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## ASSESSING QUALITY EDUCATION DETERMINANTS: THE ROLE OF EDUCATIONAL RESOURCE CENTRES IN PUBLIC SCIENCE AND TECHNICAL SENIOR SECONDARY SCHOOLS IN NORTH-WEST NIGERIA

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### Abstract

This research titled “ Assessing Quality Education Determinants: The Role of Educational Resource Centres in Public Science and Technical Senior Secondary Schools in North-West Nigeria.” was guided by one objective Assess the opinion of the respondents on influence of Educational Resource Centre Services with their corresponding research question and hypothesis. Related theory and empirical studies were reviewed, Descriptive survey research design was adopted to collect data from the respondents. Multi-stage sampling technique was employed for this study. The total aggregate population for the study was 7,015 while the total sample size was 365. The instrument used for the collection of data was questionnaire tagged “Influence of Educational Service Questionnaire (IESQ)”. The instrument was validated by experts. The data was analysed and interpreted through the use of Analysis of Variance (ANOVA). Null hypothesis were tested and rejected. Based on the findings of this research, Respondents have similar opinions that educational resource Centre’s facilitate quality education Respondents share similar opinions that educational resource Centre’s facilitate quality education (Mean Diff. = 0.55;  $p = .799$ ). Based on the findings, two key recommendations were made: first, make it easier for teachers to get resources from Educational Resource Centres; second, use teacher feedback to design more relevant professional development training.

**Keywords:** Assess, Quality, Education, Determinant, Programmes

### Introduction

Quality education imparted through effective instruction is not solely about achieving good grades but also about the acquisition of appropriate values, skills, and competencies to make an individual a useful member of society (Oviawe, 2020). For education to achieve this holistic objective, it must be of high quality, which, as Nwogu and Ogunyemi (2021) opine, should extend beyond examination success to include the acquisition of skills across the cognitive, affective, and psychomotor domains, facilitated by a school's enhanced ability to support the work of teachers and students. This support is encapsulated in the provision and effective management of Educational Support Services (ESS).

It is therefore, against this background that the researcher was motivated to look at the situations of our public science and technical senior secondary schools and how the educational support service (ESS) is planned based in accordance with the designed guidelines. This is because of the fact that the

overall educational goals could only be achieved when there are available educational support services among public science and technical senior secondary schools in the country. This necessitated for the need to undertake research on “influence of educational support services on quality education in public science and technical senior secondary schools in North-West Zone, Nigeria”. The results of the findings have obviously helped the researcher to proffer recommendations for better school educational support services in North-western part of Nigeria. Educational Resource Center’s (ERCs) are essential institutional facilities required in public science and technical senior secondary schools in accordance with the provisions of the National Policy on Education (NPE). These centres are established to provide instructional materials, professional support systems, and technological equipment that enhance the teaching and learning process. Educational Resource Centers typically contain a wide range of equipment and materials including multimedia devices, curriculum guides, instructional aids, digital technologies, science kits, and professional development resources for teachers and students. Within the Nigerian education system, the Federal Ministry of Education (2019) recognizes Educational Resource Centers as strategic structures designed to strengthen curriculum implementation and improve learning outcomes across secondary schools. In public science and technical senior secondary schools, ERC equipment supports practical learning, technological experimentation, and innovative teaching practices that are necessary for effective science and technical education.

### **Statement of the Problem**

The quality of basic and secondary education in North-West Nigeria remains critically low, with systemic weaknesses in teacher capacity and institutional support structures. Education Resource Centres (ERCs), established under the National Policy on Education to provide instructional materials, professional support, and in-service training for teachers in every state, have largely failed to fulfill their mandate. Analysis reveals that poor implementation and misplacement of government funding have negatively affected the growth and functionality of ERCs, leaving teachers without accessible hubs for teaching aids, modern pedagogy, and peer learning. This institutional gap contributes directly to poor learning outcomes, as only 61% of 6–11 year-olds attend primary school regularly in the North West, with female net attendance as low as 47.3%.

