

Research Articles

Impact of Gamified Grammar Instruction on Learner Engagement and Grammar Achievement Among JSS 2 Students in Wukari, Taraba State

Abstract

This study examined the effect of Kahoot-based gamified grammar instruction on grammar achievement and learner engagement among Junior Secondary School Two (JSS 2) students in Wukari, Taraba State, Nigeria. A mixed-methods quasi-experimental design was used with 80 students drawn from two intact JSS 2 classes; the classes were assigned to experimental and control conditions by tossing a coin. The experimental group received an 18-session, six-week Kahoot intervention covering Parts of Speech, Tenses and Concord, while the control group received conventional instruction on the same content for the same duration. Data were collected with a 30-item researcher-developed Grammar Achievement Test (GAT), a 15-item Learner Engagement Questionnaire (LEQ), and post-intervention semi-structured interviews. The GAT demonstrated satisfactory internal consistency ($KR-20 = .84$), while the LEQ yielded an overall Cronbach's alpha of .875. There was no significant difference in the initial grammar achievement across the groups ($t(78) = -0.33, p = .746$). The experimental group recorded a higher grammar-achievement mean ($M = 19.82, SD = 3.80$) than the control group ($M = 17.02, SD = 3.48$), $t(78) = 3.44, p = .001$, 95% CI [1.18, 4.42], Cohen's $d = .77$. Interviews with 10 experimental-group students indicated increased enjoyment, value of immediate feedback, appropriately challenging activities, guided participation and peer interaction. The findings of the study showed that gamification has a high potential even though availability of devices, internet access, electricity and teacher digital competence is still a challenge in most Nigerian classrooms.

Keywords: Gamification; Grammar Achievement; Learner Engagement; Kahoot; JSS 2

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Introduction

Grammar remains central to effective communication because it provides the structural resources through which meanings are organised and interpreted. At the junior secondary-school level, grammar instruction can become highly rule-driven, with teacher explanation dominating the lessons, note copying and repetitive exercises. This kind of approach may support coverage of the syllabus but it can also reduce opportunities for active participation, immediate feedback and

collaborative problem solving. These concerns are especially applicable to young adolescents, whose sustained attention and motivation are easily influenced by how much the classroom activities are meaningful, interactive and appropriately challenging to them. Gamification can serve as an answer to such problem. Gamification refers to the purposeful use of game-design features in non-game learning settings. In education, these features can include points, feedback, progress indicators, competition, team challenges, mastery thresholds and achievement recognition. The instructional value of gamification is not derived simply from making a lesson entertaining; rather, it depends on whether the selected game elements support clear learning goals, meaningful practice, feedback and persistence. Evidence from several studies show that gamification can improve cognitive, motivational and behavioural outcomes, although its effectiveness varies according to design quality and context (Dichev & Dicheva, 2017; Sailer & Homner, 2020).

The importance of gamification to English Language teaching is very clear. Arip and Hashim (2024) in their ESL/EFL studies found that there was a positive effect in relation to language acquisition, motivation and engagement. Other scholars also suggest that gamified environments can support grammar learning when they combine practice opportunities with feedback, social interaction and clear progress cues (Noori, 2025). Despite these findings, results obtained in an environment that is technologically well-resourced or a higher-education setting cannot be used to generalize what the situation will be in Nigerian junior secondary schools, where device availability, connectivity, electricity and teacher digital competence may differ substantially. Several studies have examined teachers' use of gamification in Rivers State (Amaewhule et al., 2020), game-based vocabulary learning among JSS 2 students in Ondo State (Olagundoye, 2024), gamification in junior secondary Mathematics in Kwara State (Attah et al., 2024), and teachers' use of digital games in English Language instruction in Ondo State (Olukayode & Tayo, 2025). These studies indicate growing interest in gamification in Nigeria and some positive learning outcomes, but there has been little or no empirical work focused specifically on English grammar achievement among junior secondary-school learners while also attending to behavioural, emotional and cognitive engagement.

This study therefore examined an organized Kahoot-based grammar intervention among JSS 2 students in Wukari, Taraba State. The intervention was designed around the curriculum areas of Parts of Speech, Tenses and Concord and was implemented under realistic constraints, including shared Android devices and mobile internet. By combining a quasi-experimental comparison with learner-engagement measurement and qualitative interviews, the study sought to generate evidence that is contextually relevant on both learning outcomes and students' experiences of gamified grammar instruction.

