

Innovation with Constraints: Gamified Pedagogy for ESL Writing in Under-Resourced Classrooms

Jyothsna Bethala & Muthyala Udaya

Abstract

Creative writing (CW) is central to language learning, fostering proficiency, creativity, and critical thinking. Yet in under-resourced schools, overcrowded classrooms, limited materials, and traditional pedagogy restrict CW development. This study examines gamification as a means to address these barriers. A quasi-experimental design was implemented with 28 ninth-grade students in a government school in Sitaphalmandi, involving a 25-day gamified writing intervention. Writing proficiency was assessed through pre- and post-tests, complemented by qualitative feedback on student experiences. Findings reveal that gamified instruction significantly improved writing skills, motivation, and engagement. Students produced more creative and better organised texts with richer vocabulary when engaged in interactive tasks. The study demonstrates that gamification offers a practical and accessible approach to strengthening CW in resource-limited contexts. It highlights the potential of low-cost, game-based strategies to support equity and innovation in language education, offering valuable insights for educators and policymakers.

Keywords: Gamified learning, writing skills, under-resourced schools, resource-limited contexts, educational technology

Introduction

Writing is widely recognised as one of the most demanding skills in English as a Second Language (ESL) learning, requiring not only vocabulary and grammar but also the ability to organise ideas

coherently and express them creatively (Graves, 2004; Hyland, 2015). Unlike oral skills, writing necessitates sustained practice, reflection, and metacognitive processes such as planning, monitoring, and revising. For many ESL learners, particularly those with limited exposure to English beyond the classroom, these demands often result in difficulties with fluency, accuracy, and confidence. Consequently, writing instruction remains a critical area for pedagogical innovation.

Creative writing has been identified as an effective approach for enhancing writing proficiency while also fostering motivation and learner autonomy. Unlike conventional exercises that prioritise correctness, creative writing encourages experimentation with language, imaginative storytelling, and expressive exploration. Research indicates that such practices promote fluency, lexical diversity, and risk-taking within a supportive environment (Maley & Kiss, 2018). By balancing linguistic accuracy with creativity, students can develop a more holistic mastery of written English.

Technological innovations have expanded possibilities for writing instruction, enabling feedback, collaboration, and differentiated learning. Gamification, which embeds game elements such as points, badges, leaderboards, and challenges into learning activities, has gained particular attention (Deterding et al., 2011). In ESL contexts, gamification has been shown to enhance motivation, sustain attention, and encourage active participation (Guo et al., 2024). However, most research has been conducted in technology-rich classrooms with access to computers, reliable internet, and trained teachers. Under-resourced schools face socio-economic constraints, overcrowding, inadequate materials, and limited teacher preparation (Parajuli et al., 2024; UNESCO, 2021), resulting in minimal English exposure and feedback for students.

Theoretical frameworks provide guidance for adapting gamified strategies in such contexts. Self-Determination Theory emphasises that autonomy, competence, and relatedness strengthen motivation (Deci & Ryan, 2000), while Cognitive Load Theory highlights the importance of reducing extraneous cognitive effort to allow focus on meaningful tasks (Sweller, 2011). Gamified tasks can address these needs by offering choice, feedback, collaboration, and incremental challenges.

Empirical studies support these claims. Gamification has been shown to improve argumentative writing performance and promote persistence

and collaboration in ESL classrooms (Guo et al., 2024; Domínguez et al., 2023). Yet, limited research examines its application in resource-constrained settings, particularly in Indian government schools where socio-economic inequalities, inadequate infrastructure, and overcrowding hinder effective writing instruction. This study addresses the gap by investigating a gamified writing intervention for ninth-grade students in a government school in Sitaphalmandi, Hyderabad. Using a quasi-experimental design, the research examines the effects on writing performance, motivation, and engagement, offering practical insights for implementing gamified strategies in low-resource ESL classrooms and informing teachers, curriculum designers, and policymakers.

