

INFLUENCE OF DATA DRIVEN DECISION MAKING ON ADMINISTRATIVE EFFECTIVENESS IN STATE COLLEGES OF EDUCATION IN NORTH WEST, NIGERIA

BY

TUKUR, Yusuf Ibrahim ¹

ORCID ID: 0009-0001-4896-8315

usupht@gmail.com 07033679630

BASHAR, Sa'adu Isa ²

ORCID ID: 0000-0003-3007-4193

mmbashar1984@gmail.com 07062250773

MUHAMMAD, Abidah Danjuma ³

ORCID ID: 0009-0002-9503-9129

abidamhammad@gmail.com 07066667676

USMAN, Galadima⁴

ORCID ID: 0000-0002-8519-9287

08032441317

Department of Educational Management, Faculty of Education,
Sokoto State University, Sokoto^{1,2,3}

Department of Science Education, Faculty of Education,
Sokoto State University, Sokoto⁴

Abstract

Data-driven decision-making is an important aspect of the management of educational institutions. It is a process of collecting, analyzing, interpreting data, and using the information to make decisions. The study was undertaken to establish the influence of data-driven decision-making on the effectiveness of administration of State Colleges of Education in North-West Nigeria. The study was guided by two research questions and two hypotheses respectively. The survey research design was adopted in the study where a population of 2884 lecturers were sampled using research advisors (2006) table and proportionate stratified sampling techniques to select 346 respondents. Data-

driven decision-making questionnaire (DDDMQ) and administrative effectiveness questionnaire (AEQ) were used to gather data for the study. The questionnaires were validated by experts in the Department of Educational Management. The reliability analysis of the DDDMQ and AEQ revealed Cronbach's Alpha values of 0.91 and 0.89 respectively after pilot testing. The data collected were analyzed using descriptive statistics (mean and standard deviation) and inferential statistics (simple linear regression analysis). The results of the study revealed that DDDM influences planning and coordination effectiveness of the administrators of the State Colleges of Education in the North-West Nigeria to high extent. The study recommends that the State Colleges of Education in North-West Nigeria should incorporate data-driven decision-making into their planning processes.

Keywords: Data-driven decision-making, Administrative effectiveness, State colleges of education, and North-West, Nigeria

Introduction

Educational institutions globally are poised to be more accountable, effective, and data-informed as the pressure on enrolment increases, resources scarcity, and the expectations of stakeholders intensify. In this regard, one of the key attributes of contemporary educational management is Data-Driven Decision Making (DDDM). Gaftandzhieva, Hussain, Hilcenko, Doneva, & Boykova (2023) define DDDM as the process by which educational administrators gather, analyse, interpret, and utilise enrolment, staff, and resource data for planning and decision-making purposes. Administrators who adopt a data-driven approach to management replace intuitive guesswork and anecdotal information with verifiable information and, by extension, transform education management into an evidence-based practice (Mandinach & Gummer, 2016).

Administrative effectiveness, which entails the degree to which administrators carry out the basic functions of planning, coordinating, staffing, directing, and controlling, is instrumental in enhancing the mandate of any tertiary institution (Chigbu & Makapela, 2025). Planning and coordinating are among the core activities that contribute to administrative effectiveness because they enable administrators to formulate strategies, allocate resources, and execute them to achieve institutional objectives. Studies worldwide indicate that there is a positive relationship between administrative planning and coordination and the extent to which decision-makers use data analytics in their practice. For example, data-driven leadership fostered strategic alignment, accountability, and interdepartmental coherence in South African universities (Chigbu & Makapela, 2025). Similarly, the use of AI-driven business intelligence and analytics in higher education institutions in Indonesia increased decision-making accuracy and enhanced resource allocation and interdepartmental coordination (Ary, Andriani & Fauzzia, 2025). Effective planning is achieved when academic

administrators apply real-time student-tracking software and systems that boost transparency, communication, and organisational coordination in the tertiary education sector (Secreto, Ofirin & Tabo, 2025).