Research Questions and Hypotheses

1. What is the difference between the grammar achievement of JSS 2 students exposed to Kahoot-based gamified grammar instruction and those taught using the conventional instructional approach?
2. What is the difference in the behavioural engagement of JSS 2 students exposed to Kahoot-based gamified grammar instruction and those taught using the conventional instructional approach?
3. What is the difference in the emotional engagement of JSS 2 students exposed to Kahoot-based gamified grammar instruction and those taught using the conventional instructional approach?

4. What is the difference in the cognitive engagement of JSS 2 students exposed to Kahoot-based gamified grammar instruction and those taught using the conventional instructional approach?
5. How do JSS 2 students in the experimental group describe their experiences of the Kahoot-based gamified grammar intervention?

The following null hypotheses were tested at the .05 level of significance:

H01: There is no significant difference in grammar achievement between JSS 2 students exposed to Kahoot-based gamified grammar instruction and those taught using the conventional instructional approach.

H02: There is no significant difference in behavioural engagement between the two instructional groups.

H03: There is no significant difference in emotional engagement between the two instructional groups.

H04: There is no significant difference in cognitive engagement between the two instructional groups.

Literature Review

Gamification has become more and more prominent in language education because it can transform monotonous practice into more participatory learning. Points, challenges, leaderboards, progress cues and immediate feedback can make learning goals visible and can provide students with repeated opportunities to respond. The findings by several studies so far is generally favourable but not uniformly so. Dichev and Dicheva (2017) cautioned that outcomes depend on the quality of implementation, while Sailer and Homner's (2020) found positive effects across cognitive, motivational and behavioural outcomes. In English Language education specifically, Arip and Hashim (2024) reviewed 28 ESL/EFL studies published between 2020 and 2024 and concluded that gamification was commonly associated with improved language learning, motivation and engagement. A recent scoping review likewise identified immediate feedback and interactive challenges as recurring features of effective gamified English-language applications (Zolfaghari et al., 2025), while Rahmi et al. (2025) emphasised that motivational effects vary across contexts and learners.

Amaewhule et al. (2020) investigated teachers' gamification of classroom instruction for secondary-education goals in Rivers State. Their descriptive survey of 717 teachers showed generally favourable perceptions of gamification and identified computer games among the instructional resources being used. The study also drew attention to practical problems, including limited expertise and inadequate application of gamification design principles. These findings are important because they demonstrate that the challenge in Nigerian schools is not simply awareness of technology but the capacity to integrate it purposefully into instruction. Olagundoye (2024) also provided more direct evidence from English Language teaching. In a quasi-experimental study of 160 JSS 2 students in Ondo State, he compared game-based vocabulary instruction with conventional teaching. Baseline performance was comparable, whereas post-intervention performance favoured students exposed to the game-based approach. Although vocabulary and grammar are distinct language domains, the study is highly relevant to the current study because it demonstrates the potential of game-oriented

teaching among Nigerian learners at the same school level. Attah et al. (2024) examined gamification-based Mathematics teaching among JSS 2 students in Kwara State and reported improved academic performance under the gamified condition. Olukayode and Tayo (2025), studying English Language teachers in Ondo West, found that there was a substantial awareness of digital games but classroom utilization was abysmally low. They identified inadequate access to digital resources, insufficient training and infrastructural limitations as barriers. These findings caution against interpreting gamification solely as an instructional technique divorced from the environment in which it is implemented.

Iji-Okeke and Okeke (2025) examined gamification and virtual reality in English Language classrooms and found that there was increased engagement, motivation and language-related outcomes in the technology-enhanced condition. The study broadens attention from test performance to students' participation and affective involvement. Notwithstanding, the study used a university sample and combined gamification and virtual reality as such cannot be directly generalized to apply the same way to younger secondary-school learners. Tuffour et al. (2022) also reported improved language-learning performance among Ghanaian College of Education students exposed to language games. In South Africa, Sheokarah (2025) investigated gamified reading activities among Grade 8 and 9 second-language learners and found that competitive and collaborative activities encouraged enthusiasm, confidence and participation. Although the intervention was non-digital, it demonstrates that the motivational mechanisms associated with gamification may be especially valuable in language classrooms and need not depend on sophisticated technology alone. Noori (2025), using a quasi-experimental design, examined gamification and social-media-supported English grammar learning and reported stronger post-intervention performance and engagement among learners who were exposed to the technology-supported condition. Such findings show that grammar learning can benefit from game elements, but the study was conducted in a private higher-education EFL setting outside Africa. Its context differs significantly from a Nigerian JSS 2 classroom in terms of age, instructional environment and likely access to technology.

