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SCHOOL ENVIRONMENTAL SUSTAINABILITY PRACTICES AND EDUCATIONAL SERVICE DELIVERY IN RIVERS STATE PUBLIC SCHOOLS

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Abstract
This study investigated the relationship between school environmental sustainability practices and educational service delivery in Rivers State public schools. The study adopted a correlational research design. Two research questions and two hypotheses guided the study. The population comprised 8,678 respondents consisting of 310 principals and 8,368 teachers in 310 public secondary schools in Rivers State. A sample size of 382 respondents was determined using the Taro Yamane formula and selected through a multistage sampling procedure. Data were collected using researcher-developed instruments titled: "School Environmental Sustainability Practices (SESPQ)" and "Educational Service Delivery Questionnaire (ESDQ)". The instruments were validated by experts in Educational Management and Measurement and Evaluation, while its reliability was established using the Pearson Product Moment Correlation (PPMC), which yielded coefficients of 0.85 and 0.80. Data collected were analyzed using Pearson Product Moment Correlation (PPMC) to answer the research questions, while the hypotheses were tested using Multiple Regression Analysis at a 0.05 level of significance. The findings revealed that waste management practices and environmental maintenance practices had significant positive relationships with educational service delivery in Rivers State public schools. The study further showed that both variables significantly contributed to educational service delivery, with environmental maintenance practices making the greater contribution. The study concluded that effective implementation of environmental sustainability practices enhances instructional effectiveness and learning outcomes in public schools. It was recommended, among others, that school administrators should strengthen waste management systems and implement regular environmental maintenance programmes to promote quality educational service delivery.

Keywords: School Environmental Sustainability Practices, Waste Management Practices, Environmental Maintenance Practices, Educational Service Delivery.

Introduction

The school environment is a critical component of the educational system because it provides the physical, social, and ecological conditions under which teaching and learning occurs. In contemporary educational discourse, the concept of environmental sustainability has emerged as a major concern due to increasing environmental challenges such as climate change, poor waste management, environmental degradation, pollution, and depletion of natural resources. Educational

institutions are increasingly expected not only to impart knowledge but also to model sustainable environmental practices that promote ecological responsibility and support effective educational outcomes (Olowonefa, 2025; Kayii & Longjohn, 2017).

School environmental sustainability practices involve deliberate efforts by schools to maintain environmentally friendly conditions through proper waste management, sanitation, resource conservation, landscaping, environmental awareness programmes, and sustainable utilization of facilities. These practices create a conducive atmosphere that enhances learning and promotes sustainable educational development (Ifegbesan et al., 2023; Oladele, Adegoke & LongJohn, 2020).

Educational service delivery refers to the extent to which schools effectively provide educational services that facilitate students' learning, academic achievement, skill development, and overall educational outcomes. It encompasses instructional effectiveness, quality teaching, availability and utilization of educational resources, students' learning experiences, and administrative efficiency (Osuji, 2024). The quality of educational services delivered in schools is significantly influenced by the condition of the school environment. A healthy, safe, and sustainable environment enhances concentration, reduces health-related absenteeism, promotes students' motivation, and supports effective teaching and learning processes (Aderiye & Ovwromoh, 2024).

Globally, the integration of sustainability principles into educational institutions has gained prominence as part of efforts to achieve the Sustainable Development Goals (SDGs). Educational institutions are increasingly adopting environmentally sustainable practices aimed at promoting environmental stewardship while simultaneously improving learning outcomes. Sustainable school environments contribute to healthier learning spaces, reduced environmental risks, improved resource utilization, and enhanced student engagement (Olowonefa, 2025).

In Nigeria, concerns about environmental sustainability in schools have intensified due to increasing environmental challenges affecting educational institutions. Many public schools face problems such as poor waste disposal systems, inadequate sanitation facilities, poorly maintained school premises, environmental pollution, erosion, flooding, and insufficient environmental awareness among stakeholders. These environmental deficiencies often undermine teaching effectiveness and students' learning experiences (Aderiye & Ovwromoh, 2024).

Recent studies have demonstrated the importance of environmental sustainability practices in schools. For instance, Ifegbesan et al. (2023) reported that environmental health awareness and environmental practices among secondary school students significantly contribute to positive learning behaviours and environmental responsibility. Similarly, Aderiye and Ovwromoh (2024) found that effective waste management practices in secondary schools in Rivers State contribute significantly to sustainable learning by reducing environmental hazards and creating healthier learning environments.

