

GAMIFICATION AND LEARNING ENGAGEMENT AMONG PRIMARY SCHOOL PUPILS IN RIVERS STATE NIGERIA

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Abstract

The study examined gamification and learning engagement among primary school pupils in Rivers State Nigeria. Five research questions and five hypotheses guided the study. The study adopted descriptive survey design. The population of this study comprised all primary school pupils and teachers in Rivers State, which is approximately 40,000 primary school pupils and 15,000 teachers. The study adopted multi-stage sampling technique to select a representative sample. In the first stage, three local government areas (LGAs) were randomly selected from the state. In the second stage, schools were stratified into urban and rural categories, and a total of 20 schools (10 urban and 10 rural). From these schools, 500 pupils and 50 teachers (550) was selected using stratified random sampling, ensuring adequate representation of gender, school type, and location. The instrument for data collection was a questionnaire titled: Gamification and Learning Engagement Questionnaire (GLEQ). The instrument was validated by the supervisor and two other research experts from the department of Educational Technology. The reliability coefficient of 0.87 was derived using Cronbach alpha. Mean ($\bar{x}$) and standard Deviation was used to answer the research questions while independent simple t-test statistics was used to test the hypotheses at 0.05 level of significance. The findings of the study revealed among others that; there is a significant effect of gamification on the level of interest in learning among primary school pupils in Rivers State, Nigeria. Gamification significantly influence pupils' participation in classroom activities in primary schools in Rivers State. Based on the findings the study recommended among others that: Schools in Rivers State should integrate gamified learning techniques into their curricula. Teachers should be trained to design and implement engaging game-based activities that align with educational objectives.

Keywords: Gamification, Learning Engagement, Primary School Pupils, Rivers State, Nigeria

Introduction

Education plays a pivotal role in shaping the intellectual, social, and emotional development of young learners. In recent years, there has been a growing emphasis on adopting innovative teaching approaches to address the challenges faced in traditional learning environments (Ofosu-Ampong, 2020). Gamification, the use of game-like elements in non-game contexts, has emerged as a transformative strategy in education, offering opportunities to make learning more engaging, interactive, and effective. This study explores the concept of gamification and its impact on learning among primary school pupils in Rivers State, Nigeria.

Primary education serves as the cornerstone of lifelong learning and personal development, providing the essential skills and knowledge that form the basis for future academic pursuits, social integration, and economic participation. It is during this critical stage that children develop foundational abilities in literacy, numeracy, and problem-solving, as well as essential social and emotional skills. However, despite its importance, the delivery of primary education in many Nigerian classrooms, including those in Rivers State, remains fraught with challenges stemming from traditional teaching methodologies that have persisted for decades.(Rao, 2022).

In many schools across Rivers State, the instructional approach is heavily reliant on rote memorization and teacher-centered methods. Lessons are often delivered through repetitive drills and direct instruction, with minimal opportunities for pupils to engage actively with the content or apply their knowledge in practical, real-world contexts. This approach limits the development of higher-order thinking skills such as analysis, creativity, and problem-solving. Furthermore, it often reduces learning to a monotonous task, where pupils passively absorb information rather than actively exploring and constructing their understanding.(Nwachukwu & Johnson, 2020).

The lack of interaction and engagement in these traditional methods contributes significantly to disengagement among young learners. Children, particularly those in their formative years, thrive in environments that stimulate curiosity, encourage exploration, and make learning enjoyable. However, the rigidity and uniformity of traditional methods frequently fail to capture their interest. This disengagement often manifests as poor classroom participation, reduced retention of learned material, and a general lack of enthusiasm for learning. Over time, these issues can lead to broader educational challenges, including low academic performance and increased dropout rates.

The introduction of gamification into teaching methodologies presents a promising solution to these persistent issues. Gamification, which involves incorporating game-like elements such as points, rewards, challenges, and interactive activities into educational practices, has gained recognition as an effective strategy for enhancing learning experiences (Ukala, 2018). Unlike traditional methods, gamification leverages pupils' natural inclination toward play and competition, transforming the learning process into an engaging and interactive journey.

