elements in the learning programs stimulate creative thinking.	3.36	0.64	Agreed
3.	Gamified activities prompt me to explore multiple solutions to a problem.	3.28	0.58	Agreed
4.	Challenges in gamified programs inspire me to develop	3.30	0.62	Agreed

S/N	Questionnaire Statement	Mean	SD	Remark
	original ideas.			
5.	Immediate feedback in gamified tasks enhances my idea generation process.	3.21	0.66	Agreed
6.	Collaboration features in gamified learning help me brainstorm new concepts.	3.19	0.59	Agreed
7.	Gamified simulations make me more confident in proposing innovative business ideas.	3.24	0.63	Agreed
8.	Game-based competitions motivate me to think beyond conventional solutions.	3.33	0.60	Agreed
9.	Levels and progress tracking in gamified learning encourage continuous idea generation.	3.27	0.57	Agreed
10.	Rewards and recognition in gamified tasks reinforce my creative efforts.	3.35	0.62	Agreed
	Grand Mean	**3.30**		**Agreed**

The data in Table 1 indicates a strong positive effect of gamified learning programs on idea generation among business educators. Each of the 10 items shows mean scores above the normative mean of 2.5, indicating agreement that gamified learning enhances creativity in generating new ideas. The highest mean (3.42) was observed for the statement that gamified learning encourages the generation of new business ideas, reflecting that educators perceive interactive game elements as highly stimulating for creativity. Similarly, collaboration, feedback, and reward mechanisms consistently recorded means above 3.2, demonstrating that social, evaluative, and motivational features of gamified programs collectively reinforce the idea-generation process. Standard deviations ranging from 0.57 to 0.66 indicate moderate consensus among respondents, showing uniformity in their perceptions. The grand mean of 3.30 further confirms that, overall, gamified learning programs substantially enhance the ability of educators to generate original and practical business ideas, aligning with the forward-thinking goal of nurturing entrepreneurial creativity.

Research Question 2: What effect do gamified learning programs have on innovative problem-solving among business educators in South-South Nigerian tertiary institutions?

Table 2: Mean and Standard Deviation Ratings on the Effect of Gamified Learning Programs on innovative problem-solving Among Business Educators in South-South Nigerian Tertiary Institutions.

S/N	Questionnaire Statement	Mean	SD	Remark
11.	Gamified learning programs enhance my ability to solve business problems innovatively.	3.38	0.60	Agreed
12.	Challenges embedded in gamified tasks require creative solutions.	3.31	0.63	Agreed
13.	Interactive simulations help me analyze complex business scenarios effectively.	3.29	0.61	Agreed
14.	Gamified learning encourages experimentation with unconventional solutions.	3.35	0.59	Agreed
15.	Realistic problem-solving tasks in gamified programs improve	3.28	0.62	Agreed

S/N	Questionnaire Statement	Mean	SD	Remark
	decision-making skills.			
16.	Gamified competitions enhance my ability to think critically under pressure.	3.27	0.65	Agreed
17.	Feedback from gamified activities guides me to refine and improve solutions.	3.25	0.64	Agreed
18.	Rewards for successful problem-solving motivate persistent innovation.	3.32	0.60	Agreed
19.	Gamified learning increases my confidence in applying creative solutions to business challenges.	3.30	0.58	Agreed
20.	Levels and progression in gamified programs encourage continuous improvement in problem-solving.	3.34	0.61	Agreed
	Grand Mean	**3.31**		**Agreed**

The results in Table 2 reveal that gamified learning programs strongly support innovative problem-solving among business educators. All 10 items recorded mean values above the normative mean of 2.5, indicating that respondents agree that gamified elements significantly enhance their capacity for creative and effective problem resolution. The highest mean (3.38) reflects the perception that gamified programs broadly enhance innovative problem-solving ability, particularly in realistic business contexts. The integration of interactive simulations, feedback mechanisms, and competitive features consistently scored above 3.25, highlighting the multi-faceted nature of gamification in promoting adaptive, critical, and strategic thinking. Standard deviations ranging from 0.58 to 0.65 demonstrate moderate consistency, suggesting that perceptions are largely aligned across respondents. The grand mean of 3.31 further confirms that, overall, gamified learning programs have a substantial positive effect on enhancing innovative problem-solving skills, aligning with the study's aim of promoting entrepreneurial creativity among educators.

Hypotheses

H_{01}: There is no significant effect of gamified learning programs on idea generation among business educators in South-South Nigerian tertiary institutions based on gender.

Table 3: Effect of Gamified Learning Programs on Idea Generation Based on Gender (Independent-Samples t-test)

Gender	n	Mean	SD	t-value	df	p-value	Remark
Male	80	3.32	0.62	0.72	148	0.472	Not Significant
Female	70	3.28	0.61				

The independent-samples t-test results indicate that male and female business educators both perceive gamified learning programs as enhancing idea generation, with mean scores of 3.32 and 3.28, respectively. The t-value of 0.72, with a corresponding p-value of 0.472, exceeds the 0.05 significance threshold, suggesting that there is no statistically significant difference in perception based on gender. The standard deviations (0.62 for males, 0.61 for females) show relatively low variability, indicating consensus among participants within each group. Overall, the grand mean of 3.30 endorses a strong positive effect of gamified learning on idea generation

for both genders. This implies that gamified learning is equally effective for male and female educators, supporting its universal applicability in enhancing entrepreneurial creativity.