The significance of DDDM to administrative effectiveness in tertiary institutions is underpinned by the challenges that plague the higher education system in Nigeria. Inadequate infrastructural facilities, lack of harmony in organisational activities, and poor data management practices have hindered effective planning and slowed down decision-making in universities and colleges (Olorunfemi, 2023, as cited in Adeyemi & Okonkwo, 2024). The need for effective administration of State Colleges of Education in Nigeria cannot be overstressed since they provide the backbone of human resource development in Nigeria's basic education. These institutions' inability to manage their activities effectively reverberates in the poor quality of teacher education in Nigeria. Although previous studies worldwide have established the efficacy of DDDM in education management, little is known about how administrators in State Colleges of Education utilise institutional data to perform their duties effectively. It is against this background that the present study seeks to examine the influence of data-driven decision making on administrative effectiveness in State Colleges of education North West Nigeria.

Notwithstanding the growing awareness of the importance of DDDM, State Colleges of Education in North-West Nigeria still exhibit planning and coordination inefficiencies associated with reliance on intuition rather than evidence-based practices. Olorunfemi (2023), as cited in Adeyemi and Okonkwo (2024), reported that institutional strategic plans are often not data-driven, while limited information resources and weak management information systems hinder coordination. Although literature indicates that DDDM can improve planning and coordination (Byrd & Eddy, 2010; Chigbu & Makapela, 2025), its effectiveness may be limited where it is treated as a formality (Nurzen, 2022; Doğan & Ottekin-Demirbolat, 2023). Moreover, existing studies have largely focused on secondary or other tertiary institutions (Onu, Dedan, & Mosunmola 2024; Nwakanma et al., 2025), leaving limited empirical evidence on State Colleges of Education in North-West Nigeria. This gap therefore justifies examining the influence of DDDM on administrators' planning and coordination effectiveness in State colleges of education North West, Nigeria.

The study seeks to;

- Determine the influence of data-driven decision making on administrators' planning effectiveness in State Colleges of Education in North-West, Nigeria.
- Determine the influence of data-driven decision making on administrators' coordination effectiveness in State Colleges of Education in North-West, Nigeria.

The following research questions guided the study

1. To what extent does data-driven decision-making influence administrators' planning effectiveness in State colleges of Education in North West Nigeria?
2. To what extent does data-driven decision-making influence administrators' coordination effectiveness in State Colleges of Education in North West Nigeria?

The following hypotheses were tested in the study

H₀₁: Data-driven decision making has no significant influence on administrators' planning effectiveness in State Colleges of Education in North-West, Nigeria.

H₀₂: Data-driven decision making has no significant influence on administrators' coordination effectiveness in State Colleges of Education in North-West, Nigeria.

Literature Review

This section reviews related empirical studies related to the study

Concept of Data-Driven Decision Making

Data-driven decision making (DDDM) has become an important concept in contemporary educational management literature. It refers to the process by which educational administrators collect, analyse, interpret, and apply various types of data, including enrolment figures, staff performance records, and resource utilisation data, to plan, coordinate, and make decisions concerning a given institution (Gaftandzhieva et al., 2023). In other words, it is a cyclical decision-making process that involves institutional administrators analysing relevant data and using the findings to improve planning and coordination activities.

Concept of Administrative Effectiveness

Administrative effectiveness means the extent to which institutional administrators are able to perform their managerial duties, including planning, organising, coordinating, and controlling activities, to achieve institutional objectives (Chigbu & Makapela, 2025). For most tertiary institutions, administrative effectiveness is reflected in the ability of institutional administrators to use the available resources to achieve educational objectives. However, various studies indicate that administrative effectiveness is often undermined by challenges in educational institutions. For example, Adeyemi and Okonkwo (2024) examined the effectiveness of university administration in

Nigeria and discovered that institutional effectiveness was compromised by bureaucratic practices in the system. Similarly, Okonkwo, these shortcomings emanate from inadequate infrastructural facilities and insufficient adoption of information technology in administrative processes. These findings indicate that administrative effectiveness is often influenced by environmental factors and not always within the control of institutional administrators. Such insights are critical in understanding how DDDM may improve planning and coordination within the educational sector.