By integrating gamification, educators can foster motivation and sustained interest among pupils (Ukala, 2018). The use of rewards, badges, or leaderboards provides immediate feedback and a sense of accomplishment, encouraging children to remain focused and work towards their goals. This approach also promotes active participation, as pupils are drawn into the learning process through challenges that require problem-solving, critical thinking, and collaboration with their peers. These interactive and dynamic experiences are particularly effective in developing cognitive and social skills, which are essential for holistic growth.

Furthermore, gamification offers the flexibility to cater to diverse learning styles and needs. For example, visual learners may benefit from colorful and interactive game interfaces, while kinesthetic learners may find hands-on challenges more engaging (Brunder, 2015). By adapting lessons to suit individual preferences, gamified learning ensures that all pupils, regardless of their abilities or backgrounds, have an equal opportunity to succeed.

In the context of Rivers State, where educational challenges are compounded by socioeconomic and infrastructural constraints, gamification holds significant potential. It provides a low-cost and scalable method to enrich classroom experiences, even in resource-limited settings. Simple, non-digital gamification strategies such as role-playing, story-based challenges, or classroom competitions can be implemented without the need for advanced technology, making them accessible to schools in rural and underserved areas.

The integration of gamification into teaching methodologies represents a transformative approach to addressing the limitations of traditional primary education in Rivers State. By fostering motivation, participation, and critical thinking skills, gamification not only enhances the immediate learning experience but also lays a strong foundation for lifelong academic and personal development. Its implementation offers an opportunity to bridge educational gaps and equip young learners with the tools they need to thrive in an ever-changing world. (Caballero, et al 2022).

Gamification involves applying elements commonly found in games—such as points, badges, leaderboards, challenges, and rewards—to educational activities. By doing so, it transforms ordinary lessons into dynamic, goal-oriented experiences. This approach capitalizes on pupils' natural inclination towards play, encouraging them to actively participate in their learning process. Research has shown that gamification not only improves engagement but also enhances cognitive and socio-emotional skills, making it particularly relevant in the context of primary education. (Holguin, et al 2020).

Learning engagement in other hand refers to the active involvement and commitment of students in the learning process, encompassing behavioral, emotional, cognitive, and social dimensions. It goes beyond mere participation in classroom activities to include a deeper connection with the material, intrinsic motivation, and meaningful interactions with peers and instructors. Engaged learners are not just completing tasks—they are actively processing and applying knowledge, investing time and energy in their learning, and developing a sense of ownership over their educational experience.

Behavioral engagement involves observable actions, such as attending classes, completing assignments, participating in discussions, and following through on learning tasks. It reflects the extent to which students are involved in the activities prescribed by the curriculum. However, engagement is not limited to these external behaviors; it also includes emotional engagement, which focuses on how students feel about the learning experience. Emotional engagement encompasses the excitement, interest, and enjoyment that learners experience when they feel connected to the content and the learning environment. This emotional connection can significantly boost motivation and perseverance, especially when students encounter challenges.

Cognitive engagement, on the other hand, refers to the intellectual effort students invest in learning. It includes their ability to think critically, analyze information, and make connections between new knowledge and existing understanding. Engaged learners go beyond rote memorization; they are deeply involved in problem-solving, questioning assumptions, and exploring ideas in meaningful ways. This level of engagement promotes deeper learning, leading to better retention and application of knowledge. Cognitive engagement is essential for students to develop critical thinking skills, which are crucial for success both in academics and in the real world.

Social engagement is another important aspect of learning engagement. It involves interaction with peers, instructors, and the broader academic community. Collaborative learning environments, where students share ideas and work together, foster a sense of belonging and community. These social connections can enhance motivation, as students feel supported and valued in their learning journey. Positive teacher-student relationships also contribute to emotional engagement, with instructors acting as facilitators and mentors who guide students through the learning process and encourage them to take an active role in their education.