Furthermore, Osuji (2024) observed that effective maintenance of school facilities enhances school administration and supports improved educational outcomes. Likewise, Olowonefa (2025) noted that sustainability-related practices in secondary schools promote environmental consciousness, improve learning experiences, and enhance students' academic performance.

In Rivers State, public schools continue to experience environmental challenges arising from rapid urbanization, environmental pollution, flooding, poor waste management practices, and inadequate maintenance of school facilities. These challenges have implications for educational service delivery because they affect the availability of conducive learning environments necessary for effective teaching and learning (Osuji, 2024). Despite efforts by government and educational authorities to improve school infrastructure and educational quality, concerns remain regarding the extent to which environmental sustainability practices contribute to educational service delivery in public schools.

School environmental sustainability practices constitute the independent variable of this study. They refer to environmentally responsible actions, policies, and programmes implemented by schools to promote environmental conservation, efficient resource utilization, and the creation of healthy learning environments (Ifegbesan et al., 2023).

Waste management practices involve systematic procedures for collecting, sorting, recycling, reducing, and disposing of waste generated within school premises. Effective waste management promotes environmental cleanliness, minimizes pollution, prevents disease outbreaks, and contributes to sustainable learning environments (Aderiye & Ovwromoh, 2024). Such practices include provision of waste bins, environmental sanitation exercises, recycling initiatives, waste segregation, and environmental awareness campaigns.

School environmental maintenance practices involve activities aimed at preserving and improving the physical condition of school facilities and surroundings. These include regular cleaning of classrooms, maintenance of drainage systems, landscaping, tree planting, beautification of school compounds, and repair of damaged facilities (Osuji, 2024). Such practices enhance the aesthetic appeal, safety, and functionality of school environments, thereby creating conducive conditions for teaching and learning.

Educational service delivery is the dependent variable of this study. It refers to the effectiveness with which educational services are provided to learners to facilitate the attainment of educational goals. Educational service delivery encompasses instructional effectiveness, students' academic achievement, teacher effectiveness, utilization of instructional resources, school administrative efficiency, and overall quality of learning experiences (Osuji, 2024).

School environmental sustainability practices and educational service delivery are closely related because the quality of the school environment significantly influences the effectiveness of teaching and learning processes. Effective waste management reduces environmental hazards and promotes healthy learning environments, thereby improving students' attendance, concentration, and academic engagement (Aderiye & Ovwromoh, 2024). Similarly, proper maintenance of school facilities and surroundings enhances the functionality of educational resources and creates a conducive atmosphere for instructional delivery (Osuji, 2024).

Consequently, schools that adopt sustainable environmental practices are more likely to experience improved educational service delivery than schools characterized by poor environmental conditions. Sustainable school environments provide learners and teachers with the physical and psychological conditions necessary for effective educational activities (Ifegbesan et al., 2023).

Although several Nigerian studies have examined environmental sustainability-related issues in educational institutions, existing literature has largely focused on environmental awareness (Ifegbesan et al., 2023), waste management practices (Aderiye & Ovwromoh, 2024), sustainability education (Olowonefa, 2025), and facilities maintenance (Osuji, 2024). However, there is limited empirical evidence specifically examining the relationship between school environmental sustainability practices and educational service delivery in public schools in Rivers State. Furthermore, most previous studies investigated individual dimensions of environmental sustainability rather than adopting a comprehensive approach that integrates environmental sustainability practices with educational service delivery outcomes. This creates a contextual and empirical gap that necessitates the present study.

Statement of the Problem

School environmental sustainability practices are essential for creating a conducive learning environment that supports effective teaching and learning. Practices such as proper waste management and environmental maintenance help to ensure cleanliness, safety, and the preservation of educational facilities, thereby enhancing educational service delivery. Educational

service delivery, reflected in instructional effectiveness and students' learning outcomes, is more likely to be achieved in schools where environmental conditions are adequately maintained.

However, many public schools in Rivers State continue to experience environmental challenges, including poor waste disposal, inadequate sanitation, blocked drainage systems, overgrown school premises, and poorly maintained facilities. These conditions often create unhealthy and unconducive learning environments that may negatively affect teachers' effectiveness, students' attendance, academic engagement, and overall learning outcomes. Consequently, concerns have been raised regarding the quality of educational service delivery in public schools across the state. Although efforts have been made by government and school administrators to improve educational quality, environmental sustainability issues persist in many schools. Furthermore, existing studies have largely focused on school facility maintenance, environmental sanitation, or waste management as separate issues, with limited attention given to their combined influence on educational service delivery, particularly in Rivers State public schools.

