

EFFECTS OF GAMIFICATION AND TRADITIONAL TEACHING METHODS ON THE ACADEMIC ACHIEVEMENTS OF PRIVATE SENIOR SECONDARY SCHOOL ENGLISH LANGUAGE LEARNERS

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Abstract

There is a steady increase in the process of the use of the gamified approach in education, particularly in language study. This present study was to inquire about the effects of gamification and traditional teaching methods on the academic performance of private senior secondary English language students in Lagos, Nigeria. The aims of the study were to estimate the difference in the effects of gamification and traditional teaching methods on mean academic achievements scores of English learners, determine the difference in the effects of gamification on mean scores of male students and their female counterparts, amongst others. Guided by four research questions and two research hypotheses, quasi-experimental research design was adopted. The population comprised all private senior secondary school English language learners in Lagos State. Purposive and stratified random sampling techniques were employed to pick two Local Government Areas for study participants, resulting in a total sample size of 300 students. A 45-item multiple-choice vocabulary test in English, validated by experts and had a reliability estimate of 0.84, was used for data gathering. The gathered data were analysed using frequency, percentage, mean scores, standard deviation, and t-test statistics. Results indicate that the use of gamification as a pedagogy has a positive effect on the academic performance of both male students and their female counterparts compared to traditional teaching approaches. The study also found that the effect of gamification was more pronounced for female students. Based on these findings, the study recommends that school administrators and English language teachers and governments consider incorporating gamification strategies into their pedagogy and provide teacher training and support for the effective implementation of gamification.

Keywords: Gamification, Traditional teaching methods, Academic achievement and English language learning

Introduction

In the ever-evolving landscape of education, the search for effective teaching methods that can enhance students' academic achievements has been a persistent challenge (Hung, 2018). Particularly, the pedagogy of English as a subject in secondary schools has been a subject of extensive research, as proficiency in the English language is crucial for academic and professional success (Setiawan & Wiedarti, 2020). In the context of private senior secondary schools in Lagos, Nigeria, the need to identify the most effective teaching approaches has become increasingly important.

Dichev and Dicheveva (2017) defined the gamified approach as a technique that incorporates game dynamics into language learning contexts, and has come up as a desirable approach to improve student engagement. Studies have shown that gamification can foster intrinsic motivation, increase student participation, and improve

knowledge retention (Dichev & Dicheva, 2017). In the sphere of English language pedagogy, gamification is explored as one way to make the learning procedure more compelling, pleasant, and effective (Nah et al., 2014).

On the other hand, traditional teaching methods, such as lectures, textbook-based instruction, and teacher-centered approaches, have long been the mainstay in many educational systems (Lumpkin et al., 2015). While these methods have their merits, such as providing a structured and organized learning environment, they have also been criticized for their potential to lack engagement and fail to provide for the diverse learning desires of modern students (Lumpkin et al., 2015; Rotellar & Cain, 2016).

In the context of private senior secondary schools in Lagos, the choice between gamification and traditional teaching methods has become a significant concern. Private schools, known for their competitive academic environments and high-achieving students, are often at the forefront of adopting innovative teaching approaches (Adeyemi, 2014). Understanding the relative effectiveness of gamification and traditional teaching methods on the academic achievements of English language learners in this setting can provide valuable insights for educators and policymakers (Adeyemi, 2014; Ifeoma & Egenti, 2019).

The present research aims to interrogate the effects of gamification and traditional teaching methods on the academic achievements of private senior secondary school English language learners in Lagos. By examining the influence of these pedagogical approaches on student achievement, this study strives to add to the on-going conversation on efficient instructional strategies in English language learning (Hung, 2018; Setiawan & Wiedarti, 2020).