Compounding the ERC deficit is the inadequate state of staff development programs for teachers across the North-West Zone. Although federal and partner interventions like the Teacher Development Program and UNICEF’s Educate A Child project have trained teachers in Sokoto and other states, coverage remains fragmented and sustained. Research from the zone shows that teacher motivation and job satisfaction are constrained by social, economic, and political factors, affecting instructional effectiveness. In Sokoto State, studies confirmed significant relationships between staff development programmes (workshops, conferences) and teachers’ performance, yet access to such training is irregular.

The intersection of dysfunctional Education Resource Centres has created a cycle of professional stagnation among teachers in North-West Nigeria. While the National Teachers’ Institute, Kaduna, runs capacity building programmes targeting the zone, and the Federal Government recently trained 243 technical teachers across the North-West under the IDEAS project, these efforts are undermined by poor teacher professional development identified as a core cause of poor education quality in the region. With classroom overcrowding and low enrolment persisting, the absence of functional ERCs and systematic, school-based staff development leaves teachers ill-equipped to improve learning.

This study is significant because it addresses a critical gap in existing research, which has often focused on individual factors influencing quality education, rather than examining the combined

impact of multiple factors. By exploring the relationships between educational resource centres, and quality education, this study can provide a more nuanced understanding of the complex issues at play. Ultimately, the findings of this study can inform strategies for improving quality education, enhancing teacher training, and optimizing the use of educational resources in the North West Zone of Nigeria.

### **Objectives of the Study**

The main purpose of this study is to investigate Determinants of Quality Education: Examining the Roles of Educational Resources Centres in public science and technical senior secondary schools in North-West zone, Nigeria. The specific objective are to:

Assess the opinion of the respondents on influence of Educational Resource Centre Services on the quality of education in public science and technical senior secondary schools in North-West Zone, Nigeria.

### **Research Questions**

The following research question were asked to guide the study:

1. In what ways does the Educational Resource Centre influence the quality of education in public science and technical senior secondary schools in North-West Zone, Nigeria?

### **Hypotheses**

The following null hypothesis were formulated and tested at a 0.05 level of significance:

H01: There is no significant influence in the Educational Resource Centres on Quality Education in Public Science and Technical Senior Secondary Schools of Northwest Zone, Nigeria. Nigeria?

### **Scope and Delimitation of the Study**

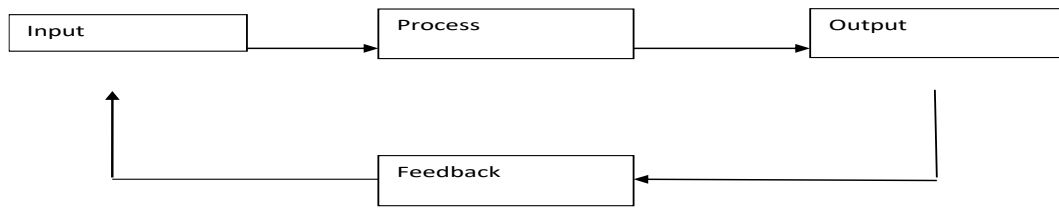
This research focuses on finding out the Determinants of Quality Education: Examining the Role of Educational Resource Centres in public science and technical senior secondary schools in North West Zone, Nigeria, Moreover, the study examines the influence of educational support services on quality education, excluding other factors that may affect student achievement, such as socio-economic status and parental involvement. However, the researcher relies on data collate from teachers, quality assurance officials, and school based management committee (SBMC), and the study did not investigate the causal relationship between educational support services and quality education, but rather examine the opinions of the three participant.

### **Theoretical Framework**

The use of theoretical framework has become imperative considering the fact that some terminologies in this research work are beyond conceptual explanations. For this reason, the researcher deemed it necessary to apply a theory that is relevant to the topic of the research. In view of the above, systems theory is employed to guide this research work.