The problem, therefore, is that despite the recognized importance of school environmental sustainability practices, the extent to which waste management practices and environmental maintenance practices influence educational service delivery in Rivers State public schools remains unclear. It is this gap that necessitates the present study. The study seeks to investigate the relationship between school environmental sustainability practices and educational service delivery in Rivers State public schools, with a view to providing empirical evidence for improving educational outcomes through sustainable environmental management.

Purpose of the Study

The purpose of the study was determine how school environmental sustainability practices relates with educational service delivery in Rivers State public schools. Specifically, the study sought to:

1. Determine how waste management practices relates to educational service delivery in Rivers State public schools.
2. Determine how school environmental maintenance practices relates to educational service delivery in Rivers State public schools.

Research Questions

The following research questions were raised to guide the study:

1. How does waste management practices relates to educational service delivery in Rivers State public schools?
2. How does school environmental maintenance practices relates to educational service delivery in Rivers State public schools?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

1. There is no significant relationship between waste management practices and educational service delivery in Rivers State public schools.
2. There is no significant relationship between school environmental maintenance practices relates to educational service delivery in Rivers State public schools.

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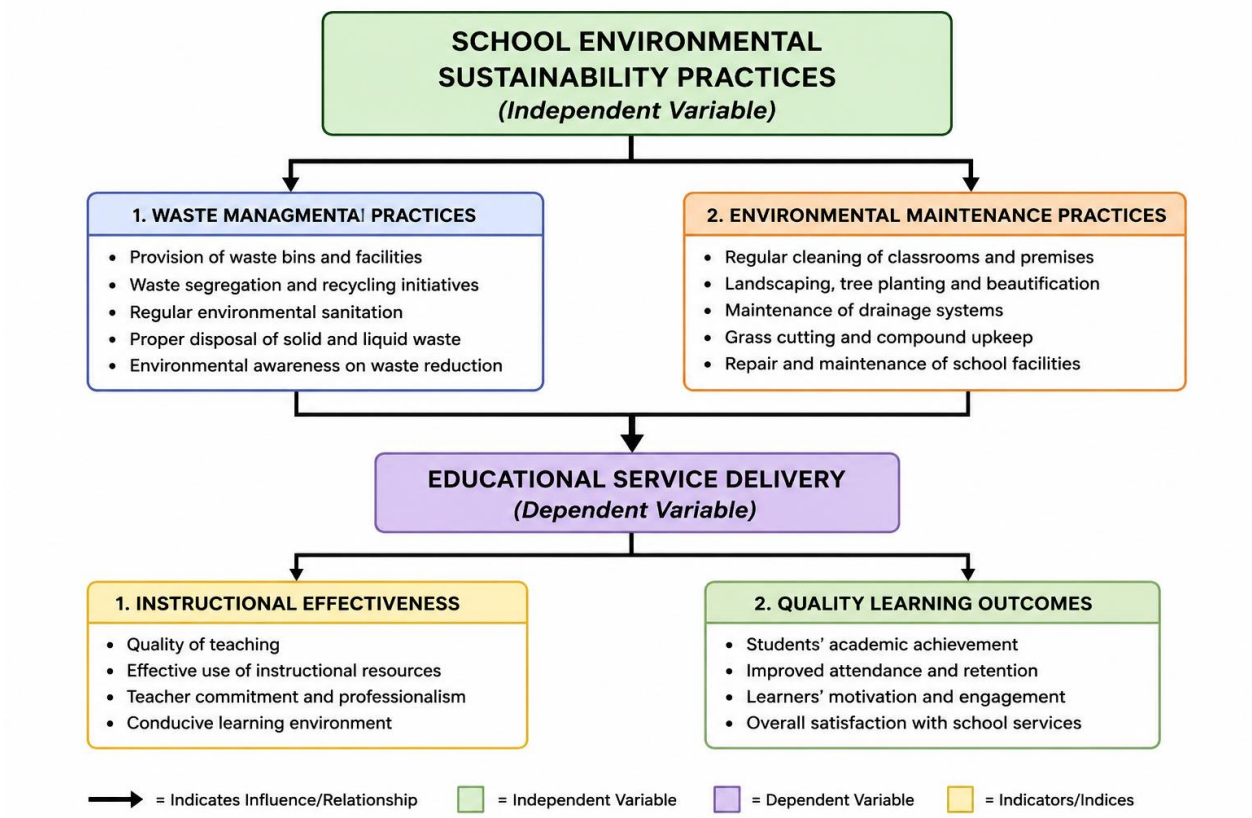
Literature Review