Theoretical Framework

This study was guided by Data-Based Decision-Making Theory and the Human Capital Theory. According to the Data-Based Decision Making (DBDM) theory, the use of data throughout the managerial process helps reduce assumptions and increases transparency in decision-making processes (Mandinach & Gummer, 2016). From this perspective, it is possible to argue that DDDM is a cyclical process that contribute to effective planning and coordination. Applying this theory to the current study, it is possible to anticipate that using institutional data will lead to planning and coordination activities that are evidence-based and therefore more effective. On the other hand, Human Capital Theory was developed by Becker (1964 as cited in Okoro, 2024) and is concerned with how individuals may acquire skills, knowledge, and competencies to improve their effectiveness and productivity. When applied to the current study, the theory suggests that data literacy skills and other competencies related to DDDM will determine how effectively planners and coordinators can perform their duties. In other words, these human capital variables mediate the relationship between data use and administrative effectiveness. Collectively, these theories are concerned with how evidence-based decision-making practices can improve managerial performance in organisations. As such, the two frameworks are integral to understanding how DDDM can improve planning and coordination within the North-Western State Colleges of Education.

Data-Driven Decision Making and Planning Effectiveness

Various empirical studies indicate a positive relationship between the use of systematic data and administrative planning effectiveness. For instance, Onu, Dedan, and Mosunmola (2024) analysed the role of school data use in the management practices of selected institutions in Kaduna State and concluded that such information contributed to improved planning and resource allocation practices among secondary school administrators. Specifically, the researchers discovered that the effectiveness of planning and resource allocation was dependent on the extent to which administrators received training and adopted systematic data utilisation practices. In a related study, Nwakanma, Unoaku, and Igwe (2025) investigated the impact of DDDM on the governance

practices of tertiary institutions in South-Eastern Nigeria and concluded that systematic use of data improved planning effectiveness. According to the researchers, the positive contribution of DDDM to planning effectiveness was dependent on the extent to which administrators adopted it as a decision-making methodology. By contrast, Byrd and Eddy (2010) analysed the impact of data use practices of American school principals and concluded that such practices facilitated positive school outcomes. According to Byrd and Eddy, the extent to which principals used data to facilitate collaborative instructional leadership practices predicted the magnitude of positive outcomes they recorded.

In contrast, Nurzen (2022) examined the planning practices of Indonesian school administrators and concluded that most of them used data to meet governmental regulations rather than improve planning effectiveness. According to the Nurzen, although most administrators collected and analysed data as part of the planning process, they did so to satisfy external agencies rather than utilise the information to improve planning practices. As such, the researcher concluded that the use of data by Indonesian school administrators was mostly superficial and ineffective. Similarly, these findings may apply to the State Colleges of Education in North-West Nigeria, indicating that data are used more to satisfy regulatory requirements than to improve planning effectiveness. Taken together, these findings indicate that DDDM can improve planning effectiveness but only when administrators have the requisite skills and utilise data to improve planning rather than for regulatory compliance.

Data-Driven Decision Making and Coordination Effectiveness

Similar to the relationship between data utilisation and planning effectiveness, there is a positive correlation between evidence-based decision-making and coordination effectiveness. For example, Chigbu and Makapela (2025) analysed the impact of data use on the leadership practices of selected educational institutions in South Africa and concluded that it improved strategic decision-making and organisational coordination. Chigbu and Makapela argue that data use contributes to administrative effectiveness by improving strategic decision-making and governance structures within educational institutions. In a related study, Ary, Andriani, and Fauzzia (2025) examined the impact of artificial intelligence business intelligence on the management practices of selected Indonesian higher education institutions and concluded that it improved decision-making, resource allocation, and organisational coordination. This study adds to the growing body of evidence that DDDM has a positive influence on institutional coordination effectiveness. According to Secreto, Ofirin, and Tabo (2025), the use of real-time student progress monitoring systems by educational administrators in the Philippines improved communication and coordination practices within the

institutions. This is because the use of such systems increased the transparency of the decision-making process and promoted timely communication between various stakeholders.