#### **Application of Systems Theory to School**

In this framework, schools are viewed as open systems that rely on constant exchanges with their external context. They draw inputs such as students, teaching Officials, materials, policies, finances, and community expectations from the environment. These inputs enter a transformation process within the school, where they are shaped into outputs that re-enter society in the form of trained individuals, societal values, skills, and knowledge. The survival and effectiveness of an educational system depend on the quality of these exchanges, because weaknesses in any components of the system reverberate throughout the whole structure.



**Figure 2: Input –Process-Output cycle**

Source: (Pearsons, 1951:6)

**Methodology**

The study adopted descriptive survey research design. The population was 7,015 This population covers all the Public Science and Technical Senior Secondary Schools, SBMC Officials, Quality Assurance Officials and Teachers in science and technical Board North west zone Nigeria. Then the Respondents of this study is SBMC Officials, Teachers and Quality Assurance Officials which consist of 365 used as sample population of the research. Provision of Educational Services Questionnaire (PESQ) was developed by the researchers and 30 question items to address the two researcher questions and two research hypotheses. The instrument was vetted and a 4-Likert Scale ranging from strongly agreed SA (4), agreed A (3), disagreed D (2) and strongly disagreed SD(1) was used to answer the question items. The measurement of the reliability of the instrument was established using the peer review correlation reliability index which indicated Crabach’s Alpha calculated at 0.81. The reliability of the instrument was established through test re-test method. The data obtained from the study were analyzed using percentages, mean and Analysis of Variance ANOVA. The result as presented below:

**Results**

**Research Question One:** In what ways does the Educational Resource Centre influence the quality of education in public science and technical senior secondary schools in North-West Zone, Nigeria?

**Table 1: Mean and Standard Deviation of Educational Resource Centre on the Quality Education in Public Science and Technical Senior Secondary Schools**

S/N	Item	Respondent Category	SD	D	A	SA	Mean	Std. Dev.	N
1	The ERC provides adequate teaching aids (charts, models, kits) for science/technical subjects	SBMC Officials	09	12	24	15	2.78	1.089	60
		Quality Assurance Officials	18	32	20	34	2.77	1.079	104
		Teachers	30	75	50	46	2.70	1.079	201
2	Teachers can easily access ERC resources for lesson preparation	SBMC Officials	22	17	12	09	2.02	1.034	60
		Quality Assurance Officials	20	32	15	37	2.20	1.035	104
		Teachers	40	80	30	51	2.12	1.044	201

S/N	Item	Respondent Category	SD	D	A	SA	Mean	Std. Dev.	N
3	The ERC offers training on using instructional materials effectively	SBMC Officials	31	14	08	07	2.12	1.121	60
		Quality Assurance Officials	10	33	27	34	2.17	1.128	104
		Teachers	22	80	40	59	2.32	1.141	201
4	ERC resources are aligned with the national curriculum	SBMC Officials	13	20	13	14	2.28	1.031	60
		Quality Assurance Officials	20	35	20	29	2.24	1.021	104
		Teachers	15	90	60	36	2.38	1.021	201
5	The ERC supports the production of local teaching materials	SBMC Officials	14	19	13	14	2.36	1.141	60
		Quality Assurance Officials	10	40	25	29	2.40	1.141	104
		Teachers	30	60	50	61	2.30	1.141	201
6	Students use ERC resources for project work and revision	SBMC Officials	16	15	14	15	2.49	1.220	60
		Quality Assurance Officials	08	32	25	39	2.50	1.210	104
		Teachers	30	60	40	71	2.47	1.225	201
7	ERC staff assist teachers in developing customized teaching aids	SBMC Officials	20	13	12	15	2.29	1.114	60
		Quality Assurance Officials	20	12	40	32	2.24	1.119	104
		Teachers	50	35	70	46	2.39	1.124	201
8	The ERC has functional ICT tools (computers, projectors) for teachers	SBMC Officials	12	29	07	12	2.49	1.000	60
		Quality Assurance Officials	10	28	14	52	2.50	1.090	104
		Teachers	25	50	15	111	2.47	1.080	201
9	Resource availability reduces teachers' workload	SBMC Officials	14	27	11	08	2.31	0.944	60
		Quality Assurance Officials	30	12	40	22	2.41	0.964	104
		Teachers	40	60	38	63	2.21	1.144	201