The benefits of learning engagement are far-reaching. Engaged students are more likely to perform better academically, persist through challenges, and retain information long-term. Furthermore,

engaged learning environments help develop essential skills like communication, collaboration, problem-solving, and critical thinking. To foster engagement, educators can implement strategies such as active learning, personalized instruction, and the use of technology. By creating a supportive and interactive learning environment, teachers can help students cultivate a deeper connection to their education, leading to more meaningful and successful learning experiences.

Rivers State, a key region in the Niger Delta, is renowned for its rich cultural diversity and vibrant economic activities, including oil exploration, agriculture, and trade. Its position as one of Nigeria's oil-producing states underscores its economic significance to the country. Despite these advantages, the state faces persistent educational challenges that hinder the development of its human capital, particularly at the foundational level of primary education. These challenges are rooted in a combination of systemic, infrastructural, and socioeconomic factors that disproportionately affect pupils in rural and underserved areas.

Holguin, et al (2020) noted that one of the most pressing issues is inadequate infrastructure. Many schools in Rivers State operate without essential facilities such as well-equipped classrooms, libraries, and play areas. Pupils often learn in overcrowded, poorly ventilated, or dilapidated environments, which negatively impact their concentration, comfort, and overall learning experience. Additionally, the lack of access to technology and modern teaching tools further exacerbates the learning gap between urban and rural schools.

Another critical challenge is the shortage of qualified teachers. Primary schools in Rivers State often struggle to recruit and retain well-trained educators due to poor remuneration, inadequate professional development opportunities, and challenging working conditions (Holguin, et al 2020). This shortage is especially acute in rural areas, where teachers are reluctant to serve due to the lack of basic amenities and transportation difficulties. Consequently, many classrooms are either overcrowded or left unattended, depriving pupils of the consistent guidance and support needed for academic success.

Socioeconomic disparities remain a critical barrier to achieving equitable educational access and quality in Rivers State. These disparities, rooted in widespread poverty, high unemployment rates, and income inequality, create significant challenges for families attempting to provide their children with a stable educational foundation. For many households, the costs associated with schooling—such as tuition fees, textbooks, uniforms, transportation, and other basic supplies—are prohibitive. As a result, children from economically disadvantaged backgrounds are often unable to enroll in or complete primary education, leaving them ill-prepared for future academic or vocational opportunities. (Rao, 2022).

The implications of poverty extend beyond the inability to afford educational resources. Families struggling with financial hardship often prioritize immediate survival needs over long-term investments in education. (Ukala, 2018). In some cases, children, particularly those in rural or marginalized communities, are compelled to leave school prematurely to contribute to household income through farming, trading, or other labor-intensive activities. This interruption in their education not only hampers their intellectual development but also perpetuates a cycle of poverty, as they grow up without the skills or qualifications needed to secure stable, well-paying jobs.

Moreover, cultural and societal norms exacerbate the situation for girls, who face additional obstacles in accessing education. In many communities within Rivers State, entrenched gender biases and traditional roles place a higher value on boys' education, viewing it as a more worthwhile investment due to the expectation that they will become primary breadwinners. Conversely, girls are often relegated to domestic roles or married off at an early age, further

limiting their educational and economic prospects. Financial constraints within families also mean that when resources are scarce, boys' schooling is prioritized, while girls are expected to stay at home or assist with household chores.

The gender gap in education has far-reaching consequences. Girls who are denied access to quality education are more likely to experience early marriage, limited career opportunities, and economic dependency, which can reinforce cycles of poverty within their communities. Furthermore, the exclusion of girls from formal education undermines broader societal progress, as research consistently shows that educated women are more likely to contribute to economic development, advocate for health and well-being, and ensure that their children have access to education and better living conditions.