Conceptual Framework

Figure 1: School Environmental Sustainability Practices Framework



Source: Researcher's Creative Idea (2026)

Explanation of the Conceptual Framework

The framework illustrates the relationship between School Environmental Sustainability Practices (independent variable) and Educational Service Delivery (dependent variable) in Rivers State public schools. The independent variable, School Environmental Sustainability Practices, is represented by two dimensions:

1. Waste Management Practices, which include the provision of waste bins, waste segregation and recycling, environmental sanitation, proper waste disposal, and environmental awareness programmes.
2. Environmental Maintenance Practices, which comprise regular cleaning of school premises, landscaping, tree planting, drainage maintenance, grass cutting, and repair of school facilities.

These sustainability practices are expected to create a clean, safe, healthy, and conducive learning environment that supports educational activities.

The framework posits that when schools effectively implement these environmental sustainability practices, they positively influence Educational Service Delivery, which is the dependent variable. Educational service delivery is measured through two key indicators:

1. Instructional Effectiveness, reflected in the quality of teaching, effective utilization of instructional resources, teacher commitment, and the provision of a conducive learning environment.

2. Quality Learning Outcomes, reflected in students' academic achievement, improved attendance and retention, learners' motivation and engagement, and overall satisfaction with educational services.

The arrows in the framework indicate the direction of influence, suggesting that effective waste management and environmental maintenance practices are likely to enhance instructional effectiveness and improve students' learning outcomes. Consequently, improved environmental sustainability practices contribute to better educational service delivery in public schools. In summary, the framework assumes that a sustainable school environment serves as a foundation for effective teaching and learning, thereby promoting quality educational service delivery in Rivers State public schools.

Relationship between School Environmental Sustainability Practices and Educational Service Delivery in Rivers State Public Schools

School environmental sustainability practices and educational service delivery are closely interconnected because the quality of the school environment significantly influences the effectiveness of teaching, learning, administration, and overall educational outcomes. Environmental sustainability practices involve deliberate efforts by school authorities to maintain a clean, healthy, safe, and environmentally responsible learning environment through activities such as waste management, environmental sanitation, maintenance of school facilities, landscaping, drainage management, and conservation of educational resources. Educational service delivery, on the other hand, refers to the effectiveness with which schools provide instructional and support services that facilitate the attainment of educational goals.

The theoretical connection between these variables is based on the assumption that a conducive and sustainable school environment enhances the physical and psychological conditions necessary for effective teaching and learning. When schools implement sustainable environmental practices, learners and teachers operate within environments that promote health, safety, motivation, and productivity. Consequently, educational services are delivered more effectively, leading to improved learning outcomes and school performance.

Waste Management Practices and Educational Service Delivery

One of the major dimensions of school environmental sustainability is waste management. Effective waste management practices involve the provision of waste bins, segregation of waste, recycling initiatives, regular sanitation exercises, and proper disposal of refuse generated within the school environment. In Rivers State public schools, poor waste disposal practices often result in environmental pollution, offensive odours, disease outbreaks, and unhealthy learning conditions. Such conditions negatively affect students' attendance, concentration, and participation in academic activities. Conversely, schools that maintain effective waste management systems provide healthier learning environments that enhance educational service delivery.

Aderiye and Ovwromoh (2024) found that waste management practices contribute significantly to sustainable learning in secondary schools in Rivers State. Their study revealed that effective waste management reduces environmental hazards and promotes healthy school environments that support teaching and learning processes. The researchers further observed that regular sanitation exercises and proper waste disposal contribute to students' well-being and educational effectiveness. Similarly, Igbudu and Iibi (2025) reported that waste reduction plans and educational waste audits enhance the sustainable utilization of instructional facilities in public secondary schools in Rivers State. According to the study, proper management of waste prevents deterioration of educational facilities and ensures their continued availability for effective instructional delivery. When waste is properly managed within schools, the incidence of communicable diseases is reduced,

absenteeism among students and teachers decreases, and classroom activities proceed without environmental distractions. Therefore, effective waste management practices positively influence educational service delivery by creating an enabling environment for learning.