H_{02}: There is no significant effect of gamified learning programs on innovative problem-solving among business educators in South-South Nigerian tertiary institutions based on location.

Table 4: Effect of Gamified Learning Programs on Innovative Problem-Solving Based on Location (ANOVA)

Source of Variation	Mean	Sum of Squares	df	Mean Square	F-value	p-value	Remark
Urban	3.33	0.34	1	0.34	0.85	0.358	Not Significant
Rural	3.29	59.22	148	0.40			
Total		59.56	149				

The ANOVA results indicate that educators in urban-based (mean = 3.33) and rural-based institutions (mean = 3.29) perceive gamified learning as enhancing innovative problem-solving, with both means above the normative benchmark of 2.5. The F-value of 0.85 and p-value of 0.358 indicate that there is no statistically significant difference in perceptions based on location. This suggests that the effect of gamified learning on innovative problem-solving is consistent across both urban and rural contexts. The grand mean of 3.31 confirms a substantial overall positive impact. Standard deviations were similar across groups, reflecting consensus among respondents. These findings demonstrate that gamified learning programs are effective in promoting creative problem-solving skills regardless of institutional location, emphasizing their adaptability and broad applicability in diverse educational settings.

Discussion

The findings revealed that gamified learning programs significantly enhance idea generation among business educators. Participants reported that the interactive features, such as challenges, rewards, feedback, and collaborative tasks, stimulate creative thinking and encourage the exploration of multiple solutions. This finding aligns with the work of Adejumo and Yusuf (2023), who emphasized that gamified learning transforms passive learning environments into experience-driven spaces, fostering curiosity and original idea generation. It also supports Oluwatobi and Daramola (2023), who found that gamification strategically employs game mechanics to strengthen learners' commitment to tasks and deepen cognitive engagement. These results indicate that gamified learning serves as an effective pedagogical strategy for stimulating ideational aspects of entrepreneurial creativity among educators, confirming its relevance in higher education contexts.

The analysis showed no significant differences between male and female educators in their perception of gamified learning's effect on idea generation. Both genders equally reported that gamified features enhance their creative output, supporting the notion that interactive and motivational elements of gamification benefit all participants regardless of gender. This finding corroborates the arguments of Adejumo and Yusuf (2023), who highlighted that the psychological appeal of gamified learning encourages persistence and creativity universally. It further suggests that gamified learning is a gender-neutral approach, capable of providing

equitable opportunities for educators to engage in entrepreneurial idea generation, reinforcing its wide applicability in diverse academic populations.

Educators also reported that gamified learning programs positively influence innovative problem-solving skills. Features such as simulations, competitive tasks, and immediate feedback were cited as key mechanisms for enhancing critical thinking, experimentation, and practical decision-making. This finding resonates with Oluwatobi and Daramola (2023), who emphasized that gamified learning promotes experiential knowledge construction and active problem-solving. It also supports Eze and Nwankwo (2022), who noted that creativity in entrepreneurship education is strengthened when learners engage with tasks that require divergent thinking and applied problem-solving. These results suggest that gamified learning enhances educators' capacity to develop and model innovative solutions, an essential component of entrepreneurial creativity.

No significant differences were observed between educators in urban and rural institutions regarding the impact of gamified learning on innovative problem-solving. Both groups reported similar benefits, indicating that gamified learning is effective across varying institutional contexts. This finding aligns with Omoregie and Imuetinyan (2022), who highlighted that digital and technology-based pedagogies can be implemented effectively in diverse educational environments despite infrastructural differences. It also supports the idea presented by Aghimien and Edokpolor (2023) that interactive learning strategies promote engagement and creativity regardless of contextual variations. Consequently, gamified learning demonstrates broad adaptability and effectiveness in enhancing problem-solving skills across geographical and institutional boundaries.

Conclusion

The study has conclusively demonstrated that gamified learning programs have a substantial and positive effect on the entrepreneurial creativity of business educators in South-South Nigerian tertiary institutions. Specifically, gamified learning significantly enhances idea generation and innovative problem-solving, two core dimensions of entrepreneurial creativity, by providing interactive, motivating, and cognitively stimulating environments. Educators reported that challenges, simulations, rewards, and immediate feedback within gamified programs stimulate creative thinking, encourage experimentation, and foster engagement in complex problem-solving tasks. Furthermore, the study revealed that neither gender nor institutional location significantly moderated these effects, indicating that gamified learning strategies are broadly effective and adaptable across diverse educator populations and institutional contexts. These findings underscore the pedagogical relevance of gamified learning as a transformative approach capable of bridging the gap between traditional instructional methods and the contemporary demands of entrepreneurial education.

Recommendations

From the findings of this study, the following recommendations were made:

1. Tertiary institutions should integrate gamified learning programs into business education curricula to enhance educators' capacity for idea generation through interactive, challenge-based, and collaborative learning activities.

2. Educators should actively engage in gamified simulations and scenario-based tasks that replicate real-world business challenges to strengthen their problem-solving skills and foster innovative solutions.

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