Literature Review

Writing is widely recognised as one of the most complex skills in English as a Second Language (ESL) learning due to its cognitive, linguistic, and socio-cultural demands (Graves, 2004; Smith, 2005). Unlike oral skills, writing requires learners to generate ideas, organise content coherently, apply appropriate grammar and vocabulary, and express thoughts creatively. For many ESL learners, particularly in under-resourced schools, exposure to English is largely confined to classroom instruction, limiting opportunities for practice, reflection, and fluency development (Graham et al., 2005; Hyland, 2015). Writing also depends on metacognitive skills such as planning, monitoring, revising, and self-evaluation, which are often underdeveloped in teacher-centred classrooms that emphasise correctness over expressive development. These challenges highlight the need for instructional strategies that cultivate both skill and motivation.

Creative writing (CW) has emerged as a pedagogical approach addressing these challenges by fostering linguistic and affective growth. CW encourages experimentation with language, development of a personal voice, and imaginative expression, promoting fluency, lexical diversity, and metacognitive awareness (Smith, 2005; Hyland, 2015). Contextualised tasks further enhance engagement by connecting learning to lived experiences of students. CW thus provides a supportive environment for developing cognitive and affective writing dimensions while encouraging risk-taking and creativity.

Technology has increasingly supported writing instruction through

digital platforms, collaborative tools, and blended learning environments, facilitating idea generation, peer interaction, iterative composition, and autonomous practice (Alkhaldi, 2023). Empirical evidence indicates gamification can enhance multiple writing dimensions, including content, organisation, vocabulary, grammar, and creativity (Guo et al., 2024). However, most research occurs in technology-rich classrooms with reliable infrastructure and trained teachers. Under-resourced schools face socio-economic constraints, limited instructional materials, and minimal teacher preparation, restricting English exposure and feedback (Parajuli et al., 2024; UNESCO, 2021). Contextually appropriate, low-cost strategies are, therefore, essential. Even basic devices, such as teacher-provided laptops or mobile phones, can support gamified writing tasks effectively (Gqontshi, 2019; Koranteng, 2012; Mythiri & Karthika, 2023; Chidi-Onwuta et al., 2022).

Theoretical frameworks underpin gamification in CW. Self-Determination Theory asserts that autonomy, competence, and relatedness enhance motivation (Deci & Ryan, 2000), while Cognitive Load Theory emphasises minimising extraneous load to optimise learning (Sweller, 2011). Gamified tasks fulfil these needs by offering choice, scaffolding, feedback, and collaborative challenges, thereby promoting intrinsic motivation, creativity, and effective writing strategies.

Despite evidence supporting gamification, gaps remain regarding its application to CW in under-resourced classrooms, teacher perspectives, implementation challenges, and effects on marginalised learners' motivation and engagement. The present study addresses these gaps by examining a gamified writing intervention for ninth-grade ESL learners in a government school in Sitaphalmandi, Hyderabad, India, providing insights into practical, scalable strategies for inclusive, equitable writing instruction.

Research Questions

1. How does gamified learning have an impact on the creative writing skills of ESL learners in under-resourced classrooms settings?
2. What changes in student engagement and motivation can be observed during and after a gamified writing intervention?

Methodology

This study involved 28 ninth-grade students (aged 14–15) from a government secondary school in Sitaphalmandi, Hyderabad, India. Students varied in English proficiency and prior exposure to writing tasks, with most from low socio-economic backgrounds; many parents lacked formal education and worked as daily wage labourers. Limited access to educational resources and minimal prior experience with creative writing or technology-mediated learning highlighted the need for an in-class intervention to engage learners and foster creativity. A quasi-experimental one-group pre-test/post-test design was employed. Technological tools were introduced using the researcher's laptop, mobile phone, and speakers to display prompts, play audio cues, and show example pamphlets. The intervention, based on Lesson 4, "A Havoc of Flood," incorporated gamified modifications to promote creativity, critical thinking, and emotional engagement. The researcher acted as instructor and observer, facilitating activities, guiding students, and monitoring participation. Ethical integrity was maintained through voluntary participation and a supportive classroom environment.

Intervention and Gamified Activities

The intervention consisted of three structured creative writing activities targeting content development, organisation, vocabulary, grammar, and imagination. Each activity was gamified through elements such as points for collaboration, clarity, originality, and creativity. A daily leaderboard tracked student progress, providing visual motivation. The intervention spanned 25 consecutive school days, with each session focusing on a specific aspect of creative writing. Personal devices, including a laptop, mobile phone, and portable speakers, were used to display prompts, play audio cues, and show example pamphlets, enabling interactive engagement despite the absence of classroom technology. Students who achieved high points or demonstrated exceptional creativity and empathy received small rewards, such as stationery, to reinforce motivation and sustained participation.

