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EFFECTIVENESS OF INSTRUCTIONAL SUPERVISION IN PROMOTING QUALITY EDUCATION IN SENIOR SECONDARY SCHOOLS IN BORNO STATE

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ABSTRACT

Senior secondary schools in Borno State continue to face persistent challenges in delivering quality education, despite ongoing efforts to improve instructional practices. This study examined the direct effect of instructional supervision on quality education, while also exploring the mediating role of teacher motivation and the moderating influence of school resources. A cross-sectional survey design was adopted, targeting senior secondary school teachers in Maiduguri Metropolis. Data were collected from a stratified sample using a structured questionnaire and analyzed using Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM). Results revealed statistically significant relationships among all constructs, with standardized correlation coefficients ranging from 0.929 to 1.043. Instructional supervision showed a strong direct effect on quality education ($\beta = 0.472$, $p < 0.001$), while teacher motivation significantly mediated this relationship ($\beta = 0.385$, $p < 0.001$). School resources is also a key moderator, exhibiting the highest variance (0.522) among latent constructs. The overall model fit was excellent with the following indices; RMSEA < 0.05, CFI > 0.95 and TLI > 0.95. The structural model explained 92% of the variance in quality education (Nagelkerke $R^2 = 0.920$) which highlights the critical role of integrated supervisory practices, teacher engagement and resource adequacy. Based on these findings, the study recommends a multidimensional approach to school improvement, one that strengthens instructional supervision, enhances teacher motivation and ensures equitable resource distribution to foster sustainable educational outcomes.

Keywords: Instructional Supervision, Quality Education, Structural Equation Modeling, Confirmatory Factor Analysis

Introduction

In today's rapidly evolving educational settings, instructional supervision has re-emerged as a vital strategy for improving teaching quality and student achievement. This is especially true in regions like Borno State, Nigeria, where schools face persistent challenges such as limited resources, high teacher turnover, and infrastructural deficits. In such contexts, supervision goes beyond routine oversight it becomes a transformative tool for professional development, curriculum alignment, and pedagogical enhancement (Adebayo & Olatunde, 2022).

When applied consistently and with purpose, instructional supervision fosters a culture of accountability and continuous learning among educators (Okonkwo *et al*., 2023), helping to bridge the gap between classroom practice and national education standards (UNESCO, 2021).

Yet, the effectiveness of supervision is not guaranteed. It is often shaped if not constrained by external factors like teacher motivation and the availability of school resources (Yusuf & Ibrahim, 2024). In Borno State, where many schools operate under strained conditions, the potential of supervision to drive meaningful change is frequently undermined. Teachers may receive guidance, but without adequate materials or supportive environments, the impact is diluted. Moreover, vague supervisory roles and inconsistent feedback mechanisms further weaken its influence (Okonkwo *et al*., 2023). This study, therefore, seeks to explore not only the direct effect of instructional supervision on quality education but also how teacher motivation mediates this relationship and how school resources moderate it offering a more holistic view of what drives educational improvement.

Recent scholarship has reaffirmed the central role of instructional supervision in enhancing teaching effectiveness and student outcomes. Adebayo and Olatunde (2022) argue that supervision must be developmental, emphasizing regular classroom observation and constructive feedback to improve instructional practices. Similarly, Mohammed and Garba (2023), focusing on Borno State, found that instructional leadership significantly influences academic performance, though its impact varies across urban and rural schools due to disparities in resource availability. UNESCO (2021) global report further supports this, highlighting supervision as a tool for accountability and improved learning outcomes when paired with capacity-building and data-driven feedback systems.

However, instructional supervision alone is insufficient without motivated teachers and adequate resources. Yusuf and Ibrahim (2024) demonstrated that teacher motivation driven by recognition, autonomy, and supportive supervision acts as a mediator between administrative support and student achievement. Chukwuma and Eze (2022) emphasized the importance of feedback quality, showing that timely and actionable feedback enhances teacher engagement and innovation. These findings suggest that supervision must be relational and responsive to individual teacher needs to be truly effective.