From the foregoing, the literature suggests that gamification can support language learning and engagement. Even though there are relatively little Nigerian studies that examine learner engagement as a multidimensional construct encompassing behavioural, emotional and cognitive dimensions alongside measurable grammar achievement. Geographically, much of the available evidence comes from southern and central states, with limited evidence from Taraba State and the North-East. The present study addresses these gaps by examining an organized Kahoot-based grammar intervention among JSS 2 students in Wukari and by combining achievement data, an engagement questionnaire and qualitative accounts of students' experiences.

Theoretical Framework

The study was anchored in Self-Determination Theory (SDT) and Flow Theory. SDT proposes that motivation is strengthened when the psychological needs for autonomy, competence and relatedness are supported (Deci & Ryan, 1985). In a gamified classroom, competence can be supported through immediate feedback, mastery indicators and recognition of progress; relatedness can be strengthened through collaborative activity; and autonomy can be supported when learners experience active participation and meaningful choice rather than passive reception.

Flow Theory explains the focused involvement that can occur when task challenge is appropriately matched to learner skill and when goals and feedback are clear (Csikszentmihalyi, 1990). These

conditions are relevant to gamified grammar practice because students encounter explicit tasks, rapid feedback and progressively demanding activities. The two theories are therefore complementary: SDT explains motivational conditions that encourage participation, while Flow Theory explains how appropriately structured challenge can sustain concentration and enjoyment. The framework guided both the design of the Kahoot intervention and interpretation of the learner-engagement findings.

Methodology

Research Design

A mixed-methods design was adopted. The quantitative component used a pre-test/post-test quasi-experimental design with two intact JSS 2 classes, one exposed to Kahoot-based gamified grammar instruction and the other to conventional grammar instruction. The qualitative component comprised post-intervention semi-structured interviews with students from the experimental group. The mixed-methods approach allowed measurable differences in grammar achievement to be considered alongside students' accounts of the learning experience (Creswell & Plano Clark, 2018).

Setting, School Selection and Participants

The study was conducted in a secondary school in Wukari, Taraba State, Nigeria. The school was purposively selected because it had two existing JSS 2 classes suitable for the treatment conditions and a reliable power source for charging the Android devices and the researcher's laptop. The study involved all 80 students in the two intact JSS 2 classes, with 40 students in each class. Because intact classes were used, students were not individually randomised. Instead, the two classes were allocated at class level by a simple coin toss: one class became the experimental group and the other the control group. Before the intervention, both groups completed the same 30-item GAT. Their pre-test means were statistically comparable, thereby providing baseline evidence that neither class had a meaningful initial advantage in grammar achievement.

Research Instruments

Three instruments were used: the Grammar Achievement Test (GAT), Learner Engagement Questionnaire (LEQ), and a semi-structured interview guide. The GAT was a researcher-developed 30-item multiple-choice test covering Parts of Speech, Tenses and Concord, with 10 items in each domain. Correct responses attracted one mark and incorrect responses zero, yielding a maximum score of 30. Three experts from Federal University Wukari - two in English Language Education and one in Measurement and Evaluation - examined the GAT for content coverage, clarity, grammatical accuracy, response-option quality and suitability for JSS 2 learners. The revised instrument was pilot-tested with 40 comparable JSS 2 students outside the main study. KR-20 produced a reliability coefficient of .84.

The 15-item LEQ was adapted from the multidimensional school-engagement framework associated with Fredricks and colleagues (Fredricks et al., 2004, 2005), with attention to subsequent guidance on student-engagement measurement (Fredricks & McColskey, 2012). It contained five behavioural, five emotional and five cognitive engagement items and used a five-point response scale ranging from Strongly Agree (5) to Strongly Disagree (1) for positively worded items. Language was simplified and references were contextualised to English Language and grammar lessons without

changing the intended constructs. The same three experts assessed clarity, age appropriateness and construct representation. Although the LEQ was not separately pilot-tested, its internal consistency was evaluated with the 80 main-study responses: overall $\alpha = 0.875$; behavioural = 0.875; emotional = 0.854; cognitive = 0.873. The absence of an independent LEQ pilot is acknowledged as a limitation.