Table 1 illustrates the relationship between the original textbook tasks, their gamified modifications, and the purpose of these modifications, demonstrating how structured game elements were integrated to enhance engagement, creativity, and writing proficiency in a resource-constrained environment.

Table 1. *Original vs Modified Tasks in Gamified Intervention*

Original Task (Textbook)	Modified Task (Gamified Intervention)	Purpose of Modification
1. Develop an interview between a news reporter and a flood victim (structured blanks)	After watching a video interview of a flood survivor, write a scripted dialogue between a news reporter and the victim. Use realistic emotions, pauses, and follow-up questions to make the exchange feel authentic. (5–8 conversational exchanges)	Encourage empathy, dialogue writing, creativity, and emotional expression. Gamified points for collaboration and clarity enhanced engagement.
2. Assume that you happened to read some of the articles / news reports on the flood rescues. You were deeply moved by the sorrows of the victims of the floods. You decided to raise funds for the cause. You wanted to share this idea with your classmates and seek their assistance in this matter. Prepare a speech/a talk that you would like to make to convince the donors about the need for raising funds for the cause.	Design a digital fundraising campaign (poster or short video concept), then write a persuasive speech to present your idea to classmates. Explain the visuals, slogans, and emotional appeal you would use to encourage donations. Students can use a few lines, guiding/helping sentences, drawings, and open-ended ideas.	Develop persuasive writing, organisation, creativity, and real-world application. Gamified elements (points for originality, clarity, engagement) motivated participation.
3. Assume that you were one of the victims of the flood and received some help from a donor. Write a letter thanking him and expressing your gratitude.	Imagine you are a flood victim who received help from a donor. Write a heartfelt thank-you letter describing how the support changed your situation. Include sensory details and emotional reflections to make your gratitude vivid. (150–200 words)	Enhance formal letter-writing skills, emotional expression, and peer collaboration. Gamified rewards encouraged careful drafting and sharing.

This alignment demonstrates how the modified gamified tasks not only retained the original learning objectives but also incorporated elements

to enhance student motivation, creativity, and affective engagement, fostering a richer and more interactive learning experience.

To systematically assess students’ creative writing, the study employed a Creativity Indicators framework adapted from Kusdinar et al. (2023), building on Maley and Kiss (2018). This framework evaluates creative writing across four main dimensions: Person, Process, Press, and Product, which are further divided into six indicators (C1–C6) as shown in Table 2:

- **Person (C1–C2):** Reflects individual characteristics of the writer, including prior knowledge, intellect, self-concept, behaviour, and ability to work independently or collaboratively.
- **Process (C3–C4):** Focuses on generating ideas and structuring them into coherent sentences, paragraphs, and ultimately a specific genre of writing.
- **Press (C5):** Examines flexibility in expressing ideas and adapting to different writing tasks or constraints.
- **Product (C6):** Evaluates originality and the tangible output of creative work, capturing students’ ability to produce unique and meaningful writing.

This framework guided the evaluation of pre-test, intervention activities, and post-test, ensuring that both cognitive and affective aspects of creativity including imagination, motivation, and willingness to take risks were measured.

The activities were designed to align with the Creativity Indicators and foster progressive skill development:

Table 2. *Gamified Writing Activities and Creativity Indicators*

Activity	Aim / Objective	Format / Word Limit	Creativity Indicators (C1–C6)
Pre-test – Describe flood experience	Assess baseline creative writing skills, including clarity, organisation, vocabulary, grammar, imagination	Paragraph, 100–150 words	C1, C2, C3, C4

Activity 1: Role-play Interview	Foster empathy, dialogue writing, creativity, and emotional expression	5–8 conversational exchanges	C1, C2, C3, C4, C5
Activity 2: Fundraising Pamphlet	Develop persuasive writing, organisation, creativity, real-world application	150–200 words, may include lines, guiding sentences, drawings	C3, C4, C5, C6
Activity 3: Gratitude Letter	Enhance formal letter-writing skills, emotional expression, peer collaboration	150–200 words	C1, C2, C3, C6
Post-test: Describe flood experience	Evaluate improvements in creative writing after intervention	Paragraph, 200–250 words	C1, C2, C3, C4, C5, C6