Environmental Maintenance Practices and Educational Service Delivery

Another important dimension of school environmental sustainability is environmental maintenance. Environmental maintenance practices include regular cleaning of school premises, maintenance of drainage systems, landscaping, tree planting, grass cutting, renovation of facilities, and beautification of school surroundings. A well-maintained school environment promotes safety, comfort, and aesthetic appeal, which in turn enhance students' motivation and teachers' effectiveness. Educational facilities such as classrooms, laboratories, libraries, toilets, and administrative offices function more efficiently when properly maintained. Consequently, educational services can be delivered effectively.

Osuji (2024) established that educational facilities maintenance strategies significantly promote effective school administration in public senior secondary schools in Rivers State. The study revealed that regular maintenance of school facilities improves functionality, minimizes disruption of academic activities, and supports effective management of educational resources. Likewise, Nwuke and Nwanguma (2025) observed that regular maintenance, supervision, and facility audits contribute to effective administration in public secondary schools in Rivers State. The researchers emphasized that well-maintained educational facilities support teachers' instructional activities and improve students' learning experiences. Environmental maintenance also contributes to psychological comfort and emotional well-being. Students are more likely to develop positive attitudes toward learning when they study in clean, attractive, and safe environments. Teachers similarly experience increased job satisfaction and commitment when school facilities are functional and conducive.

Sustainable School Environment and Instructional Effectiveness

Educational service delivery largely depends on the effectiveness of classroom instruction. Sustainable school environmental practices contribute to instructional effectiveness by creating conditions that facilitate concentration, participation, and interaction during teaching and learning. Schools characterized by cleanliness, adequate sanitation, proper waste disposal, and well-maintained facilities experience fewer interruptions to instructional activities. Teachers can effectively utilize instructional materials and facilities without concerns about environmental hazards or infrastructural deficiencies.

Ihuoma and Ebere found that environmental variables significantly influence students' quality learning outcomes in public secondary schools in Rivers State. Their study demonstrated that favourable environmental conditions positively affect teaching effectiveness and students' academic achievement. Furthermore, effective environmental management enables schools to maximize the utilization of available instructional resources. Educational facilities remain functional for longer periods, thereby supporting continuous instructional delivery and enhancing educational quality.

Sustainable School Environment and Students' Learning Outcomes

Educational service delivery is ultimately measured through students' learning outcomes. Sustainable environmental practices improve students' academic achievement by providing healthy and conducive learning conditions. A clean school environment minimizes health risks associated with poor sanitation and environmental pollution. Reduced illness among students translates into improved attendance and greater participation in learning activities. Additionally, aesthetically pleasing environments increase students' motivation and engagement with academic tasks.

Research on school environmental management in Nigerian secondary schools revealed that practices such as proper drainage systems, landscaping, refuse disposal, grass clearing, and environmental sanitation contribute significantly to creating conducive learning environments. These practices enhance students' academic experiences and overall educational outcomes. Similarly, studies on environmental sustainability in schools have emphasized that sustainable educational environments support learners' cognitive development, environmental awareness, and academic success. Educational leaders who promote sustainability initiatives create institutional conditions that foster long-term educational quality and effectiveness.

Sustainable Utilization of Educational Resources and Service Delivery

School environmental sustainability practices also promote the efficient utilization of educational resources. Resources such as classrooms, furniture, instructional materials, laboratories, libraries, and information technology facilities require proper maintenance and protection from environmental deterioration. When sustainability practices are implemented, educational resources are preserved and utilized effectively, reducing wastage and ensuring their continuous availability. This enhances the capacity of schools to provide quality educational services. According to Igbudu and Iibi (2025), educational waste audits and reduction plans significantly improve the sustainable utilization of instructional facilities in public secondary schools in Rivers State. Their findings suggest that sustainable management of school resources enhances educational effectiveness and promotes continuous service delivery.