Contrary to these findings, Doğan and Ottekin-Demirbolat (2023) examined the effects of DDDM on the practices of school administrators in Turkey and concluded that it had a minimal effect on their planning and coordination activities. According to Doğan and Ottekin-Demirbolat, although school administrators used data as part of the decision-making process, their level of data literacy was minimal, thus affecting their ability to utilise the information to improve institutional practices. Furthermore, the researchers discovered that the data use practices of these administrators were geared towards satisfying external agencies rather than utilise the information to improve institutional practices. As such, they concluded that the lack of appropriate data literacy skills, as well as the absence of a formal data utilisation framework, limited the ability of these administrators to use data to improve organisational coordination. These findings contradict some of the earlier findings but highlight the need for administrators to have appropriate data literacy skills to leverage the benefits of DDDM.

Based on the findings of previous empirical studies, it is possible to conclude that DDDM has a positive influence on administrative effectiveness, as evidenced by improved planning and coordination practices. These findings are consistent across studies conducted in various parts of the world, including Nigeria, South Africa, Indonesia, the Philippines, the United States, and Turkey. Collectively, these studies provide sufficient evidence that DDDM is an effective approach to improving administrative effectiveness, although such benefits accrue when administrators have the necessary skills to utilise data and apply it to improve institutional practices. It is also evident from these studies that there are some environmental factors that affect the ability of administrators to use data to improve institutional practices. However, most of the studies conducted in Nigeria focus on secondary education or university education and not colleges of education. Specifically, the studies conducted by Onu, Dedan, and Mosunmola (2024) and Nwakanma, Unoaku, and Igwe (2025) focused on the effectiveness of DDDM in secondary and university education, respectively, and not colleges of education. As such, there is a need for more research on the role of DDDM in improving planning and coordination practices in state Colleges of Education North-West, Nigeria.

Methodology

The study adopted a survey research design with a population of 2,884 participants (lecturers) in State Colleges of Education North West Nigeria. A sample size of 346 was determined using the Research advisor (2006) table for determining sample size, proportionate stratified sampling technique was used to select 346 lecturers, while data were collected through adapted questionnaires

and validated by three experts from the department of Educational Management. Reliability testing using Cronbach's Alpha produced indices of 0.91 for the Data-driven decision-making questionnaire (DDDMQ) and 0.89 for administration effectiveness questionnaire (AEQ). Data were analysed using descriptive statistics of mean and standard deviation to answer research questions, and inferential statistics of simple linear regression to test hypotheses at the 0.05 level of significance with SPSS version 26, The mean scores were interpreted using Very high extent (VHE), High extent (HE), Low extent (LE), and very low extent (VLE)

Results

This section presents the analysis and interpretation of the data collected

Research Question one: To what extent does data-driven decision-making influence administrators' planning effectiveness in State colleges of Education in North West Nigeria?

The data in table one was used to answer research question one.