Table 2 outlines the gamified writing activities aligned with creativity indicators (C1–C6). The pre-test established a baseline in clarity, organisation, vocabulary, and grammar, but revealed limited imagination due to lack of prior exposure. **Activity 1 (Role-play Interview)** introduced dialogue writing and empathy, encouraging character-based creativity. **Activity 2 (Fundraising Pamphlet)** simulated a real-world persuasive task, focusing on organisation and originality, with drawings or prompts used to ease cognitive load. **Activity 3 (Gratitude Letter)** emphasised emotional expression and formal writing, strengthening interpersonal creativity and collaboration. The post-test mirrored the pre-test but expanded the word limit and creativity scope, allowing measurement of progress across all six indicators.

A 50-point rubric assessed pre-test, intervention activities, and post-test across five criteria: content and ideas, organisation, vocabulary and style, grammar and punctuation, and creativity (10 points each). This framework measured both technical accuracy and artistic expression, allowing for a comprehensive evaluation of student progress.

Table 3. *The Rubric for CW*

Criteria	Points	Description
Content and Ideas	10	Clarity, creativity, and relevance of ideas. Engages the reader with a well-developed main theme or topic.
Organisation	10	Logical structure, with a clear beginning, middle, and end. Smooth transitions enhance flow and coherence.
Vocabulary and Style	10	Appropriate, varied vocabulary and consistent style that enhance expression, tone, and readability.
Grammar and Punctuation	10	Accurate grammar, spelling, punctuation, and capitalisation with minimal errors.
Creativity	10	Strong personal voice and vivid imagery that bring the story to life and captivate the reader.

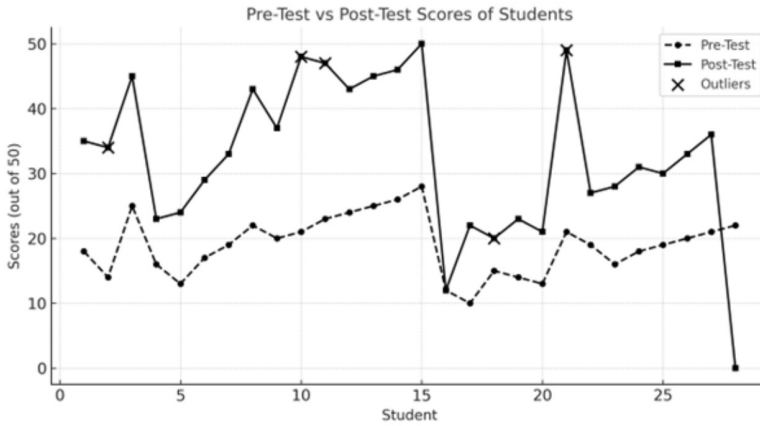
The rubric was used to assess the pre-test, intervention activities, and post-test, evaluating students' creative writing across five key criteria: Content and Ideas, Organisation, Vocabulary and Style, Grammar and Punctuation, and Creativity, each worth 10 points, totalling 50. This framework measured both technical proficiency and artistic expression. Student progress was analysed by comparing scores across all stages, providing a comprehensive evaluation of improvements in writing skills throughout the intervention.

The students' written paragraphs before and after a 25-day gamified intervention using technological tools in class were considered. Writing was assessed with a rubric and analysed via the Creativity Indicators framework. Quantitative measures evaluated content, organisation, vocabulary, grammar, and imagination, while qualitative analysis captured creativity, emotional expression, and engagement, revealing the intervention's impact.

Data Analysis and Findings

This section presents the analysis of the impact of a 25-day gamified intervention on students' creative writing skills, motivation, and engagement. Both quantitative and qualitative data were examined to evaluate improvements in writing proficiency, as well as changes in students' affective responses to writing tasks. The analysis addresses the research questions.

Figure 1. Pre-Test vs Post-Test Scores of Students



The graph in Figure 1 compares the pre-test and post-test scores of the 28 students. The general upward trend from pre-test to post-test demonstrates significant improvement in student performance after the intervention. Outliers are highlighted showing students who achieved exceptionally high post-test scores compared to their baseline. The overall pattern suggests that the gamified approach enhanced learning outcomes for nearly all students.