Methodology

This study adopts a correlational research design. The correlational design is considered appropriate because it enables the researcher to determine the nature and degree of relationship between school environmental sustainability practices and educational service delivery in public schools in Rivers State without manipulating the variables under investigation. The design facilitates the collection and analysis of quantitative data to ascertain the extent to which school environmental sustainability practices relate to educational service delivery. The study was conducted in Rivers State, Nigeria. Rivers State is one of the states in the South-South geopolitical zone of Nigeria and has a large number of public secondary schools distributed across its twenty-three Local Government Areas. The state has continued to implement educational reforms aimed at improving school effectiveness and educational quality, making it an appropriate setting for investigating school environmental sustainability practices and educational service delivery. The population of the study comprises 8,678 respondents, consisting of 310 principals and 8,368 teachers in the 310 public secondary schools in Rivers State. These categories of personnel were considered appropriate because they are directly involved in school administration, environmental management, instructional delivery, and educational service provision, and are therefore in a position to provide relevant information regarding school environmental sustainability practices and educational service delivery. A sample size of 382 respondents was determined using the Taro Yamane (1967) formula. The respondents were selected using a multistage sampling procedure. First, the stratified sampling technique was used to classify schools according to Local Government Areas. Second, proportionate sampling technique was employed to select schools from each stratum. Finally, simple random sampling technique was used to select principals and teachers who participated in the study. The instruments for data collection were researcher-developed questionnaires titled: "School Environmental Sustainability Practices Questionnaire (SESPQ) and "Educational Service Delivery Questionnaire (ESDQ)". The questionnaires were structured on a four-point rating scale as follows: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1. The instruments were subjected to face and content validation by experts in Educational Management

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and Measurement and Evaluation. The reliability of the instruments was determined using the Pearson Product Moment Correlation (PPMC) technique. The instruments were administered to 30 respondents outside the study area (Bayelsa State) but with characteristics similar to those of the study population. The responses obtained from the two administrations of the instruments were correlated using PPMC to determine the reliability coefficient. The computation yielded reliability coefficients of 0.80 and 0.84. Since the reliability coefficients were above the threshold of 0.70, the instruments were considered adequate for the study. Copies of the questionnaire were administered personally by the researcher with the assistance of trained research assistants. The research questions were answered using Pearson Product Moment Correlation (PPMC) to determine the extent of relationship between school environmental sustainability practices and educational service delivery. The hypotheses were tested using Multiple Regression Analysis at a 0.05 level of significance. Multiple regression analysis is considered appropriate because the study seeks to determine the joint and individual contributions of waste management practices and environmental maintenance practices to educational service delivery. The regression model is specified as: ESD = $\beta_0 + \beta_1 WMP + \beta_2 EMP + \varepsilon$. Where: ESD = Educational Service Delivery; WMP = Waste Management Practices; EMP = Environmental Maintenance Practices; β_0 = Constant term; $\beta_1 - \beta_2$ = Regression coefficients, and ε = Error term. For the hypotheses, the null hypothesis was rejected if the p-value was less than or equal to 0.05. Otherwise, the null hypothesis was accepted.

Results

Research Question 1: What is the relationship between waste management practices and educational service delivery in Rivers State public schools?

Table 1: Pearson Product Moment Correlation Analysis on Waste Management Practices and Educational Service Delivery (N = 382)

Variable	N	r	Sig. (2 tailed)	Decision
Waste Management	382	0.673	0.000	Significant Relationship
Educational Service Delivery	382			

Source: SPSS Output (2026)

Since the p-value (.000) is less than 0.05, there is a significant positive relationship between waste management practices and educational service delivery in Rivers State public schools. The correlation coefficient (r = .673) indicates a strong positive relationship between waste management practices and educational service delivery. This implies that improvement in waste management practices is associated with improvement in educational service delivery.

Research Question 2: What is the relationship between environmental maintenance practices and educational service delivery in Rivers State public schools?

Table 2: Pearson Product Moment Correlation Analysis on Environmental Maintenance Practices and Educational Service Delivery (N = 382)

Variable	N	r	Sig. (2 tailed)	Decision
Environmental Maintenance Practices	382	0.724	0.000	Significant Relationship
Educational Service Delivery	382			

Source: SPSS Output (2026)

Since the p-value (.000) is less than 0.05, there is a significant positive relationship between environmental maintenance practices and educational service delivery. The correlation coefficient (r = .724) indicates a strong positive relationship between environmental maintenance practices and educational service delivery.