S/N	Item	Respondent Category	SD	D	A	SA	Mean	Std. Dev.	N
10	ERC services are regularly evaluated and updated	SBMC Officials	17	14	08	21	2.50	1.105	60
		Quality Assurance Officials	08	40	12	44	2.48	1.175	104
		Teachers	33	67	88	13	2.52	1.100	201
11	The ERC facilitates access to past examination papers and syllabi	SBMC Officials	08	18	15	19	2.80	1.087	60
		Quality Assurance Officials	18	28	20	38	2.86	1.077	104
		Teachers	35	70	42	54	2.77	1.067	201
12	Inadequate ERC resources limit innovative teaching	SBMC Officials	10	12	18	20	2.02	1.043	60
		Quality Assurance Officials	45	45	67	91	2.22	1.033	248
		Teachers	117	66	92	51	2.20	1.013	326
13	The ERC promotes collaborative resource sharing among schools	SBMC Officials	26	19	09	06	2.11	1.123	60
		Quality Assurance Officials	07	23	20	54	2.21	1.143	104
		Teachers	30	69	43	59	2.10	1.133	201
14	ERC services enhance practical demonstration in science/technical classes	SBMC Officials	24	14	11	11	2.30	1.039	60
		Quality Assurance Officials	10	44	13	37	2.35	1.029	104
		Teachers	18	92	28	63	2.40	1.030	201
15	Overall, the ERC significantly supports quality education delivery	SBMC Officials	14	21	11	14	2.32	1.126	60
		Quality Assurance Officials	09	36	19	40	2.30	1.140	104
		Teachers	20	79	49	53	2.42	1.146	201

Accepted at 2.5 Sources: Field Survey (Salisu, 2025)

Table 1 revealed that the grand total mean of 2.37 is below the 2.50 threshold required for acceptance. This indicates that, collectively, the stakeholders perceive the influence of the Educational Resource Centre on the quality of education in public science and technical senior secondary schools as inadequate. There is a high level of agreement across all three categories of respondents. SBMC

Officials (2.35), Quality Assurance Officials (2.39), and Teachers (2.38) all yielded weighted means that fall short of the benchmark. This suggests a consistent view across administrative, oversight, and teaching staff that the ERC is not meeting its functional goals. Based on the means and grand mean, the Educational Resource Centre is interpreted as having an insufficient impact on educational quality. While the center may possess physical materials, it is not yet effectively integrated into the daily pedagogical practices of the schools studied in the North-West Zone.

### Testing Hypothesis

HO1. There is no significant influence of Educational Resource Centres on Quality Education in Public Science and Technical Senior Secondary Schools of Northwest Zone, Nigeria.

Table 2: ANOVA Statistics showing for Differences the Influence of Educational Resource Centres on Quality Education

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	635.658	2	317.829	12.165	.000
Within Groups	9457.806	362	26.127		
Total	10093.463	364			

Note from table 2 that the sum of the squares within and between the groups were 635.658 and 9457.806, the degree of freedom is 2 for teachers, SBMC officials and Quality Assurance Officials. The means squares between and within the groups are 317.829 and 26.127, the f-calculated is 12.165. The p-values obtained .000 which greater than the level of significant of 0.05. Hence, the null hypothesis which earlier established no significant variation in the opinion of the participants concerning the influence of educational resources centres on the quality education is hereby rejected. The reason for the rejection is that based on the analysis there is a statistically significant difference among the participants views. This necessitated for the post hoc analysis to explain the magnitude of the differences in their opinions of the participants as contained in table 2

Table 3: Sheffe Test Post Hoc Analyses for the Differences in the Opinion of the Participants

(I) Respondents	(J) Respondents	Mean Difference (I-J)	Std. Error	Sig.
SBMC Officials	Teachers	2.72985*	.75195	.002
	Quality Assurance Officials	.12308	.82865	.989
Teachers	SBMC Officials	-2.72985*	.75195	.002
	Quality Assurance Officials	-2.60677*	.61741	.000
Quality Assurance Officials	SBMC Officials	-.12308	.82865	.989
	Teachers	2.60677*	.61741	.000