Table 1.1:

Scale	Items	Cronbach's alpha
Behavioural engagement	5	.875
Emotional engagement	5	.854
Cognitive engagement	5	.873
Overall LEQ	15	.875

Gamified Grammar Intervention

The experimental group participated in 18 intervention sessions over six weeks, with three approximately 40-minute sessions per week. Parts of Speech, Tenses and Concord were each taught and practised for two consecutive weeks. The researcher first taught the relevant grammar concept and provided guided practice; this was followed by a 10-item Kahoot activity used to reinforce the concept rather than replace direct teaching. The 40 experimental-group students were organised into 10 groups of four because individual digital devices were not available for all learners. The researcher provided 10 Android smartphones, one for each group, and administered the sessions from a laptop. Internet connectivity was supplied through a mobile hotspot. Kahoot Team Mode was used, so group members discussed each question and submitted one agreed response from the shared device. The arrangement made participation possible with limited devices while also introducing peer discussion and collaborative decision-making.

The intervention items were developed from the JSS 2 English Language curriculum and aligned with the objectives of each lesson. Parts of Speech tasks required identification and use of categories such as nouns, pronouns, adjectives, verbs, adverbs, prepositions and conjunctions. Tense activities focused on selection of appropriate verb forms for different time contexts, while Concord activities emphasised subject-verb agreement. The items were reviewed by the same three experts for relevance, clarity, grammatical accuracy and developmental appropriateness before use. For mastery purposes, each correct Kahoot response was assigned one point and each incorrect response zero, giving a maximum researcher-defined mastery score of 10 per activity. A 70% threshold (seven correct responses) was used to guide progression. Groups below the threshold received immediate remediation through further explanation, examples and guided practice before proceeding. Immediate feedback followed each item, with the correct response displayed and the researcher clarifying the underlying grammatical rule when necessary.

A researcher-designed recognition system was used alongside Kahoot. Grammar Star recognised groups scoring at least 80%; Perfect Grammar recognised 100%; Grammar Streak recognised five

consecutive correct responses; Most Improved Team recognised improvement over the preceding session; and Grammar Champion recognised the highest-scoring group. These recognitions were not presented as built-in Kahoot badges but as researcher-designed motivational features used with the platform. Examples of items in the test is as seen in table 1.2 below.

Table 1.2:

Grammar area	Illustrative item	Options	Answer
Parts of Speech	Identify the noun: The boy is reading a book.	A reading; B is; C boy; D the	C boy
Parts of Speech	Identify the adjective: She wore a beautiful dress.	A wore; B beautiful; C dress; D she	B beautiful
Tenses	Amaka __ to school every day.	A go; B went; C goes; D going	C goes
Tenses	Amaka __ to school yesterday.	A goes; B go; C going; D went	D went
Concord	The boy __ football every afternoon.	A play; B plays; C playing; D played	B plays
Concord	The boys __ football every afternoon.	A plays; B playing; C play; D played	C play

Control Condition

The control group comprised 40 JSS 2 students who also received instruction on the same three grammar areas for six-week period and lesson duration as well. Conventional instruction relied on teacher explanation, textbook-based activities, class exercises and homework. The curriculum content and objectives were kept comparable across both groups. The principal difference was the mode of practice and reinforcement: the experimental group received organized Kahoot-based collaborative practice, immediate game feedback, mastery progression and achievement recognition, whereas the control group did not receive these gamified components.

Qualitative Data Collection and Trustworthiness

After the intervention, 10 students were randomly selected from the 40 experimental-group participants for individual face-to-face semi-structured interviews. Interviews lasted approximately five minutes and explored enjoyment, feedback, challenge, participation, peer interaction and students' overall perceptions of learning grammar through Kahoot. The researcher documented responses in writing during the interviews and used anonymous labels in reporting. Thematic analysis involved repeated familiarisation with the notes, descriptive coding, grouping related codes into categories and developing recurring themes. An independent reviewer examined the relationship between the written responses, codes and themes; the thematic organisation was reconsidered where

necessary. Selected anonymised statements were retained to demonstrate the connection between interpretation and students’ accounts.

Ethical Considerations

Permission to conduct the study was obtained from the management of the participating school. Because participants were minors, informed consent was obtained from parents or guardians and assent was obtained from the students after the procedures had been explained in age-appropriate language. Participation was voluntary and students were informed that they could withdraw anytime they deem fit without any penalty. Names were not used in the dataset or qualitative reporting; identification codes and anonymous labels were used instead. Research instruments and interview notes were stored securely and used only for research purposes, with quantitative findings reported in aggregate form. The intervention was conducted within the English Language instructional period, and the control group continued to receive the same curriculum content so that students’ educational interests were protected.

