**Original Article**

# SCHOOL MAPPING AND RESOURCE UTILIZATION AS CORRELATES OF STUDENTS' LEARNING OUTCOMES IN ENUGU STATE OWNED SECONDARY SCHOOLS

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**Abstract** The study examined school mapping and resource utilization as correlates of students' learning outcomes in Enugu State owned secondary schools. Two research questions guided the study and two null hypotheses were tested at 0.05 alpha level. Correlational survey research design was adopted for the study. The study's population comprised 298 principals and 8,116 teachers from 298 public secondary schools in Enugu State. The sample was 1,110 respondents comprising 298 principals and 812 teachers. Since the number of principals was manageable, all were included in the sample. For the teachers, the researcher used a stratified random sampling method to select 10% from each educational zone. The instrument for data collection was questionnaire. The instrument was validated by three experts. To ascertain the internal consistency of the instrument, Cronbach alpha statistic was used. The computation yielded 0.80 for cluster A and 0.82 for cluster B. The instrument had an overall reliability index of 0.81 which indicates that the instrument was reliable and, therefore, considered appropriate for use. The researcher used Pearson's Product Moment Coefficient to answer the two research questions, while linear regression analysis was used to test the hypotheses. The study's findings indicated a high correlation between the location of schools and students' learning outcomes in public secondary schools in Enugu State. Additionally, a high correlation was found between the availability of school resources and students' learning outcomes. Based on the findings, the researcher recommended that policymakers should prioritize the strategic location of new schools to ensure accessibility for all students in Enugu State.

**Keywords:** School Mapping, Resource Utilization, Students' Learning Outcomes, Secondary Education, Enugu State

## Introduction

Education is the systematic process of facilitating learning, or the acquisition of knowledge, skills, values, beliefs, and habits through various methods such as teaching, training, research, and guided practice. It serves as a fundamental instrument for personal development and societal advancement, enabling individuals to contribute effectively to

their communities and the broader world. According to Ollor (2021), education holds considerable importance in shaping and nurturing both human and natural resources. Additionally, Ogbuanya and Okoye (2015) suggested that education serves as a potent catalyst for societal transformation, fostering social welfare, political consciousness, and thereby contributing to overall economic advancement. Education at the secondary level is critical to the development of essential academic skills, personal growth, and the preparation of students for higher education or vocational careers.

In the Nigerian system, secondary education is the educational stage following primary education, typically comprising six years divided into three years of junior secondary school and three years of senior secondary school, aimed at providing students with a comprehensive education that prepares them for higher education, vocational training, or entry into the workforce. Mosha (2014), acknowledged that the quality of secondary school education cannot be separated from the context and circumstances that are found in schools. According to Okoro (2015), secondary education is designed to foster national unity, with emphasis on the common ties that unite us in our society. The drivers of secondary educational programs are the teachers, who play a pivotal role in delivering curriculum content and shaping the educational experiences of students (Okoro, 2019). Their expertise, dedication, and instructional strategies are essential for fostering an environment conducive to learning and ensuring that educational objectives are met effectively.

A teacher is an educator who facilitates learning by imparting knowledge, skills, and values to students through various instructional methods and techniques. Beyond transmitting information, a teacher serves as a mentor, guide, and motivator, nurturing students' intellectual, social, and emotional development. A teacher in the professional usage is a person trained or recognized and employed to help learning in a classroom situation in order to achieve set educational goals (Oke-Udo, 2014). Teachers and principals share a symbiotic relationship within educational institutions, as teachers deliver instruction and implement curriculum under the guidance and leadership of principals, who oversee administrative duties, provide support to teachers, and shape the overall vision and direction of the school. Effective collaboration between teachers and principals is essential for creating a positive learning environment and promoting student success.

A principal is the educational leader and administrative head of a school, responsible for overseeing its daily operations, implementing policies, managing staff, fostering a positive learning environment, and ensuring the overall academic success and well-being of students. Egwu (2016) defined a principal as a leader who must plan, coordinate and supervise the affairs of the school so that they run smoothly. Ogbonnaya (2013), referred to the principal as the Chief Executive of secondary schools in Nigeria. Principals play the most crucial role in mobilizing and translating all these resources to school effectiveness in terms of improving their students' performance in external examinations both in junior secondary school examination (JSSCE) and senior secondary school examinations (SSSE). Principals play a crucial role in school mapping initiatives by providing essential insights into the educational needs, priorities, and resources within their institutions, thus facilitating the effective spatial organization and analysis of data to

optimize resource allocation and strategic planning for school development.