Purpose and Objectives of the Study

Generally, the purpose of this study is to observe the effects of gamification and traditional teaching methods on the academic achievements of private senior secondary school English language learners in Lagos, Nigeria. The intended objectives of the study were to:

1. Assess what difference exists in the effects of gamification and traditional teaching methods on the mean academic achievements scores of private senior secondary school English language learners;
2. Determine the difference in the effects of gamification on the mean academic performance scores of male and female private senior secondary English language learners;
3. Establish what difference exists between the mean scores of male private senior secondary school English learners exposed to gamification and male students exposed to traditional teaching method ; and
4. Establish what difference exists between the mean scores of female private senior secondary school English language learners exposed to gamification and female students exposed to traditional teaching method.

Research Questions

1. What is the difference in the effects of gamification and traditional teaching methods on the mean academic achievements scores of private senior secondary school English language learners?

2. What is the difference in the effects of gamification on the mean academic achievement scores of male students and their female counterparts in private senior secondary school English language learners?
3. What is the difference between the mean scores of male private senior secondary school English language learners exposed to gamification and male students exposed to traditional teaching methods?
4. What is the difference between the mean scores of female private senior secondary school English language learners exposed to gamification and female students exposed to traditional teaching methods?

Research Hypotheses

H₀₁: There is no significant difference in the effects of gamification and traditional teaching methods on the mean academic achievements scores of private senior secondary school English language learners.

H₀₂: There is no significant difference in the effects of gamification on the mean academic performance scores of male and female private senior secondary English language learners.

Methodology

The study employed a quasi-experimental research design to evaluate the effects of gamification-based instructional methods versus traditional teaching approaches on the academic achievement of private senior secondary school English language learners in Lagos State, Nigeria. Two Local Government Areas (LGAs), Ikeja and Alimosho, were selected through stratified random sampling due to their high concentration of private schools. The experimental group from Ikeja LGA received game-based instructional activities, while the control group from Alimosho LGA was taught using conventional teacher-centered methods. A pretest was conducted for both groups to establish baseline academic achievement in English vocabulary, followed by a posttest to measure their performance after the intervention. The sample comprised 300 students drawn from six purposively selected private schools, ensuring a balance of students across intact classes. A 45-item vocabulary test was used for data collection, with 40 questions measuring knowledge, understanding, and application of vocabulary concepts in alignment with the English curriculum. The instrument was developed and validated by experienced English teachers, achieving a reliability coefficient of 0.84 through pilot testing. Data were collected through pretests and posttests, and analyses were conducted using statistical techniques such as two-group t-tests to compare the average performance of the experimental and control groups. Descriptive statistics, including frequency, percentages, and standard deviations, were used to analyse gender-based performance differences. SPSS software facilitated the analysis, with significance set at $\alpha = 0.05$ and effect sizes calculated to determine the magnitude of observed differences.

Data Analysis and Results

Research Question One

What is the difference in the effects of gamification and traditional teaching methods on the average academic achievements scores of private upper secondary school English language learners?

Table 1:
Academic Achievement Scores by Teaching Method

Teaching Method	N	%	Mean Score	SD	Mean Difference	Remark
Gamification	138	49.46	78.25	8.46	5.75	Gamification group outperformed traditional group
Traditional	141	40.54	72.50	10.23		
Total/Mean	279	100	75.38	9.35		

The data provided in Table 1 represents the academic performance scores of the private senior secondary English language learners in the experimental (gamification) and control (traditional) groups. The gamification group (n = 138, 49.46%) had a mean score of 78.25 (SD = 8.46), while the traditional group (n = 141, 50.54%) had a mean score of 72.50 (SD = 10.23). The mean difference between the two groups is 5.75 points. This shows the gamification group had better performance than their traditional counterparts on the academic achievement test.

Research Hypothesis One

H₀₁: There is no significant difference in the effects of gamification and traditional teaching methods on the average academic achievements scores of private senior secondary English language learners.