Data Analysis

Descriptive statistics (means and standard deviations) summarised GAT and LEQ scores. Baseline grammar achievement was compared using an independent-samples t-test. For the post-test GAT comparison, normality was examined with Shapiro-Wilk tests and homogeneity of variance with Levene’s test before conducting the equal-variances independent-samples t-test. The magnitude of the post-test difference was estimated with Cohen’s d using the pooled standard deviation and with Hedges’ g as a small-sample bias-corrected estimate. Statistical significance was evaluated at alpha = 0.05 and a 95% confidence interval was reported for the between-group mean difference. Qualitative interview notes were analysed thematically as described above.

Results

Baseline Grammar Achievement

The experimental group obtained a mean pre-test score of 13.60 (SD = 3.43), while the control group obtained a mean of 13.82 (SD = 2.57). The mean difference was -0.22 points. An independent-samples t-test showed that the baseline difference was not statistically significant, t(78) = -0.33, p = 0.746, Cohen’s d = -0.07. The two classes were therefore sufficiently comparable in grammar achievement before the intervention.

Table 2.1

Group	n	M	SD	Mean difference	t	p-value
Experimental	40	13.60	3.43			
Control	40	13.82	2.57	-0.22	-0.33	0.746

Post-test Grammar Achievement (Provisional Analysis)

The experimental group obtained $M = 19.82$ ($SD = 3.80$), compared with $M = 17.02$ ($SD = 3.48$) for the control group. Relative to the reported group pre-test means, the descriptive increases were 6.22 and 3.20 points, respectively. These changes are descriptive differences between group means. Assumption checks did not indicate problematic departures from the requirements of the independent-samples t-test. Shapiro-Wilk tests were non-significant for the experimental group ($W = 0.965$, $p = 0.245$) and control group ($W = 0.977$, $p = 0.562$). Levene's test was also non-significant, $F = 0.06$, $p = 0.806$, supporting the equal-variance assumption. The post-test difference of 2.80 points was statistically significant, $t(78) = 3.44$, $p = 0.001$, 95% CI [1.18, 4.42]. The pooled standard deviation was approximately 3.64, giving Cohen's $d = 0.77$; Hedges' $g = 0.76$.

Table 2.2

Group	n	Pre-test M (SD)	Post-test M (SD)	Descriptive change
Experimental	40	13.60 (3.43)	19.82 (3.80)	6.22
Control	40	13.82 (2.57)	17.02 (3.48)	3.20
Test/statistic	Value			
Experimental Shapiro-Wilk	$W = 0.965$, $p = 0.245$			
Control Shapiro-Wilk	$W = 0.977$, $p = 0.562$			
Levene's test	$F = 0.06$, $p = 0.806$			
Post-test comparison	$t(78) = 3.44$, $p = .001$			
Mean difference (95% CI)	2.80 [1.18, 4.42]			
Cohen's d / Hedges' g	0.77 / 0.76			

Learner Engagement

The LEQ showed good internal consistency overall and within the behavioural, emotional and cognitive subscales. The qualitative data further indicated that students experienced the intervention as engaging.

Qualitative Findings

Five recurring themes characterised students' accounts. First, students described greater fun and enjoyment than they associated with conventional grammar practice. The game-like format appeared to reduce the sense of monotony and encouraged anticipation of subsequent activities. Secondly, immediate feedback and visible progress were valued because students could identify errors promptly and understand how their performance was changing. Thirdly, students appreciated activities that were demanding without being overwhelming; the mastery threshold and remediation procedure helped to maintain a sense of achievable challenge.

Fourth, students valued opportunities for active participation and guided decision-making. Working within teams required them to discuss possible answers rather than respond passively to teacher explanations. Also, social interaction emerged as an important feature: students described enjoyment of collaboration and healthy competition, including the achievement-recognition system.

Discussion

The study was designed to determine whether an organized Kahoot-based intervention could improve grammar learning and engagement among JSS 2 students. Baseline analysis showed no significant difference between the intact classes, reducing the likelihood that the experimental group entered the study with a pre-existing advantage in grammar achievement. The experimental group outperformed the control group with a moderate-to-large standardised difference. This pattern is consistent with studies that have reported benefits from game-oriented instruction in English vocabulary (Olagundoye, 2024) and from gamification in junior secondary Mathematics (Attah et al., 2024), as well as broader meta-analytic evidence that well-designed gamification can support cognitive outcomes (Sailer & Homner, 2020). Importantly, the intervention did not rely on points alone. It combined curriculum-aligned practice, immediate feedback, a mastery rule, remediation, recognition and collaborative responding. These design features may help to explain why students had repeated opportunities to correct misconceptions and build on grammatical rules during the intervention.