In urban areas of Rivers State, where educational infrastructure is relatively more developed, socioeconomic disparities still manifest in overcrowded classrooms and under-resourced schools, which fail to meet the needs of disadvantaged pupils. Conversely, in rural areas, these disparities are even more pronounced. Many schools lack basic amenities such as electricity, potable water, and adequate teaching materials, making it nearly impossible to create conducive learning environments. Teachers in these areas also face significant challenges, including delayed salaries and limited professional development opportunities, which affect their ability to provide high-quality education.

Addressing these socioeconomic disparities requires a multifaceted approach that combines immediate support for vulnerable families with long-term systemic reforms. Initiatives such as subsidizing school fees, providing free educational materials, and implementing feeding programs can help alleviate the financial burden on families, enabling more children to stay in school. Additionally, targeted efforts to promote gender equality in education, such as scholarships for girls and community awareness campaigns, are essential to ensure that girls have equal access to learning opportunities.

Integrating innovative teaching methods, such as gamification, into the educational system can also help bridge the gap created by these disparities (Ofosu-Ampong, 2020). By transforming learning into an engaging and interactive experience, gamification can motivate pupils to remain in school and actively participate in their education. Low-cost gamification strategies can be particularly impactful in resource-constrained settings, offering inclusive solutions that cater to the diverse needs of all learners, regardless of their socioeconomic backgrounds.

Socioeconomic disparities significantly hinder educational access and quality in Rivers State, particularly for children from impoverished families and girls. Overcoming these challenges requires a collective effort from governments, communities, and stakeholders to create an equitable educational landscape where every child, irrespective of their background, has the opportunity to learn, grow, and succeed.

These barriers to education highlight the urgent need for innovative solutions that can bridge the gap and make quality learning more accessible. Gamification, the integration of game elements into educational practices, offers a promising approach to address these challenges. By leveraging the universal appeal of games, gamification can transform the learning environment into an engaging, interactive, and motivating experience for pupils.

Unlike traditional teaching methods that rely heavily on rote memorization, gamification encourages active participation, problem-solving, and collaboration. Its adaptability allows teachers to tailor lessons to the specific needs and contexts of their pupils, making it particularly effective in resource-constrained settings. Furthermore, gamification often involves low-cost or

no-cost strategies, such as using simple point systems, badges, and rewards, making it a viable option even for schools with limited financial resources.

For rural and underserved communities in Rivers State, gamification has the potential to address infrastructural and motivational gaps. For instance, introducing gamified learning activities can make up for the lack of physical resources by creating engaging educational experiences that capture pupils' attention and foster a love for learning. Teachers can also use gamification to manage large class sizes more effectively, using interactive activities to maintain pupils' focus and encourage peer learning.

Moreover, gamification can bridge socioeconomic disparities by making education more enjoyable and accessible for all pupils, regardless of their backgrounds. By providing an inclusive learning platform, gamification can motivate pupils to stay in school, improve attendance rates, and reduce dropout rates. It can also help to foster critical thinking and creativity, skills that are essential for navigating the challenges of a rapidly changing world.

Implementing gamification in primary schools in Rivers State offers a unique opportunity to address the state's educational challenges. By leveraging accessible, low-cost, and adaptable tools, this approach has the potential to transform learning outcomes, particularly for pupils in marginalized and underserved communities. However, successful implementation will require collaboration among educators, policymakers, and community stakeholders to ensure that gamified strategies are effectively integrated into the educational system.

According to Ofosu-Ampong (2020), the use of gamification in education has gained traction, with positive outcomes reported in various contexts. In countries such as Finland, Singapore, and the United States, gamified learning environments have been linked to increased student motivation, improved academic performance, and enhanced collaborative skills. However, the application of this approach in Nigeria, particularly in Rivers State, remains limited. There is a need to investigate its relevance and adaptability within the local educational context, considering cultural, technological, and infrastructural factors.

Moreover, the shift towards gamification aligns with broader educational reforms aimed at achieving Sustainable Development Goal (SDG) 4, which focuses on ensuring inclusive and equitable quality education for all. By making learning enjoyable and accessible, gamification can contribute to reducing dropout rates, improving literacy levels, and fostering creativity among primary school pupils. It also aligns with Nigeria's National Policy on Education, which emphasizes the importance of innovative and child-centered teaching methods.