Meanwhile, school mapping is the process of spatially organizing and analyzing data related to educational institutions, often for the purpose of optimizing resource allocation, planning, and decision-making in the education sector. Bakar (2015) characterized school mapping as a dynamic process that involves the systematic identification and allocation of educational facilities within communities and designated sites, guided by a comprehensive plan or policy framework. This process not only ensures strategic placement of schools but also considers factors such as population distribution, infrastructure accessibility, and educational needs to optimize the effectiveness and efficiency of educational resource utilization. By employing school mapping methodologies, policymakers and educational stakeholders can make informed decisions to enhance educational access, equity, and quality within a given region or jurisdiction. Ekpoh (2018) on the other hand, considers school mapping as a set of techniques and procedures used to identify future needs in education at the local level and to plan for measures to be taken to meet them. School mapping facilitates informed decision-making by providing a visual representation of educational infrastructure and demographics, which in turn enables authorities to identify areas of need and allocate resources efficiently to ensure optimal utilization of available resources.

Resource utilization refers to the efficient and effective deployment and management of available resources to meet organizational objectives and maximize output. Utilization is referred to as making use of something in a purposeful and effective way. According to Amalu (2015), utilization involves the active application of resources and tools to enhance educational practices and outcomes within learning environments. This definition underscores the importance of employing various items, such as instructional materials, technology, and teaching strategies, to facilitate effective teaching and learning experiences. By embracing utilization as a means to improve educational practices, educators can harness the full potential of available resources to support student learning and achievement. The efficient utilization of resources stands as a cornerstone in the effective functioning of educational systems, as underscored by Akinsolu (2012), who highlights the critical role that manpower and materials play in determining the success of these systems. Akinmola (2012) underscores the vital role of resources in education by highlighting that the most effective learning takes place when students engage in discovery, exploration, and interaction within their learning environments, both within the classroom and beyond.

This perspective emphasizes the essential connection between resources and the creation of rich, immersive learning experiences that foster deep understanding and knowledge retention. By recognizing the centrality of resources in facilitating such experiences, educators can strategically allocate and utilize resources to create environments conducive to active learning and holistic development. Ultimately, this approach enhances the educational journey and empowers students to thrive academically and personally. Consequently, the judicious utilization of resources in educational settings not only foster conducive learning environments but also holds the potential to significantly influence students' learning outcomes.

Students' learning outcomes refer to the observable and measurable knowledge, skills, abilities, and attitudes that students acquire as a result of their

educational experiences, reflecting their level of achievement and mastery in specific subject areas or competencies. Students' learning outcomes are defined as observable and measurable knowledge, skills, abilities, and attitudes that students acquire as a result of their educational experiences (Suskie, 2018). These outcomes reflect the level of achievement and mastery in specific subject areas or competencies.

Despite the recognized importance of efficient resource allocation and spatial organization in educational settings, there is a lack of comprehensive understanding of how these factors specifically influence students' learning outcomes in Enugu State secondary schools. The correlation between school mapping and resource utilization and its impact on students' learning outcomes in Enugu State-owned secondary schools presents a critical issue for educational stakeholders.

**Statement of the Problem**

Reports from parents, stakeholders, and the wider community highlight concerns regarding the condition of facilities in Enugu State-owned secondary schools. Key stakeholders in secondary education have raised issues regarding insufficient ventilation and lighting in schools and classrooms, particularly those situated near technical workshops, industries, and main roads. Furthermore, there is a shortage of instructional resources, with those available often not being effectively utilized by teachers, as noted by different researchers. These deficiencies create an environment that is not conducive to teaching and learning, potentially impacting student learning outcomes negatively. Given the aforementioned concerns, it is evident that the lack of proper school mapping, inadequate facilities, and underutilization of instructional resources cannot be ignored. It is based on the above background that this study examined school mapping and resources utilization as correlates of students' learning outcomes in Enugu State owned secondary schools.