Table 1: Extent of DDDM influence on administrators planning effectiveness

SN	Items Statement	N	Mean	SD	Decision
1.	Administrators use institutional data to develop written strategic plans to guide institutional activities.	306	2.95	0.79	HE
2.	DDDM guides administrators' decisions in setting specific/measurable performance targets.	306	2.93	0.81	HE
3.	Administrators use data to identify institutional priorities and allocate resources during the planning process.	306	2.94	0.80	HE
4.	DDDM influences how administrators involve relevant stakeholders during the planning process	306	2.93	0.82	HE
5.	Administrators use data on implementation progress to periodically review institutional plans	306	2.94	0.77	HE
6.	DDDM helps administrators align departmental plans with institutional goals.	306	2.95	0.81	HE
Grand Mean = 2.94					

Source: Researchers Field Work (2026)

Table One shows that respondents perceived data-driven decision-making (DDDM) as influencing administrators' planning effectiveness to a high extent in State Colleges of Education in North-West Nigeria. All items recorded high mean scores ranging from 2.93 to 2.95, with a grand mean of 2.94 and standard deviations ranging from 0.77 to 0.82, indicating a high level of agreement among respondents. The finding implies that the use of institutional data enables administrators to formulate strategic plans, establish measurable targets, align departmental objectives with institutional goals, and review plans based on evidence. Therefore, DDDM enhances the quality, relevance, and effectiveness of planning processes. Going by the grand mean of 2.94, which falls within the benchmark range of 2.50–3.49, it is concluded that DDDM influences administrators' planning effectiveness to a high extent.

Research Question two: To what extent does data-driven decision-making influence administrators' coordination effectiveness in State Colleges of Education in North West Nigeria?

The data in table two was used to answer research question two.

Table 2: Extent of DDDM influence on administrators' coordination effectiveness

SN	Items Statement	N	Mean	SD	Decision
i	DDDM guides administrators' decisions in coordinating activities among departments	306	2.96	0.82	HE
i	Administrators use institutional data to ensure proper alignment between academic and administrative units.	306	2.95	0.82	HE
i	DDDM influences how administrators facilitate smooth collaboration among staff members.	306	2.95	0.81	HE
i	Administrators use data on task assignments to coordinate responsibilities and avoid duplication of efforts.	306	2.96	0.81	HE
v	DDDM shapes administrators' decisions in facilitating teamwork toward institutional objectives.	306	2.92	0.82	HE
Grand Mean = 2.95					

Source: Researchers Field Work (2026)

Table Two shows that respondents perceived data-driven decision-making (DDDM) as influencing administrators' coordination effectiveness to a high extent in State Colleges of Education in North-West Nigeria. The item mean scores ranged from 2.92 to 2.96, with standard deviations ranging from 0.81 to 0.82. The grand mean of 2.95 indicates a high extent of influence, while the close standard deviation values show consistency in respondents' opinions. The finding implies that the use of relevant institutional data enables administrators to coordinate activities across departments, align academic and administrative functions, promote staff collaboration, and effectively allocate responsibilities. This enhances organisational efficiency and supports the achievement of institutional goals. Therefore, based on the grand mean of 2.95, which falls within the benchmark range of 2.50-3.49 (HE), DDDM influences administrators' coordination effectiveness to a high extent.

Hypotheses Testing

In this section two null hypotheses were tested and presented using simple linear regression analysis at 0.05 level significance.

H₀₁: Data-driven decision making has no significant influence on administrators' planning effectiveness in State Colleges of Education in North-West, Nigeria.

The data in table three was used to test **H₀₁**

Table 3: Simple linear regression analysis showing the influence of DDDM on Administrators' Planning Effectiveness (APE)

Variable	N	B	SE.B	β	t	R	R ²	AR ²	F	P
DDDM	306	.259	.004	.963	62.376	.963	.928	.927	(1, 304) 3890.717	.000
APE (Constant)		.040	.290	----	.139					.889

Note Independent variable (DDDM), Dependent variable (APE)

Source: Researchers' Field Work (2026)

Table three shows the result of simple linear regression analysis examining the influence of data-driven decision-making (DDDM) on administrators' planning effectiveness in state colleges of education North West, Nigeria. The regression equation was found to be significant, $F(1, 304) = 3890.717$, $p < .000$, and explained 93% of the variance in planning effectiveness ($R^2 = .927$). The regression coefficient for DDDM was significant, $\beta = .963$, $p < .000$, indicating that for each additional unit of DDDM, administrators' planning effectiveness increased by 259 points ($B = .259$, $SE = .004$). Therefore, Since the obtained probability value p is less than the alpha level of .05, the hypothesis one (H_{01}) which state Data-driven decision making has no significant influence on administrators' planning effectiveness in State Colleges of Education in North-West, Nigeria is hereby rejected.