The availability of school resources also plays a moderating role in the effectiveness of supervision. Okonkwo *et al*. (2023) found that inadequate infrastructure and limited instructional materials hinder teaching quality, even under strong supervision. Adetola and Bello (2025) introduced a forward-looking perspective by exploring how ICT integration in supervision enhances

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transparency and efficiency, especially in underserved areas. These studies highlight the need for a multidimensional approach to instructional supervision one that accounts for teacher motivation and resource adequacy to foster sustainable improvements in educational quality.

Objectives of the Study

The objectives of the study are to:

1. To examine the direct effect of Instructional Supervision on Quality Education in senior secondary schools.
2. To determine whether Teacher Motivation mediates the relationship between Instructional Supervision and Quality Education.
3. To assess whether School Resources moderate the effect of Instructional Supervision on Quality Education.

Research Hypotheses

H_{01}: Instructional Supervision has no positive direct effect on Quality Education in senior secondary schools in Borno State.

H_{02}: Teacher Motivation mediates the relationship between Instructional Supervision and Quality Education in senior secondary schools in Borno State.

H_{03}: School Resources moderate the relationship between Instructional Supervision and Quality Education such that the effect is stronger in schools with higher resources.

Methodology

This study adopted a quantitative research approach using a cross-sectional survey design to examine how instructional supervision influences quality education in senior secondary schools in Borno State. This design is widely recognized for its efficiency in capturing data across diverse populations within a defined timeframe (Creswell & Creswell, 2018). Data were collected from a stratified sample of teachers across urban and rural schools using a structured questionnaire that measured four key constructs: Instructional Supervision, Teacher Motivation, School Resources, and Quality Education. Each construct was assessed through multiple Likert-scale items adapted from previously validated instruments (DeVellis, 2017). To ensure the robustness of the measurement model, Confirmatory Factor Analysis (CFA) was conducted, which is a standard technique for verifying the factor structure of latent variables and assessing construct validity (Brown, 2015). Following CFA, Structural Equation Modeling was employed to test the hypothesized relationships among the constructs. SEM is particularly effective for analyzing complex models involving mediation and moderation effects (Kline, 2016), and model fit indices such as RMSEA, CFI and TLI were used to evaluate the adequacy of the structural model, in line with recommended thresholds for good model fit (Hu & Bentler, 1999).

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Presentation of Results

Confirmatory Factor Analysis

To establish the validity and reliability of the constructs used in this study; Instructional Supervision, Teacher Motivation, School Resources and Quality Education, Confirmatory Factor Analysis (CFA) was first conducted. This technique allowed for a rigorous evaluation of how well the observed variables aligned with their theoretical constructs, ensuring that the measurement model was statistically sound before proceeding to structural analysis. CFA helped identify the strength of item loadings and highlighted areas where certain indicators may not fully capture the intended dimensions.

Following the validation of the measurement model, Structural Equation Modeling (SEM) was employed to test the hypothesized relationships among the constructs. SEM provided a comprehensive framework for analyzing both direct and indirect effects, including the mediating role of teacher motivation and the moderating influence of school resources. This approach enabled to understand how instructional supervision interacts with other variables to influence educational quality, setting the foundation for interpreting the structural relationships in the subsequent analysis.

Table 1: Latent Variable Loadings (Factor Structure)

		Estimate	Std.Err	z-value	P(>|z|)	Std.lv	Std.all
Instructional Supervision	=~						
IS1		1.000			0.687	0.972	
IS2		0.254	0.024	10.483	0.00	0.175	0.606
IS3		0.37	0.035	10.564	0.00	0.254	0.609
IS4		0.322	0.034	9.401	0.00	0.221	0.563
IS5		0.988	0.039	25.349	0.00	0.679	0.897
Quality Education	=~						
QE1		1.000			0.31	0.705	
QE2		0.208	0.049	4.275	0.00	0.064	0.295
QE3		1.205	0.12	10.037	0.00	0.373	0.695
QE4		1.114	0.137	8.152	0.00	0.345	0.564
QE5		2.284	0.173	13.182	0.00	0.707	0.917
Teacher Motivation	=~						
TM1		1.000			0.621	0.845	
TM2		1.290	0.115	11.24	0.00	0.801	0.679
TM3		1.342	0.062	21.771	0.00	0.833	0.995
TM4		0.883	0.061	14.424	0.00	0.548	0.803
TM5		0.782	0.06	13.014	0.00	0.485	0.752
School Resources	=~						
SR1		1.000			0.723	0.838	
SR2		0.219	0.04	5.525	0.00	0.158	0.379
SR3		0.647	0.051	12.587	0.00	0.468	0.745
SR4		0.686	0.05	13.631	0.00	0.496	0.786
SR5		0.554	0.044	12.557	0.00	0.401	0.744