Specifically, the study sought to examine the correlation between:

1. School location and students' learning outcomes in Enugu State owned secondary schools;
2. The availability of school resources and students' learning outcomes in Enugu State owned secondary schools.

**Research Questions**

The following research questions guided the study:

1. What is the correlation between school location and students' learning outcomes in Enugu State owned secondary schools?
2. What is the correlation between the availability of school resources and students' learning outcomes in Enugu State owned secondary schools?

**Hypotheses**

The following hypotheses were formulated and tested at .05 alpha level:

**$H_{O1}$:** There is no significant relationship between school location and students' learning outcomes in Enugu State owned secondary schools.

**$H_{O2}$:** There is no significant relationship between the availability of school resources and students' learning outcomes in Enugu State owned secondary schools.

**Research Method**

Correlational survey research design was adopted for the study. Correlational survey research design indicates the direction and magnitude of the relationship between variables (Nworgu, 2015). The study's population comprised 298 principals and 8,116 teachers from 298 public secondary schools in Enugu State. The sample was 1,110 respondents comprising 298 principals and 812 teachers. Since the number of principals was manageable, all were included in the sample. For the teachers, the researcher used a stratified random sampling method to select 10% from each educational zone. The instrument for data collection was questionnaire titled "School Mapping and Resource Utilization as Correlates of Students' Learning Outcomes Questionnaire (SMRUSRCSLOQ)".

The instrument was validated by three experts. Two experts were from Department of Educational Management and one expert was from Measurement and Evaluation unit of Department of Science and Computer Education, all from Faculty of Education, Enugu State University of Science and Technology (ESUT), Enugu. In order to assess the reliability of the instrument, Cronbach's alpha statistic was computed, resulting in coefficients of 0.80 for cluster A and 0.82 for cluster B, indicating strong internal consistency within each cluster. The overall reliability index of 0.81 further confirms the instrument's reliability, demonstrating its suitability for measuring the constructs under investigation with consistency and accuracy. Therefore, the instrument is deemed appropriate for use in gathering data for the study, providing confidence in the reliability of the results obtained. The researcher used Pearson's Product Moment Correlation Coefficient in answering the four research questions. Hypotheses were tested using linear regression analysis at 0.05 level of significant. In answering the research questions, the coefficient (r) and the size of the relationship was interpreted using the interpretation of correlation coefficient by Downie and Heath cited in Nworgu (2015) as shown: 0.80 and above for high, above 0.30 below 0.80 for moderate and 0.30 and below for low respectively. For hypotheses, when the calculated was greater than or equal to the table value, the null hypothesis was rejected, but when the table value was greater, the hypothesis was not rejected.

**Results Presentation**

**Research Question 1:** What is the correlation between school location and students' learning outcomes in Enugu State owned secondary schools?

**Table 1: Pearson's Correlation between school location and students' learning outcomes in secondary schools**

| | | | **School Location** | **Students' learning outcomes** | **Dec.** |
|---|---|---|---|---|---|
| **School Location** | Correlation Coefficient<br>Sig. (2-tailed)<br>N | 1110 | 1.00 | .805 | High |
| **Students' learning outcomes** | Correlation Coefficient<br>Sig. (2-tailed)<br>N | 1110 | .805 | 1.00 | |

The above table presents the Pearson's Correlation Coefficient, r(1110) = .805, indicating a high relationship between the variables. This high correlation signifies that the location of schools has a significant impact on students' learning outcomes in Enugu State-owned secondary schools.

**Research Question 2:** What is the correlation between the availability of school resources and students' learning outcomes in Enugu State owned secondary schools?

**Table 2: Pearson's Correlation between availability of school resources and students' learning outcomes in secondary schools**

| | | | Availability of school resources | Students' learning outcomes | Dec. |
|---|---|---|---|---|---|
| **Availability of school resources** | Correlation Coefficient<br>Sig. (2-tailed)<br>N | 1110 | 1.00 | .858 | High |
| **Students' learning outcomes** | Correlation Coefficient<br>Sig. (2-tailed)<br>N | 1110 | .858 | 1.00 | |

The analysis of the provided data indicates a Pearson's Correlation Coefficient of r(1110) = .858, suggesting a strong association between the variables under scrutiny. This high correlation underscores the significant impact of school resource availability on students' learning outcomes in Enugu State-owned secondary schools.