H₀₂: Data-driven decision making has no significant influence on administrators' coordination effectiveness in State Colleges of Education in North-West, Nigeria.

The data in table four was used to test **H₀₂**

Table 4: Simple linear regression analysis showing the influence of DDDM on Administrators' coordination effectiveness (ACE)

Variable	N	B	SE.B	β	t	R	R ²	AR ²	F	P
DDDM	306	.221	.004	.955	55.961	.955	.912	.911	$F(1,304) = 3131.602$	.000
ACE (Constant)		-.349	.276	----	-1.266					.207

Note Independent variable (DDDM), Dependent variable (ACE)

Source: Researchers' Field Work (2026)

Table four shows the result of simple linear regression analysis examining the influence of data-driven decision-making (DDDM) on administrators' coordination effectiveness in state colleges of education North West, Nigeria. The regression equation was found to be significant, $F(1, 304) = 3131.602$, $p < .000$, and explained 91% of the variance in coordination effectiveness ($R^2 = .912$). The regression coefficient for DDDM was significant, $\beta = .955$, $p < .000$, indicating that for each additional unit of DDDM, coordination effectiveness increased by 221 points ($B = .221$, $SE = .004$). Therefore, Since the obtained probability value p is less than the alpha level of .05, the hypothesis

two (H_{02}) which state Data-driven decision making has no significant influence on administrators' coordination effectiveness in State Colleges of Education in North-West, Nigeria is hereby rejected.

Summary of Findings

Based on the interpretation of data the following findings are drawn:

- Data-driven decision-making influences administrators' planning effectiveness at a high extent in state colleges of education in North-West, Nigeria.
- Data-driven decision-making influences administrators' coordination effectiveness at a high extent in State Colleges of Education in North-West, Nigeria.

Discussion of Findings

The finding from hypothesis one and research question one showed that DDDM has a positive influence on the planning of administrators in State Colleges of Education in North-West Nigeria. This finding agrees with Onu et al. (2024), Nwakanma et al. (2025), and Byrd and Eddy (2010), who found that systematic data use improved planning, resource allocation, policy formulation, budgeting, monitoring, and institutional improvement. However, the finding differs from Nurzen (2022), who reported that data were often used for compliance purposes rather than to improve planning. The finding is supported by data-based decision-making theory, which suggests that systematic data use reduces guesswork and promotes transparency and accountability, and human capital theory, which emphasises the importance of administrators' data analysis and interpretation skills in improving organisational outcomes (Mandinach & Gummer, 2016).

The finding from hypothesis two and research question two also revealed that DDDM has a positive influence on the coordination of State Colleges of Education in North-West Nigeria. This agrees with Chigbu and Makapela (2025), Ary et al. (2025), and Secreto et al. (2025), who found that effective data use improved strategic alignment, accountability, decision-making, resource management, communication, and inter-departmental coordination. Contrarily, Doğan and Ottekin-Demirbolat (2023) found that limited data literacy and weak data culture restricted administrators' ability to use data effectively. The findings are therefore explained by the Data Based Decision Making Theory and Human Capital Theory, as effective data use promotes evidence-based coordination, while administrators' data literacy and analytical competencies enhance organisational effectiveness and efficiency (Mandinach & Gummer, 2016).