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Results from table 1 presented the Confirmatory Factor Analysis which shows how effectively the items of the research instrument measure their intended theoretical constructs. Results revealed that, several items serve as strong, defining measures of their constructs. Instructional Supervision, items IS1 (0.972) and IS5 (0.897) demonstrate high loadings, indicating that they are core representatives of this latent variable. Similarly, QE5 (0.917) is a highly reliable indicator of Quality Education, while TM3 (0.995) and TM1 (0.845) are central to capturing Teacher Motivation. All factor loadings are statistically significant, indicating that each item contributes to its respective latent variable.

Table 2: Covariances & Correlations between Latent Variables

Covariance	Estimate	SE	z-value	P(>|z|)	Std.lv	Std.all
IS ~~ QE	0.213	0.026	8.112	0.000	0.999	0.999
IS ~~ TM	0.419	0.047	8.929	0.000	0.982	0.982
IS ~~ SR	0.461	0.053	8.625	0.000	0.929	0.929
QE ~~ TM	0.191	0.025	7.664	0.000	0.992	0.992
QE ~~ SR	0.234	0.030	7.761	0.000	1.043	1.043
TM ~~ SR	0.419	0.051	8.145	0.000	0.934	0.934

Table 2 presents the covariances and standardized correlations between the four latent constructs: Instructional Supervision, Quality Education, Teacher Motivation and School Resources. The results indicate strong and positive interrelationships among all variables, with standardized correlation coefficients ranging from 0.929 to 1.043. Each relationship is statistically significant at $p < 0.001$, highlighting the robustness of these associations. These findings suggest that improvements in one domain such as supervision are likely to reinforce gains in others, including teacher motivation and resource utilization, ultimately enhancing educational quality.

Table 3: Latent Variables

Parameter	Estimate	SE	z-value	p-value	Std.lv	Std.all
Latent Variables						
Instructional Supervision	0.472	0.05	9.429	0.000	1	1
Quality Education	0.096	0.017	5.781	0.000	1	1
Teacher Motivation	0.385	0.052	7.429	0.000	1	1
School Resources	0.522	0.072	7.256	0.000	1	

Table 3 presents the estimated variances of the four latent constructs. The Estimate column shows the raw variance of each factor before standardization. All variances are statistically significant with a p-value less than 0.001, confirming that each latent variable represents a significant amount of variation among the respondents. The raw

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estimates reveal differences in how much the constructs vary. School Resources shows the highest amount of raw variance at 0.522, indicating that respondents' perceptions of this factor differ the most from each other. In contrast, Quality Education has a very small raw variance of 0.096, suggesting that respondents' views on this concept are much more homogeneous or similar.

The Std.lv column shows that all variances have been standardized to a value of 1.00 for the purpose of model scaling. That is, the concepts of School Resources and Instructional Supervision, with a variance of 0.472, are the areas where there is the most disagreement or diversity of opinion among the participants. The concept of Quality Education is one where there is very strong agreement as most respondents seem to agree on its level.