The adoption of gamification is not without its challenges. Critics argue that excessive reliance on game-based strategies may detract from traditional educational values, leading to a superficial understanding of concepts. Additionally, issues such as limited access to digital tools, inadequate teacher training, and cultural resistance to change may hinder its effective implementation in Rivers State. Addressing these concerns requires a nuanced understanding of the local context and a collaborative effort among stakeholders, including educators, policymakers, parents, and technology providers.

This study seeks to bridge the gap in knowledge regarding the use of gamification in primary education in Rivers State. It will examine how gamified teaching methods can influence pupils' academic performance, motivation, and classroom behavior. By exploring the benefits and challenges of gamification, the research aims to provide practical recommendations for its integration into the educational system, ultimately contributing to the improvement of learning outcomes in the region.

Statement of the Problem

Despite the growing recognition of gamification as a powerful tool to enhance learning, many educational institutions in Rivers State have been slow to adopt game design elements in their teaching processes. Traditional teaching methods, often characterized by lecture-based instruction and limited student participation, have been reported to contribute to declining motivation and engagement levels among students. In many cases, students view learning as a chore, leading to lower academic performance, disengagement, and high dropout rates.

The absence of stimulating, interactive learning methods such as gamification may be a contributing factor to these challenges. Therefore, this study seeks to investigate how the integration of game design elements into the educational practices of schools in Rivers State can address the issue of low student engagement and motivation. It aims to explore how gamification could enhance students' enthusiasm for learning, positively impacting their overall academic performance.

Aim and Objectives of the Study

The aim of this study is to investigate the effect of gamification on learning engagement among primary school pupils in Rivers State Nigeria. The specific objectives of this study are:

1. To examine the effect of gamification on the level of interest in learning among primary school pupils in Rivers State, Nigeria.
2. To assess the impact of gamification on pupils' motivation to engage in learning activities in primary schools in Rivers State.

Research Questions

1. To what extent does the use of gamification affect the level of interest in learning among primary school pupils in Rivers State, Nigeria?
2. What impact does gamification have on the motivation of primary school pupils to engage in learning activities in Rivers State?

Hypotheses

H₀₁: There is no significant effect of gamification on the level of interest in learning among primary school pupils in Rivers State, Nigeria.

H₀₂: Gamification has no significant impact on the motivation of primary school pupils to engage in learning activities in Rivers State.

Methodology

The study adopted a descriptive survey design. The population of this study comprised all primary school pupils and teachers in Rivers State. According to recent statistics from the Rivers State Ministry of Education, there are approximately 40,000 primary school pupils and 15,000 teachers across public primary schools in Rivers State.

The study used a multi-stage sampling technique to select a representative sample. In the first stage, three local government areas (LGAs) were randomly selected from the state. In the second stage, schools were stratified into urban and rural categories, and a total of 20 schools (10 urban and 10 rural) were randomly chosen. From these schools, 500 pupils and 50 teachers (550) were selected using stratified random sampling, ensuring adequate representation of gender, school type, and location. Data were collected using a structured questionnaire titled Gamification and Learning Engagement Questionnaire (GLEQ). The questionnaire consisted of two sections:

Section A: Demographic information of respondents.

Section B: Items measuring the use of gamification, its impact on engagement, and related outcomes. The instrument included both closed-ended and Likert-scale questions to capture

quantitative and qualitative insights. The questionnaire was subjected to expert review by three specialists in educational technology, their feedback helped refine the instrument to ensure that it accurately measured the constructs of gamification and learning engagement. A pilot test was conducted in a school outside the sample area to further validate the content and structure of the instrument. The reliability of the instrument was determined using the Cronbach's Alpha method. The pilot study yielded a reliability coefficient of 0.85, indicating a high level of internal consistency and reliability for the questionnaire.