Table 4. Descriptive Statistics

Statistics	Mean	Median	Mode	Stdv	P Value
Pre-test	19.32	19.5	21	4.68	<0.0001 3.81696E-15
Post-test	35.5	34.5	32	9.84	

Table 4 shows descriptive statistics of the pre-test and post-test scores: the mean score increased from 19.32 in the pre-test to 35.54 in the post-test, with corresponding standard deviations of 4.68 and 9.84. Median and mode values were 19.5 and 21 for the pre-test, and 34.5 and 32 for the post-test, respectively. The percentage increase in mean scores was approximately 83.91 per cent. The percentage increase in the mean score from the pre-test to the post-test was calculated as follows:

$$\text{Percentage increase} = \frac{\text{Post-test Mean} - \text{Pre-test Mean} \times 100}{\text{Pre-test Mean}}$$

$$\text{Percentage increase} = \frac{35.54 - 19.32 \times 100}{19.32} = 83.91\%$$

The gamified intervention led to substantial gains in students' writing performance. A paired-samples t-test revealed a highly significant increase from pre-test to post-test, $t(27) = -15.77$, $p < 0.001$, with a large effect size (Cohen's $d = 2.23$), confirming practical significance. Qualitative analysis highlighted improvements in sentence structure, vocabulary, emotional expression, and contextual understanding. Gamified activities enhanced engagement and motivation, enabling students to construct well-developed narratives.

The progress of highest-achieving students (positive outliers) further underscores the intervention's effectiveness, demonstrating that structured, interactive, low-tech gamification can meaningfully support creative writing development in under-resourced classrooms.

Figure 2. Pre-Test vs Post-Test Scores of Positive Outliers

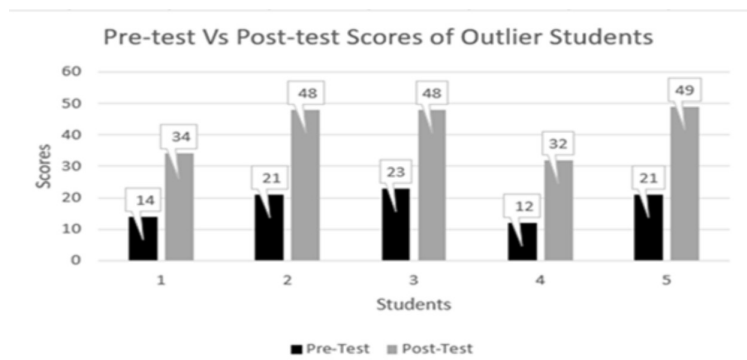


Figure 2 illustrates the pre-test and post-test scores of the five positive outlier students. The chart clearly shows a sharp increase in scores from the pre-test to the post-test for each of these students. Their post-test scores are substantially higher than their initial performances, reflecting improvements well above the class average. These unusual gains suggest that the gamified learning intervention had a disproportionately strong effect on these learners, highlighting individual responsiveness to innovative teaching strategies.

To complement quantitative results, students' written outputs and teacher observations were analysed thematically. Four main themes emerged: motivation and engagement, willingness to participate, risk-taking and experimentation, and teacher perceptions of gamified pedagogy.

i. Motivation and Engagement

Qualitative data revealed a notable increase in student motivation during the gamified intervention. Students reported that points, leaderboards, and interactive activities made writing enjoyable rather than burdensome. One student shared, “Before, writing was boring, but with games I wanted to try and get points” (S3), while another noted, “I felt excited to see my name on the scoreboard” (S7). Teacher observations confirmed these changes: “Students who were usually silent became active during gamified tasks. They volunteered answers more often” (T1). These reflections indicate that gamification tapped into intrinsic and extrinsic motivators, fostering sustained engagement, consistent with prior research showing that game-based learning enhances persistence and attention in writing tasks (Guo et al., 2024; Domínguez et al., 2023).

ii. Willingness to Participate

The intervention encouraged participation, even among previously reluctant students. One learner remarked, “Usually I don’t like to write, but when we played the interview game, I wanted to answer” (S5). Another shared, “I shared my sentences with friends because I wanted to see if they liked it” (S12). The teacher noted, “Weaker students were more willing to write, even if they made mistakes” (T1), suggesting that gamified tasks reduced avoidance behaviour and promoted peer collaboration (Mekler et al., 2022).