Note from table 3 that the p-value of .002 noticed with teachers' and SBMC officials show that they have little variations in their opinion regarding the positive influence of educational resources centres on quality education as depicted in their mean differences of 2.72 and -2.2 depicted that some SBMC staff slightly do not see educational resources Centres as an institution for improving quality

education. However, the Quality Assurance officials have similar opinions concerning the fact that educational resources centers facilitate quality education as contain in their mean difference of 0.12 which also denotes positive opinion with p-value of .989. By implication all participants (SBMC officials, teachers and Quality Assurance officials) have common opinion that staff development program has positive influence quality education in the public science and technical senior secondary schools of Northwest, zone Nigeria.

### **Discussions and Findings of research Questions**

Research question 1 regarding the extent to which Educational Resource Centres (ERCs) influence Quality Education in Public Science and Technical Senior Secondary Schools in the Northwest Zone, Nigeria, based on the data in Table 3.

However, Educational Resource Centres falls below the 2.50 acceptance threshold. This demonstrates a collective perception among stakeholders that the ERCs are underperforming and are not currently providing the level of support necessary to sustain high-quality science and technical education.

Discussions and Findings of research hypothesis

Based on the ANOVA results in Table 3, this hypothesis is rejected. The F-calculated value is 10.957 and the p-value is .000, which is significantly less than the alpha level of 0.05. This indicates that there is a statistically significant difference in how different stakeholders view the influence of these programs

The null hypothesis (Ho1) suggested that Educational Resource Centres (ERCs) have no significant influence on Quality Education in Public Science and Technical Senior Secondary Schools in the Northwest Zone, Nigeria.

The ANOVA results in Table 3 clearly reject this null hypothesis. With an F-calculated value of 12.165 and a p-value of .000 (which is significantly lower than the 0.05 threshold), the data proves that there is a statistically significant difference in how stakeholders perceive the impact of these centre's. This rejection confirms that Educational Resource Centres are indeed a significant factor in the quality of education provided.

The most important takeaway from the analysis is that all three groups—SBMC officials, Teachers, and Quality Assurance officials—agree that Educational Resource Centres have a positive influence on quality education. The rejection of the null hypothesis doesn't mean they disagree on the benefit, but rather that they differ in the intensity of their belief or their perspective on how effective these Centre's currently are.

The Scheffe Test in Table 3 reveals where the specific differences in opinion lie, The Teacher Perspective vs. Others: There is a significant statistical difference between Teachers and SBMC officials ( $p=.002$ ) and between Teachers and Quality Assurance officials ( $p=.000$ ). The mean differences (2.72 and 2.60) suggest that while teachers value these Centre's, their practical, daily experience with the resources might lead them to a different valuation than the administrative groups. SBMC and Quality Assurance Alignment: These two groups are almost in perfect agreement ( $p=.989$ ). Their views on the role of ERCs are virtually identical, likely because both groups view the centres from a management and oversight perspective rather than a daily instructional perspective.

The data notes that some SBMC staff slightly hesitate to view Educational Resource Centres as a primary "institution" for quality improvement. This suggests that while they recognize the value of the materials provided, they may feel that the centres themselves require better organizational structure or more consistent integration into the school system to be truly effective.

### **Conclusion**

The study concludes that while Educational Resource Centres are significant drivers of quality education in Public Science and Technical Senior Secondary Schools in North-West Nigeria, there is a clear perception gap. The less enthusiastic response from teachers suggests that current initiatives are not sufficiently aligned with their practical needs, particularly regarding modern pedagogical techniques."

### **Recommendations**

Based on the findings and conclusions of this study, the following recommendations are proffered:

The Teachers Professional Development Institutes should design training programs based on comprehensive needs assessments involving teachers.

The Educational Resource Centres should streamline access procedures to enable teachers to easily obtain resources for lesson preparation.

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