The questionnaire was administered by the researcher and trained research assistants. Before administration, permission was obtained from school authorities, and participants were assured of the confidentiality of their responses. The data collection process lasted for three weeks, during which the research assistants visited the selected schools to distribute and retrieve the completed questionnaires.

Data collected was analyzed using descriptive and inferential statistics. Descriptive statistics, including frequencies, percentages, and mean scores, were used to summarize the demographic information and responses to questionnaire items. Inferential statistics, specifically the chi-square test and independent sample t-test, were employed to test the study's hypotheses at a significance level of 0.05.

Results

Research Question 1: To what extent does the use of gamification affect the level of interest in learning among primary school pupils in Rivers State, Nigeria?

Table 1: Mean ratings of respondents on the use of gamification and level of interest in learning among primary school pupils in Rivers State, Nigeria

	n=550	Mean $\bar{X}$	Std	Dec
1.Gamification has significantly improved my pupils' understanding of academic concepts.		3.64	.78	SA
2. Pupils perform better in tests and exams after participating in gamified learning activities.		3.71	.71	D
3.The use of gamification in teaching enhances retention of subject content among pupils.		3.85	.37	SA
4.Gamification increases pupils' confidence in tackling academic tasks.		3.66	.78	A
5.Gamified lessons have a greater impact on academic performance than traditional teaching methods		3.83	.46	SA
Grand Mean		3.74	0.62	SA

$\bar{X}$ = Mean; Std= Standard Deviation; Dec = Decision. SA=Strongly Agree, A=Agree, D=Disagree and SD=Strongly Disagree; N=No. of Respondents

Table 1 showed the Mean ratings of respondents on the use of gamification and level of interest in learning among primary school pupils in Rivers State, Nigeria. Item 1 had a mean and standard deviation score of 3.64 and .78 respectively. This means that the respondents strongly agreed to the view that Gamification has significantly improved my pupils' understanding of academic

concepts. Item 2 had a mean and standard deviation score of 3.71 and .71 respectively. This means that the respondents disagreed to the view that Pupils perform better in tests and exams after participating in gamified learning activities. Item 3 had a mean and standard deviation score of 3.85 and .37 respectively. This means that the respondents strongly agreed to the view that the use of gamification in teaching enhances retention of subject content among pupils. Item 4 had a mean and standard deviation score of 3.66 and .78 respectively. This means that the respondents agreed to the view that Gamification increases pupils' confidence in tackling academic tasks. Item 5 had a mean and standard deviation score of 3.83 and .46 respectively. This means that the respondents strongly agreed to the view that gamified lessons have a greater impact on academic performance than traditional teaching methods. The grand mean and standard deviation scores of 3.74 and .62, this implies that in the opinion of the respondents, the use of gamification affects the level of interest in learning among primary school pupils in Rivers State, Nigeria

Research Question 2: What impact does gamification have on the motivation of primary school pupils to engage in learning activities in Rivers State?

Table 2: Mean ratings of respondents on gamification and its impact on the motivation of primary school pupils to engage in learning activities in Rivers State

	n=550	Mean $\bar{X}$	Std	Dec
6. Pupils are more attentive during gamified lessons compared to regular lessons.		3.57	.56	SD
7. Gamification encourages pupils to actively participate in classroom activities		3.61	.51	SA
8. The use of game elements in teaching motivates pupils to complete their assignments on time.		3.90	.49	A
9. Pupils show more interest in learning when gamification is incorporated into the lesson		3.95	.40	A
10. Gamified activities foster a positive attitude toward schoolwork among pupils.		3.96	.37	A
Grand Mean		3.80	0.46	SA

$\bar{X}$ = Mean; Std = Standard Deviation; Dec = Decision. SA = Strongly Agree, A = Agree, D = Disagree and SD = Strongly Disagree; N = No. of Respondents