The qualitative findings provide a complementary account of how the intervention was experienced. Students' emphasis on feedback and recognition is consistent with the competence component of SDT, whereas team participation and collaborative discussion are consistent with relatedness (Deci & Ryan, 1985). Their accounts of manageable challenge and focused activity align with Flow Theory's emphasis on challenge-skill balance, clear goals and feedback (Csikszentmihalyi, 1990). These theoretical links should be interpreted as explanatory rather than causal: the study measured achievement and engagement, not psychological-need satisfaction or flow directly. The findings also align with Sheokarah (2025) who reported that competitive and collaborative gamified reading activities encouraged participation and confidence among South African secondary-school learners, while Tuffour et al. (2022) reported benefits of language games among Ghanaian teacher-education students. At the same time, the present study adds an important contextual qualification. Digital gamification in Nigerian schools depends on infrastructure and human capacity. The researcher supplied the devices, laptop and mobile data, and the school was selected partly because a reliable power source was available. These conditions may not be typical of all public secondary schools.

Teacher capacity is equally important. Researcher facilitation was necessary because the participating English Language teachers had limited experience with ICT-supported instruction. Sustainable use would require teachers to be able to create or select appropriate tasks, administer the platform, manage shared devices and respond to connectivity problems without external technical support. This observation is consistent with Olukayode and Tayo's (2025) evidence that digital-game

awareness can exceed actual classroom utilisation when infrastructure and training are inadequate. Therefore, the study supports cautious, context-sensitive adoption rather than assuming that positive outcomes will automatically transfer to every Nigerian school.

Practical Implications for Nigerian Secondary Schools

The intervention demonstrates that a one-device-per-student model is not essential. Ten Android phones were sufficient for 40 students when participation was organised in groups of four. This arrangement may be a practical entry point for resource-constrained schools and can simultaneously promote peer explanation and joint decision-making. However, schools still require a minimum number of functioning devices, a reliable method of charging them, affordable connectivity and teachers who can coordinate activities effectively. For wider adoption, teacher professional development should focus on instructional design rather than platform operation alone. Teachers need to understand how to align game elements with curriculum objectives, design valid questions, use feedback diagnostically, manage competition responsibly and provide remediation when learners do not reach mastery. School leaders and educational authorities should also consider the recurrent costs of data, maintenance and charging. Low-resource alternatives, including offline or non-digital gamified activities, may be appropriate where connectivity is unreliable. Scalability should therefore be evaluated across schools with different infrastructure profiles rather than assumed from a single-school intervention. Replication with regular classroom teachers, larger samples and multiple schools would help determine whether the learning gains and engagement patterns persist under routine conditions.

Limitations

Several limitations should guide interpretation. First, the study involved one school and one intact class per condition. Although the classes were randomly allocated to conditions and were comparable at pre-test, class-specific characteristics cannot be fully separated from treatment effects. Second, the researcher supplied smartphones, a laptop and internet access and facilitated the intervention; these resources and support may not be available routinely in other schools. Third, students participated in groups of four, so the experimental condition combined gamification with collaborative peer interaction. The effects of these two features cannot be completely disentangled. Fourth, the adapted LEQ was not pilot-tested in a separate sample, although expert validation and strong internal-consistency coefficients were obtained in the main sample. Finally, the qualitative interviews were brief and documented in writing rather than audio-recorded, which may have reduced the detail captured.

Recommendations for Further Research

Future studies should replicate the intervention across several public and private secondary schools and use more than one intact class within each condition. Cluster-aware analyses would help distinguish treatment effects from class-level differences. Replication should also involve regular English Language teachers after structured training so that the sustainability of teacher-led implementation can be assessed under routine school conditions rather than researcher-facilitated conditions. Further work should separate the effects of gamification from collaborative learning by comparing individual and group-based Kahoot formats where resources permit. Longer follow-up periods would be useful for determining whether grammar gains and engagement persist after the

novelty of the gamified environment has diminished.

Conclusion

This study contributes to the available evidence on the use of organized gamification for JSS 2 grammar instruction in Wukari, Taraba State. The instruments were subjected to explicit validity and reliability procedures; the analysis indicates a moderate-to-large post-test advantage for the Kahoot group. Students' qualitative accounts also suggest that feedback, manageable challenge, active participation and peer interaction were salient features of the learning experience. The findings support cautious use of gamified grammar practice in Nigerian secondary schools, provided that teacher competence, device access, electricity, connectivity and sustainability are addressed.

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