iii. Risk-Taking and Experimentation

Students demonstrated increased willingness to experiment with language, using new vocabulary and longer sentences despite potential errors. Examples include, “I used new words even if I was not sure of spelling” (S8), and “I tried to make long sentences. Sometimes I made mistakes, but sir said it was all right” (S15). These responses indicate that the gamified environment reduced fear of failure, encouraging creative risk-taking—a crucial factor for writing fluency. Teacher observations corroborated this trend: “Gamified activities created a supportive environment where students felt safe to take risks in writing” (T1), aligning with Self-Determination Theory, which emphasises autonomy, competence, and relatedness in motivation (Deci & Ryan, 2000).

iv. Teacher Perceptions

The teacher highlighted the practical potential of gamified pedagogy

in low-resource contexts: “The intervention showed me that games can increase engagement, especially when resources are limited” (T1). Using simple devices such as a laptop, mobile phone, and speakers, gamified activities promoted inclusivity and sustained attention, supporting prior findings in under-resourced classrooms (Parajuli et al., 2024).

Together, qualitative and quantitative data demonstrate that gamified learning improved writing proficiency across content, organisation, vocabulary, grammar, and creativity, while also enhancing affective and behavioural dimensions such as motivation, participation, and resilience. The intervention created a supportive, interactive environment that encouraged exploration, collaboration, and sustained engagement. Overall, these results indicate that gamified pedagogy is an effective strategy for strengthening creative writing skills in under-resourced ESL classrooms, where traditional methods may be insufficient.

Conclusion

This study demonstrates that gamified learning can effectively enhance creative writing skills in under-resourced schools by leveraging minimal, portable devices, providing a feasible and low-cost pedagogical approach. Quantitative results revealed significant gains in writing proficiency, while qualitative analysis highlighted increases in motivation, engagement, and willingness to experiment, even among students with lower initial proficiency. Gamified elements such as points, leaderboards, and interactive tasks created inclusive, participatory environments that fostered intrinsic and extrinsic motivation and encouraged creative risk-taking (Guo et al., 2024; Parajuli et al., 2024).

The intervention showed that meaningful improvements in both cognitive and affective dimensions—content, organisation, vocabulary, grammar, imagination, engagement, and confidence—can occur without advanced technological infrastructure. Teachers reported that previously hesitant students actively participated, collaborated with peers, and explored new language strategies, demonstrating the practical potential of low-tech gamification in classrooms constrained by large class sizes and scarce resources (Gqontshi, 2019; Mythiri & Karthika, 2023).

Beyond immediate learning outcomes, the findings have broader implications for equity and sustainability. Gamified learning provides marginalised students opportunities for motivating and empowering

language experiences, reducing disparities in access to quality writing instruction. While the approach mitigates challenges posed by limited technology, it does not eliminate them. Long-term sustainability and adaptation to contexts with no devices require further research. Future studies should examine purely non-digital gamified strategies or community-supported interventions to ensure equitable, engaging, and inclusive creative writing instruction across diverse under-resourced settings.

Limitations and Implications

This study offers important implications for teaching and policy in under-resourced contexts, while acknowledging key limitations. Teachers can adopt low-cost gamified strategies to boost motivation, creativity, and engagement even with limited digital tools, and curriculum designers may embed game-based elements into lesson plans to promote collaboration and intrinsic motivation (Domínguez et al., 2023). Policymakers should view low-tech gamification as a sustainable model and provide teacher training to apply such methods effectively (Parajuli et al., 2024; Koranteng, 2012; Chidi-Onwuta et al., 2022). These approaches can reduce inequities by making writing instruction more engaging for learners with limited resources.

However, several limitations must be noted. The study involved only 28 students in one school, restricting generalisability, and its short 25-day duration limits insights into long-term sustainability. The absence of a control group constrains causal inference, and reliance on self-reports may have introduced social desirability bias (Deci & Ryan, 2000; Mekler et al., 2022). Moreover, while the intervention showed that low-tech methods are viable (Gqontshi, 2019; Mythiri & Karthika, 2023), the lack of advanced resources narrowed implementation options. Despite these constraints, the study demonstrates how gamified pedagogy can be adapted to resource-poor classrooms and highlights directions for future research on scalability and long-term impact (Hamari et al., 2014).

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