Hypothesis 1: There is no significant relationship between waste management practices and educational service delivery in Rivers State public schools

Table 3: Regression Coefficient of Waste Management Practices on Educational Service Delivery

Predictor Variable	Unstandardized B	Std. Error	Standardized Beta (β)	t-value	Sig. (p-value)	Decision
Waste Management Practice	0.391	0.043	0.384	9.093	0.000	Reject H_{01}

Source: SPSS Output (2026)

Table 3 shows that waste management practices have a standardized beta coefficient of β = 0.384, with a t-value of 9.093 and a corresponding p-value of 0.000. Since the p-value (0.000) is less than the 0.05 level of significance, the null hypothesis is rejected. The null hypothesis stating that waste management practices do not significantly contribute to educational service delivery in Rivers State public schools is rejected. This result indicates that waste management practices significantly contribute to educational service delivery in Rivers State public schools. The positive beta coefficient (β = 0.384) suggests that improvements in waste management practices are associated with improvements in educational service delivery. This implies that schools that effectively manage waste through proper disposal, sanitation, and environmental cleanliness are more likely to experience enhanced instructional effectiveness and improved learning outcomes.

Hypothesis 2: There is no significant relationship between environmental maintenance practices and educational service delivery in Rivers State public schools.

Table 4: Regression Coefficient of Environmental Maintenance Practices on Educational Service Delivery

Predictor Variable	Unstandardized B	Std. Error	Standardized Beta (β)	t-value	Sig. (p-value)	Decision
Environmental Maintenance Practices	0. 487	0.041	0.502	11.878	0.000	Reject H_{01}

Source: SPSS Output (2026)

Table 4 shows that environmental maintenance practices have a standardized beta coefficient of β = 0.502, with a t-value of 11.878 and a corresponding p-value of 0.000. Since the p-value is less than 0.05, the null hypothesis is rejected. Since the p-value (.000) is less than 0.05, the null hypothesis is rejected. Therefore, environmental maintenance practices have a significant relationship with educational service delivery in Rivers State public schools. Environmental maintenance practices significantly contribute to educational service delivery in Rivers State public schools.

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Multiple Regression Analysis

Table 5: Summary of Multiple Regression Analysis on School Environmental Sustainability Practices and Educational Service Delivery

Model	R	R^2	Adjusted R^2	Std. Error
1.	0. 782	0.611	0.608	0.435

Source: SPSS Output (2026)

The coefficient of determination (R^2 = .611) indicates that waste management practices and environmental maintenance practices jointly explain 61.1% of the variance in educational service delivery in Rivers State public schools, while the remaining 38.9% is attributable to other variables not included in the study.

Table 5a: ANOVA Table for Multiple Regression

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	112.643	2	56.322	297.814	0.000
Residual	71.675	379	0.189		
Total	184.318	381			

Source: SPSS Output (2026)

The ANOVA result shows that $F(2,379) = 297.814$, $p < .05$. This indicates that the regression model is statistically significant. Therefore, school environmental sustainability practices jointly predict educational service delivery in Rivers State public schools.

Table 5b: Regression Coefficients Table

Variables	B	Std. Error	Beta	t	Sig.	Decision
Constant	0.912	0.151		6.040	0.000	Fail to Accept Null hypothesis
Waste Management Practices	0.391	0.043	0.384	9.093	0.000	
Environmental Maintenance Practices	0.487	0.041	0.502	11.878	0.000	

Source: SPSS Output (2026)

The regression coefficients indicate that both waste management practices ($\beta = .384$, $p < .05$) and environmental maintenance practices ($\beta = .502$, $p < .05$) significantly contribute to educational service delivery. Environmental maintenance practices contributed more strongly to educational service delivery than waste management practices. Since the p-values associated with waste management practices (.000) and environmental maintenance practices (.000) are less than the 0.05 level of significance, the null hypotheses are rejected. Therefore, school environmental sustainability practices significantly predict educational service delivery in Rivers State public schools.

Discussion of Findings

Waste Management Practices and Educational Service Delivery

The findings of the study revealed a significant positive relationship between waste management practices and educational service delivery in Rivers State public schools ($r = .673$, $p < .05$). The result further showed that waste management practices significantly contributed to educational

service delivery (β = .384, t = 9.093, p < .05). This implies that improvements in waste management practices are associated with improvements in educational service delivery. The positive relationship observed in this study suggests that schools that effectively manage waste through proper collection, segregation, disposal, recycling, and sanitation practices are more likely to provide quality educational services. Effective waste management helps to maintain clean and healthy school environments, reduces environmental hazards, minimizes the spread of communicable diseases, and creates conducive conditions for teaching and learning. When school environments are free from waste accumulation and environmental pollution, students are more likely to attend school regularly, participate actively in learning activities, and achieve better educational outcomes.