**Hypotheses**

**$HO_1$:** There is no significant relationship between school location and students' learning outcomes in Enugu State owned secondary schools.

**Table 3: Regression Analysis of the Correlate between school location and students' learning outcomes**

| Model | Sum of Squares | Df | Mean Square | F | Sig. | Decision |
|---|---|---|---|---|---|---|
| Regression | 281.44 | 1 | 281.44 | 4.56 | 0.00 | S |
| Residual | 828.56 | 1110 | 9.38 | | | |
| Total | 1110.00 | 1110 | | | | |

$R^2 = 0.05$

From the data provided in Table 3, an important regression equation was identified ($F(1, 1110) = 4.56$, $p < 0.05$), yielding an R2 of 0.05. It is evident from the table that the computed F value (4.56) surpasses the significant threshold (.000). Consequently, the researcher rejected the null hypothesis and determined that there exists a statistically significant relationship between school location and students' learning outcomes in Enugu State-owned secondary schools.

**$HO_2$:** There is no significant relationship between the availability of school resources and students' learning outcomes in Enugu State owned secondary schools.

**Table 4: Regression Analysis of the correlate between availability of school resources and students' learning outcomes**

| Model | Sum of Squares | df | Mean Square | F | Sig. | Decision |
|---|---|---|---|---|---|---|
| Regression | 302.78 | 1 | 302.78 | 6.09 | 0.00 | S |
| Residual | 807.22 | 1110 | 10.62 | | | |
| Total | 1110.00 | 1110 | | | | |

$R^2 = 0.05$

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The analysis revealed a notable regression equation ($F(1, 1110) = 6.09$, $p < 0.05$), indicating a relationship between school resources availability and students' learning outcomes, with an R2 of 0.05. In comparison to the critical value of 0.05, the calculated F value (6.09) exceeded it, leading to rejection of the null hypothesis and affirming the statistical significance of the relationship in Enugu State owned secondary schools.

**Discussion of Findings**

The finding of the study revealed a high correlation between the location of schools and students' learning outcomes in Enugu State-owned secondary schools. This suggests that the proximity and accessibility of schools significantly influence learning outcomes of students. Therefore, strategically located schools can enhance educational achievements among students. The finding aligns with the studies by Adewale (2012) and Mhiliwa (2015), both of whom asserted that the location of a school significantly impacts the learning activities of secondary school students. This corroborates the notion that students' academic performance can be influenced by the geographical positioning of their educational institutions. Consequently, ensuring that schools are conveniently located is crucial for optimizing students' learning experiences and outcomes.

The outcome of the study revealed a strong correlation between the availability of school resources and students' learning outcomes in Enugu State-owned secondary schools. This indicates that the presence of adequate resources, such as textbooks, laboratory equipment, and teaching aids, plays a crucial role in enhancing students' academic performance. Therefore, ensuring that schools are well-equipped with necessary resources is essential for improving educational outcomes. The finding aligns with the research by Adaja and Osagie (2015), who emphasized that the presence of adequate facilities in schools leads to improved performance by both staff and students. They stated that well-equipped schools enable teachers to perform their duties more effectively, directly contributing to better academic outcomes for students. Consequently, ensuring the provision of sufficient facilities is critical for fostering an environment conducive to high academic achievement.

**Conclusion**

The study concludes that both the location of schools and the availability of school resources significantly impact students' learning outcomes in public secondary schools in Enugu State. Specifically, there is a high correlation between the proximity of schools and the learning outcomes of students. Furthermore, the presence of adequate school resources is strongly associated with improved learning outcomes of students. These findings highlight the importance of strategic school placement and resource allocation to enhance educational achievements.

**Recommendations**

Based on the findings, the study recommended that:

1. To enhance students' learning outcomes, policymakers should prioritize the strategic location of new schools to ensure accessibility for all students in Enugu State.
2. Efforts should be made by the state government to increase the availability and quality of school resources, ensuring that all schools are well-equipped to support effective teaching and learning.

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