Table 2 showed the mean ratings of respondents on how gamification influence the engagement and motivation of primary school pupils in Rivers State. Item 1 had a mean and standard deviation score of 3.57 and .76 respectively. This means that the respondents strongly agreed to the view that pupils are more attentive during gamified lessons compared to regular lessons. Item 2 had a mean and standard deviation score of 3.61 and .51 respectively. This means that the respondents agreed to the view that gamification encourages pupils to actively participate in classroom activities. Item 3 had a mean and standard deviation score of 3.90 and .49 respectively. This means that the respondents agreed to the view that the use of game elements in teaching motivates pupils to complete their assignments on time. Item 4 had a mean and standard deviation score of 3.95 and .40 respectively. This means that the respondents agreed to the view that pupils show more interest in learning when gamification is incorporated into the lesson. Item 5 had a mean and standard deviation score of 3.96 and .37 respectively. This means that the respondents agreed to

the view that gamified activities foster a positive attitude toward schoolwork among pupils. The grand mean and standard deviation scores of 3.80 and .46, this implies that in the opinion of the respondent's gamification influence the engagement and motivation of primary school pupils in Rivers State

Hypotheses

H01: There is no significant effect of gamification on the level of interest in learning among primary school pupils in Rivers State, Nigeria.

Table 3: Summary of t-test analysis result on the effect of gamification on the level of interest in learning among primary school pupils in Rivers State, Nigeria.

n	x	Std.	df	Sig. 2-(tailed)	t	Decision
540	18.04	2.94	538	.330	0.05	Significant difference

P-Value at 0.05 level of Significance

Table 3 Summary of t-test analysis result on the effect of gamification on the level of interest in learning among primary school pupils in Rivers State, Nigeria. It indicates that the Sig. (2-tailed) of (.330) and t-cal value of 0.05 which is less than ($>$) p-value of 0.05 at df538. The null hypothesis was therefore rejected. This implies that there is a significant effect of gamification on the level of interest in learning among primary school pupils in Rivers State, Nigeria. This finding is supported by Anderson et al. (2016), who opined that gamification had a positive impact on students' motivation, as evidenced by their increased participation and enthusiasm in the course activities

H02: Gamification has no significant impact on the motivation of primary school pupils to engage in learning activities in Rivers State.

Table 4: Summary of t-test analysis result on gamification and impact on the motivation of primary school pupils to engage in learning activities in Rivers State

n	$\bar{X}$	Std.	df	Sig. 2-(tailed)	t	Decision
540	17.79	3.09	538	.450	0.05	Significant difference

P-Value at 0.05 level of Significance

Table 4: Summary of t-test analysis result on gamification and impact on the motivation of primary school pupils to engage in learning activities in Rivers State. It indicates that the Sig. (2-tailed) of (.450) and t-cal value of 0.05 which is less than ($<$) p-value of 0.05 at df538. The null hypothesis was therefore rejected. Therefore, it is concluded that gamification has significant impact on the motivation of primary school pupils to engage in learning activities in Rivers State. This conclusion is in line with the findings of Okoro (2023), which suggest that pupils exposed to gamified lessons exhibited significantly higher engagement and improved performance.

Summary of Findings

1. There is a significant effect of gamification on the level of interest in learning among primary school pupils in Rivers State, Nigeria.
2. Gamification has significant impact on the motivation of primary school pupils to engage in learning activities in Rivers State.

Conclusion

The findings of the study reveal that gamification has a positive and significant impact on the learning engagement of primary school pupils in Rivers State. The use of game-like elements such as rewards, challenges, and interactive tasks encourages pupils to take an active role in their education. Gamification fosters higher levels of interest, boosts motivation, and promotes increased participation, thereby improving overall engagement in the learning process. As a result, gamification proves to be an effective tool for enhancing the educational experience of young learners in primary schools.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Integration of Gamification in Curriculum: Schools in Rivers State should integrate gamified learning techniques into their curricula. Teachers should be trained to design and implement engaging game-based activities that align with educational objectives.
2. Balanced Use of Rewards: While rewards play an essential role in gamification, it is important to balance intrinsic and extrinsic motivation. Teachers should focus on fostering a love for learning while using rewards to reinforce achievements and progress.

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