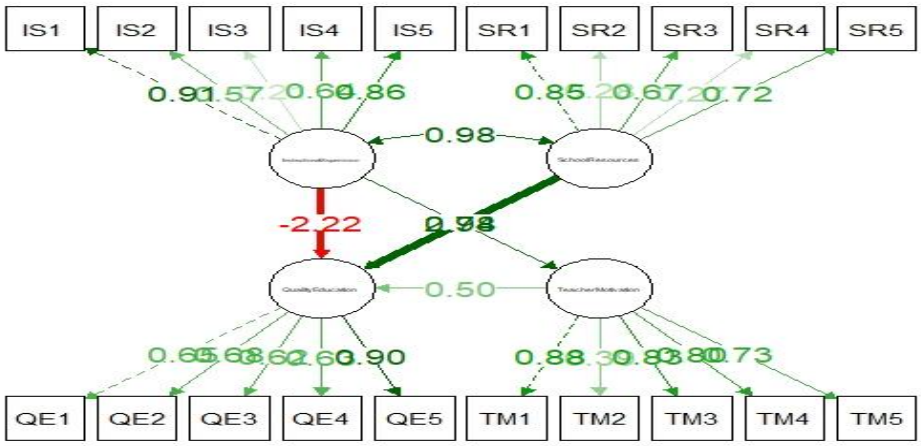


Figure 1: Structural Equation Model showing direct, mediating, and moderating effects

Discussion

The findings from this study shows the interconnected roles of instructional supervision, teacher motivation, school resources and quality education in senior secondary schools in Borno State. The strong and statistically significant correlations among all four constructs suggest that these elements do not operate in isolation but rather form a tightly woven framework of school effectiveness. This aligns with Adebayo and Olatunde (2022), who emphasized that

supervision must be developmental and integrated with broader institutional support to yield meaningful improvements in teaching quality.

The mediating role of teacher motivation observed in this study aligned with the work of Yusuf and Ibrahim (2024) who found that motivated teachers are more responsive to supervisory feedback and more committed to instructional improvement. Similarly, Chukwuma and Eze (2022) highlighted the importance of feedback quality in fostering teacher engagement an element that appears to be reflected in the high factor loadings for motivation-related items in your model. These parallels reinforce the idea that supervision is most effective when it is relational, supportive, and tied to intrinsic teacher incentives.

The moderating influence of school resources also finds support in the literature. Okonkwo *et al.* (2023) reported that resource adequacy significantly shapes the impact of supervision on instructional delivery, a finding which is in line with the current study where School Resources showed the highest variance among constructs. Adetola and Bello (2025) further argued that integrating ICT tools into supervision enhances transparency and efficiency, especially in underserved regions a recommendation that could be particularly relevant for Borno State, given the infrastructural challenges identified in your study.

Conclusion

This study examined the interconnected roles of instructional supervision, teacher motivation, school resources, and quality education in senior secondary schools in Borno State. Using confirmatory factor analysis and structural equation modeling, the research revealed strong, statistically significant relationships among all four constructs, suggesting they function as a unified framework for school effectiveness. These findings align with recent literature emphasizing the need for integrated, supportive supervision and adequate resources to enhance teacher performance and student outcomes.

REFERENCES

Adebayo, T., & Olatunde, M. (2022). Instructional supervision and teacher effectiveness in Nigerian secondary schools. *Journal of Educational Leadership and Policy, 14*(2), 45–59.

Adetola, K., & Bello, R. (2025). Integrating ICT in instructional supervision: A Nigerian perspective. *African Journal of Educational Technology, 9*(1), 22–38.

Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (2nd ed.). Guilford Press.

Chukwuma, E., & Eze, C. (2022). Feedback mechanisms in instructional supervision and teacher engagement. *Nigerian Journal of Teacher Development, 11*(3), 67–81.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.

DeVellis, R. F. (2017). *Scale development: Theory and applications* (4th ed.). SAGE Publications.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55.

Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). Guilford Press.

Mohammed, A., & Garba, S. (2023). Instructional leadership and academic performance in Borno State senior secondary schools. *Borno Educational Review, 18*(1), 33–50.

Okonkwo, J., Ibrahim, M., & Lawal, T. (2023). School resources and instructional delivery in Northern Nigeria. *West African Journal of Education, 20*(2), 88–104.

UNESCO. (2021). Global education monitoring report: Accountability in education Meeting our commitments. United Nations Educational, Scientific and Cultural Organization.

Yusuf, A., & Ibrahim, H. (2024). Teacher motivation as a mediator in educational outcomes: Evidence from Nigerian secondary schools. *International Journal of Educational Research in Africa, 7*(1), 12–29.