The finding is not surprising because environmental cleanliness is an important factor in promoting effective teaching and learning. Poor waste management often results in offensive odours, environmental pollution, health challenges, and distractions that interfere with classroom activities. Conversely, schools that maintain effective waste disposal systems provide an atmosphere that enhances students' concentration, motivation, and academic engagement. This finding corroborates the study of Aderiye and Ovwromoh (2024), who found that waste management practices significantly promote sustainable learning in secondary schools in Rivers State. Their study revealed that proper waste management reduces environmental hazards and supports the creation of healthy learning environments that facilitate effective educational processes. The present finding also agrees with Igbudu and Iibi (2025), who reported that educational waste audit and reduction plans contribute significantly to the sustainable utilization of instructional facilities and educational effectiveness in public secondary schools.

The implication of this finding is that school administrators and educational stakeholders should prioritize effective waste management practices as part of broader efforts aimed at improving educational service delivery. Schools should provide adequate waste disposal facilities, organize regular sanitation exercises, and promote environmental awareness among students and staff.

Environmental Maintenance Practices and Educational Service Delivery

The findings also revealed a significant positive relationship between environmental maintenance practices and educational service delivery (r = .724, p < .05). The result further showed that environmental maintenance practices significantly contributed to educational service delivery (β = .502, t = 11.878, p < .05). This indicates that environmental maintenance practices play an important role in enhancing educational service delivery in Rivers State public schools. The result implies that schools that regularly maintain their physical environment through cleaning, landscaping, drainage maintenance, renovation of facilities, grass cutting, and beautification programmes are more likely to achieve effective educational service delivery. Environmental maintenance contributes to the preservation of educational facilities and ensures that learning environments remain safe, functional, and attractive for educational activities.

The stronger beta coefficient obtained for environmental maintenance practices (β = .502) compared to waste management practices (β = .384) suggests that environmental maintenance practices exert a relatively greater influence on educational service delivery. This may be because environmental maintenance directly affects the physical conditions under which teaching and learning occur. Well-maintained classrooms, school buildings, libraries, laboratories, and school compounds provide teachers and students with a conducive atmosphere that promotes effective instructional delivery and learning.

The finding supports the position of Osuji (2024), who reported that educational facilities maintenance strategies significantly promote effective school administration in public secondary schools in Rivers State. According to the author, regular maintenance of school facilities enhances the functionality of educational resources and minimizes disruptions to academic activities. The

finding is also consistent with Nwuke and Nwanguma (2025), who found that effective management and maintenance of school facilities contribute to improved administrative effectiveness and educational quality.

Furthermore, the finding aligns with the work of Obong, Okey, and Okaba (2010), who observed that environmental sanitation, landscaping, proper drainage maintenance, and beautification of school environments are essential strategies for creating conducive learning environments in Nigerian secondary schools. Such practices promote students' comfort, increase motivation to learn, and enhance overall educational outcomes. The implication of this finding is that educational authorities should allocate adequate resources for the maintenance of school facilities and environments. School administrators should also establish regular maintenance schedules to ensure that educational facilities remain functional and supportive of effective teaching and learning.

Conclusion

Based on the findings of this study, it was concluded that school environmental sustainability practices have a significant positive relationship with educational service delivery in Rivers State public schools. Specifically, waste management practices and environmental maintenance practices were found to be significant predictors of educational service delivery. The findings revealed that schools that effectively manage waste and maintain their physical environment are more likely to experience improved instructional effectiveness and enhanced learning outcomes. The study further established that environmental maintenance practices exerted a greater influence on educational service delivery than waste management practices. Collectively, the two dimensions of school environmental sustainability practices contributed substantially to variations in educational service delivery. Therefore, the attainment of quality educational service delivery in Rivers State public schools is largely dependent on the extent to which sustainable environmental practices are implemented and sustained within the school system.

Recommendations

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

1. School administrators should strengthen waste management practices by providing adequate waste disposal facilities, organizing regular sanitation exercises, and promoting waste segregation and recycling initiatives to maintain clean and healthy learning environments.
2. School principals should implement regular environmental maintenance programmes, including classroom renovation, drainage maintenance, landscaping, grass cutting, and beautification of school premises to ensure conducive learning environments.

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