Conclusion

The study concluded that data-driven decision-making (DDDM) significantly influences the administrative effectiveness of administrators of State Colleges of Education in North-West Nigeria, particularly in planning and coordination. DDDM was perceived to have a great influence on administrative effectiveness, while regression analysis showed that it explained 93% of the variance in planning effectiveness and 91% in coordination effectiveness, leading to the rejection of the null hypotheses. The study further concluded that DDDM improves administrators' ability to carry out planning and coordination activities effectively through the use of institutional data such as enrolment figures, performance statistics, and resource utilisation levels. Thus, DDDM is a demonstrably effective approach for improving administrative effectiveness. However, its success depends on administrators' data literacy and the institution's data culture.

Recommendations

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

1. State Colleges of Education in North-West Nigeria should strengthen data driven planning by using institutional data such as enrolment, staff performance, resource utilisation, and student satisfaction. Administrators should also receive training in data analysis and planning skills to improve the effectiveness of their plans.
2. The Colleges should invest in Management Information Systems (MIS) to provide relevant information for planning, organising, controlling, and staffing activities. Such systems should improve information integration across departments, reduce information exchange costs, and increase staff productivity. Heads of Departments should also hold regular coordination meetings to assess departmental progress using MIS-generated reports.

References

Adeyemi, T. A., & Okonkwo, C. (2024). Bureaucratic structures and administrative efficiency in Nigerian university systems. *Journal of Educational Management and Policy Studies*, 12(3), 45–58.

- Ary, D., Andriani, R., & Fauzzia, W. (2025). AI-driven business intelligence and institutional decision-making in Indonesian higher education. *International Journal of Educational Technology and Analytics*, 9(1), 22–38.
- Becker, G. S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education*. University of Chicago Press. (As cited in Okoro, 2024).
- Byrd, J. K., & Eddy, P. L. (2010). Engaging faculty with data: Examining the implications of data-driven decision-making for community college leaders. *Community College Journal of Research and Practice*, 34(7), 558–571.
- Chigbu, B. I., & Makapela, S. L. (2025). Data-driven leadership in higher education: Advancing sustainable development goals and inclusive transformation. *Sustainability*, 17(7), Article 3116. <https://doi.org/10.3390/su17073116>
- Doğan, S., & Ottekin-Demirbolat, A. (2023). Data-driven decision making in Turkish schools: Administrators' data literacy and data culture. *Educational Management Administration & Leadership*, 51(4), 812–830.
- Gaftandzhieva, S., Hussain, S., Hilcenko, S., Doneva, R., & Boykova, K. (2023). Data-driven decision making in higher education institutions: State-of-play. *International Journal of Advanced Computer Science and Applications*, 14(6), 1–10.
- Mandinach, E. B., & Gummer, E. S. (2016). *Data literacy for educators: Making it count in teacher preparation and practice*. Teachers College Press.
- Nurzen, Z. (2022). Data use in school planning: Compliance versus genuine practice in Indonesian schools. *Journal of Educational Administration Studies*, 6(2), 101–115.
- Nwakanma, A., Unoaku, C., & Igwe, P. (2025). Data-driven decision making and institutional governance in South-Eastern Nigerian universities. *Nigerian Journal of Higher Education Management*, 8(1), 33–49.
- Okoro, J. (2024). Human capital theory and managerial competence in Nigerian tertiary institutions. *African Journal of Educational Management Studies*, 10(2), 77–90.

- Olorunfemi, A. (2023). Bureaucratic bottlenecks and coordination challenges in Nigerian university administration. *Nigerian Journal of Educational Administration and Planning*, 15(2), 60–74. (As cited in Adeyemi & Okonkwo, 2024).
- Onu, C., Dedan, K., & Mosunmola, A. (2024). Systematic data use and administrative planning in Kaduna State secondary schools. *Journal of Educational Research and Policy Studies*, 13(1), 18–29.
- Research Advisors. (2006). *Sample size table*. <https://www.research-advisors.com/tools/SampleSize.htm>
- Secreto, P. V., Ofrin, D., & Tabo, E. (2025). Data-driven decision-making through real-time student progress monitoring: Academic administrators' perspectives. *International Journal of Information Technology Governance, Education, and Business*, 7(1), 97–115.