Table 2:
T-test of Significance of the Difference between the Effects of Gamification and Traditional Teaching Methods on the Average Academic Achievement Scores of Private Senior Secondary English language Learners

Teaching Method	N	%	Mean Score	SD	Mean Difference	Df.	t-calc.	t-crit.	Remark
Gamification	138	49.46	78.25	8.46	5.75	277	4.87	1.98	H₀₁: Rejected
Traditional	141	40.54	72.50	10.23					
Total/Mean	279	100	75.38	9.35					

***Level of Significance = 0.05**

Table 2 shows that the calculated t-value (4.87) is higher than the critical t-value (2.00) at the 5% significance level. Therefore, we reject the null hypothesis (H₀) and concur that there is a significant difference in the effects of gamification and traditional teaching methods on the average academic achievements scores of private senior secondary English language learners. The gamification group outperformed the traditional group by a statistically significant margin.

Research Question Two

What is the difference in the effects of gamification on the mean academic achievement scores of male and female private senior secondary school English language learners?

Table 3:
Academic Achievement Scores by Gender in the Gamification/ Experimental Group

Gamification Method	N	%	Mean Score	SD	Mean Difference	Remark
Male	52	37.68	75.90	7.25	4.70	Females outperformed males in the gamification group
Female	86	62.32	80.60	9.15		
Total/Mean	138	100	78.15	8.46		

The data in Table 3 shows the academic performance scores of the private senior secondary English language learners in the gamification group, broken down by gender. The male students (n = 52, 37.68%) had a mean score of 75.90 (SD = 7.25) on the academic achievement test. In contrast, the female students (n = 86, 62.32%) had a mean score of 80.60 (SD = 9.15). The mean difference between the both genders in the gamification group is 4.70 points, with the female students outperforming the male students. This indicates that the employment of gamification as a pedagogical method had a more positive effect on the academic performance of female students compared to male counterparts in this sample of private senior secondary school English language learners. The overall mean score for the gamification group is 78.25 (SD = 8.46), suggesting that the gamification approach was generally effective in improving academic performance compared to traditional teaching methods.

Research Hypothesis Two

H₀₂: There is no significant difference in the effects of gamification on the mean academic performance scores of both male and female private senior secondary English language learners.

Table 4:
T-test of Significance of the Difference in the effects of gamification on the mean academic achievement scores of male and female private senior secondary school English language learners.

Gamification Method	N	%	Mean Score	SD	Mean Difference	Df.	t-calc.	t-crit	Remark
Male	52	37.68	75.90	7.25	4.70	136	2.87	2.00	H₀₂: Rejected
Female	86	62.32	80.60	9.15					
Total/ Mean	138	100	78.15	8.46					

***Level of Significance = 0.05**

Table 3 shows that the computed t-value (2.87) is higher than the critical t-value (2.00) at the 5% significance level. Therefore, we reject the null hypothesis (H₀₂) and find that

there is a notable difference in the effects of gamification on the average academic performance scores of male and female private senior secondary English language learners. The female students outperformed the male students by a statistically significant margin.

Research Question Three

What is the difference between the average scores of male private senior secondary school English language learners exposed to gamification and male students exposed to traditional teaching methods?

Table 5:
Academic Achievement Scores of Male Students by Teaching Method

Male Student	N	%	Mean Score	SD	Mean Difference	Remark
Gamification	52	48.60	75.90	7.25	4.10	Gamification group outperformed traditional group
Traditional	55	51.40	71.80	9.80		
Total/ Mean	107	100	73.85	8.53		

The data in Table 5 shows the academic performance scores of the male private senior secondary English language learners, comparing the gamification and traditional teaching methods. In the gamification group, the male students ($n = 52$, 48.60%) had a mean score of 75.90 ($SD = 7.25$) on the academic achievement test. In the traditional group, the male students ($n = 55$, 51.40%) had a mean score of 71.80 ($SD = 9.80$). The mean difference between the males in the gamification group and the male counterparts in the traditional section is 4.10 points, with the gamification group outperforming the traditional counterparts. This shows that the adoption of gamification as a teaching method had a more positive outcome on the academic performance of male private upper secondary English language learners compared to the traditional teaching approach. The overall mean score for the male students across both groups is 73.85 ($SD = 8.53$), indicating that the male students generally performed well on the academic achievement test.

Research Question Four

What is the difference between the average scores of female private senior secondary school English language learners exposed to gamification and female students exposed to traditional teaching methods?

Table 6:
Academic Achievement Scores of Female Students by Teaching Method

Female Students	N	%	Mean Score	SD	Mean Difference	Remark
Gamification	86	50.00	80.60	9.15	5.60	Gamification group outperformed traditional group
Traditional	86	50.00	75.00	8.90		
Total/Mean	172	100	77.80	9.03		

The data in Table 6 shows the academic performance scores of the female private upper secondary English language learners, comparing the gamification and traditional teaching methods. In the gamification group, the female students ($n = 86$, 50.00%) had a mean score of 80.60 ($SD = 9.15$) on the academic achievement test. In the traditional group, the female students ($n = 86$, 50.00%) had a mean score of 75.00 ($SD = 8.90$). The mean difference between the females in the gamification set and the female students in the traditional set is 5.60 points, with the gamification group outperforming the traditional set. This shows that the use of gamification as a teaching method had a more positive influence on the academic performance of female private upper secondary English language learners compared to the traditional teaching approach. The overall mean score for the female students across both groups is 77.80 ($SD = 9.03$), indicating that the female students generally performed well on the academic achievement test.

Discussions of the Findings

Insights from the present research reveal that using gamification as a teaching method has a significantly greater positive result on the academic performance scores of private upper secondary English language learners compared to traditional teaching methods. This is in tune with the developing field of study that has demonstrated the efficacy of the gamified approach in improving learning outcomes across various educational contexts (Dichev & Dicheva, 2017; Nah et al., 2020; Sillaots, 2022).

The superior performance of the gamification group can be attributed to the motivational and engagement-enhancing properties of game-based learning. Evidence suggests that gamification increases student intrinsic motivation, promotes active participation, and in addition, fosters a positive and enjoyable learning experience, all of which are critical for enhancing learning and academic achievement (Dichev & Dicheva, 2017; Suh et al., 2018). Furthermore, the interactive and adaptive nature of gamification allows for immediate feedback, personalized learning paths, and the chance for students to use their knowledge in a low-pressure setting, which can lead to better knowledge retention and deeper understanding (Nah et al., 2020; Sillaots, 2022). But it is important to recognise that gamification's effectiveness can be impacted by various factors, like the design of the gamified learning activities, the alignment with curricular objectives, and the particular needs and preferences of the target student population (de Sousa Borges et al., 2014; Dichev & Dicheva, 2017).

Findings from the study further indicate that implementing gamification as a pedagogical method has a significantly greater positive result on the academic performance scores of female private upper secondary English learners compared to their male counterparts.

This aligns with recent research that has highlighted the potential of gamification to better engage and motivate female students in educational settings (Barzilai&Blau, 2014; Gomez-Gonzalez et al., 2022; Jagušt et al., 2018).

The observed gender difference in the effectiveness of gamification may be attributed to the fact that game-based learning approaches tend to cater more to the preferences and learning styles of female students. Studies have shown that female students often respond more positively to the immediate feedback, social interaction, and intrinsic rewards associated with gamified learning environments (Barzilai&Blau, 2014; Jagušt et al., 2018). Additionally, the visual and narrative elements commonly found in educational games may resonate more with female students, leading to enhanced engagement and, consequently, improved academic performance (Gomez-Gonzalez et al., 2022). However, it should be noted that the interplay between gender, gamification, including academic achievement may be impacted by numerous contextual and individual reasons, like cultural norms, access to technology, and personal learning preferences (Jagušt et al., 2018; Subhash&Cudney, 2018).

Other outcomes of this present research indicate that the employment of the gamified approach as a pedagogy has a significantly more positive effect on the academic achievement scores of both male and female private senior secondary school English language learners compared to traditional teaching approaches. This finding aligns with recent research that has highlighted the significance of gamified approach to improve student participation, enthusiasm, and learning outcomes across different educational contexts (Subhash &Cudney, 2018; Kocadere & Çağlar, 2015; Dichev & Dicheva, 2017).

For male students, the gamification group outperformed the traditional set by an average difference of 4.10 points. This points to the idea that game-based learning elements, such as immediate feedback, goal-setting, and rewards, may be particularly effective in addressing the learning preferences and engagement levels of male students (Kocadere&Çağlar, 2015; Barata et al., 2017). Additionally, the competitive and challenge-oriented nature of many educational games may cater to the motivational needs of male learners, leading to “improved academic performance” (Dichev&Dicheva, 2017; Jagušt et al., 2018).

Similarly, females in the gamification set performed better than their counterparts belonging to traditional set by a mean difference of 5.60 points. This finding corroborates previous research indicating that gamification can exhibit a more pronounced beneficial effect on academic achievement of female students (Gomez-Gonzalez et al., 2022; Jagušt et al., 2018). The social interaction, narrative elements, and intrinsic rewards associated with gamified learning environments may better align with the learning preferences of female students, fostering increased engagement and improved learning outcomes (Barzilai&Blau, 2014; Subhash&Cudney, 2018).

Conclusions

Findings of this study demonstrate the potential benefits of incorporating gamification into the pedagogy of English language in the private senior secondary level in Lagos, Nigeria. Results indicate that the use of gamification as a teaching method has a more positive effect on the academic performance of both gender compared to traditional teaching approaches.

Firstly, the overall analysis showed a significant difference in the average academic performance scores of students introduced to gamification and those taught using

traditional methods, with the gamification group outperforming the traditional group. This suggests that the engagement, motivation, and interactive elements inherent in gamified learning environments can significantly enhance students' learning outcomes in English language.

When examining the performance of male students and their female counterparts separately, the study found that both genders benefited from the gamification approach. However, the effect was more pronounced for female students, who exhibited a larger mean difference in academic achievement scores compared to their counterparts in the traditional group. This finding aligns with research highlighting the potential of gamification to better address the learning preferences and needs of female students (Gomez-Gonzalez et al., 2022; Jagušt et al., 2018).

Finally, the results revealed a meaningful gap in the average academic performance scores between males in the gamification set and those belonging to the traditional group, while the gamification set outperformed the traditional counterparts. Similarly, female students in the gamification group significantly outperformed their peers in the traditional group. These findings suggest that the incorporation of the gamified approach can be an effective strategy for improving the academic performance of both male and female private senior secondary school English language learners.

The conclusions of this study underscore the value of adopting gamification as a pedagogical method in the teaching of English at the private senior secondary school level. The findings indicate that gamification can help to enhance the academic achievements of students, while also addressing the various learning styles and needs of both male and female learners.

Recommendations

1. The findings show that the using gamification as a teaching method can significantly improve the academic performance of the private senior secondary English language learners. Therefore, it is recommended that school administrators and English language teachers consider incorporating gamification strategies into their instructional practices. This may involve the employment of educational game-elements, interactive digital platforms, and game-based learning activities to improve student engagement and learning outcomes.
2. For a successful implementation of the gamified approach in the English language classroom, it is crucial to ensure that teachers are adequately trained and supported. Schools should provide professional development opportunities for teachers to learn about effective gamification techniques, design gamified lessons, and integrate technology-driven learning tools into their teaching. Additionally, ongoing technical and pedagogical support should be made available to teachers to ensure the smooth and effective implementation of gamification.
3. The study's findings also show that the gamified method has a more pronounced positive influence on the academic achievement of female learners in comparison to their male counterparts. Therefore, it is recommended that schools and educators adopt a gender-inclusive approach when designing and implementing gamified learning environments. This may involve considering the learning preferences, interests, and needs of both male and female students to ensure that the gamification strategies are equally engaging and beneficial for all learners.

4. The current study focused on private senior secondary school English learners in Lagos, Nigeria. It is therefore recommended that future study expand the scope of the research to include public schools, as well as other subject areas and grade levels. Replicating the study in different educational contexts and with a more diverse sample of students would help to further validate the results and give a more detailed knowledge of the influence of the gamified approach on academic achievement.

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