IJAAR PUBLISHING®

International Journal of Research in Education and Sustainable Development | ISSN: 2782-7666
Vol. 5, Issue 9 (2025) | www.ijaar.org/ijresd

IMPLEMENTING DATA-DRIVEN DECISION-MAKING IN TEACHING PRACTICE SUPERVISION: A CASE STUDY AT JIGAWA STATE COLLEGE OF EDUCATION AND LEGAL STUDIES, RINGIM

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Abstract

This study investigated the implementation of Data-Driven Decision-Making (DDDM) in teaching practice supervision at Jigawa State College of Education and Legal Studies, Ringim. The research examined how data is collected, analyzed, and applied to improve supervisory effectiveness and pre-service teacher performance. A mixed-methods design was employed, combining surveys, interviews, and document analysis involving 25 teaching practice supervisors and 60 pre-service teachers. Findings revealed that while supervisors recognize the value of data in instructional improvement, their data literacy and analytic skills remain limited. The introduction of DDDM improved feedback quality, transparency, and professional growth among student teachers. However, challenges such as inadequate training, inconsistent data collection tools, and limited institutional support constrained full adoption. The study concludes that systematic integration of DDDM can significantly enhance supervision quality, accountability, and teacher preparation outcomes. It recommends capacity-building workshops, institutional data frameworks, and digital data-collection platforms to strengthen evidence-based supervision practices in Nigerian teacher education institutions.

Keywords: Data-Driven Decision-Making (DDDM), Teaching Practice Supervision, Teacher Education, Data Literacy, Educational Improvement, Nigeria

Nasiru, A. (2025). Implementing Data-Driven Decision-Making in Teaching Practice Supervision: A Case Study at Jigawa State College of Education and Legal Studies, Ringim. *International Journal of Research in Education and Sustainable Development. 5*(9), 35-47. DOI: https://doi.org/10.5281/zenodo.17506663

1. Introduction

The demand for accountability, transparency, and effectiveness in teacher education has intensified over the last two decades, prompting educational institutions worldwide to adopt evidence-based approaches to instructional supervision and decision-making. Data-Driven Decision-Making (DDDM) has emerged as a transformative framework in this regard, providing a structured and empirical means of assessing teaching practices, monitoring learner outcomes, and guiding professional improvement (Brynjolfsson & McElheran, 2016). Within teacher education, particularly in the supervision of pre-service teachers during teaching practice, DDDM holds immense potential to revolutionize how supervisors evaluate performance, identify developmental needs, and provide actionable feedback.

Teaching practice represents a critical phase in teacher preparation, serving as a bridge between theoretical coursework and real classroom experience. It allows pre-service teachers to apply pedagogical knowledge, demonstrate competence, and cultivate reflective teaching habits. However, the effectiveness of this process largely depends on the quality of supervision provided. In most Nigerian Colleges of Education, supervision remains largely subjective, relying on qualitative impressions and anecdotal judgments. Supervisors typically observe lessons, assign numerical scores, and provide general comments without systematically analyzing quantitative and qualitative data that could reveal specific trends or areas of need. As a result, feedback often lacks precision, consistency, and the depth required to promote meaningful professional growth.

Data-Driven Decision-Making introduces a paradigm shift in this context. It emphasizes using reliable and valid data—such as classroom observation scores, student assessment results, attendance patterns, and reflective journals—to guide instructional decisions. When systematically applied, DDDM enables supervisors to move beyond intuition and develop targeted strategies that directly address identified weaknesses (Mandinach & Gummer, 2016). The approach also fosters a culture of continuous improvement, where teaching effectiveness is measured not by isolated observations but by accumulated data that reflect longitudinal progress.

Despite its growing prominence globally, DDDM adoption in teacher education across sub-Saharan Africa remains limited. Challenges such as inadequate data infrastructure, insufficient analytical skills, and resistance to change among educators often impede effective implementation (Fernandes, 2023). In Nigeria, the integration of DDDM into teacher education supervision is still at an early stage. Although national policies encourage evidence-based education, most institutions lack the technical tools and trained personnel required to operationalize such practices. This situation is exacerbated by limited access to digital platforms, poor internet connectivity, and insufficient institutional support for data collection and utilization.

At Jigawa State College of Education and Legal Studies, Ringim, the supervision of pre-service teachers has traditionally followed a manual and experience-based approach. Supervisors use observation forms and written notes to evaluate lesson delivery, classroom management, and student engagement. However, these records are rarely analyzed systematically to inform institutional decision-making or improve supervision strategies. Recognizing this gap, the present study explores how DDDM can be implemented as an innovative strategy for improving teaching practice supervision within the college.

By systematically collecting and analyzing data from multiple sources—such as lesson evaluations, feedback forms, and student achievement records—the institution can identify

patterns in teaching performance and develop more effective interventions. Furthermore, the introduction of DDDM aligns with Nigeria's ongoing educational reforms, particularly under the National Commission for Colleges of Education (NCCE) mandate for quality assurance and the Sustainable Development Goal (SDG) 4, which seeks to ensure inclusive and equitable quality education.

This study therefore investigates the extent of data use in supervision, assesses supervisors' competencies in data interpretation, and evaluates how DDDM influences teaching effectiveness among pre-service teachers. It also examines institutional challenges that hinder the adoption of data-driven practices and proposes practical recommendations for strengthening data culture within teacher education. The findings are expected to contribute both theoretically and practically to the discourse on evidence-based supervision in Nigeria and other developing contexts, offering a replicable model for integrating DDDM into teacher training institutions.

2. Literature Review

The literature on Data-Driven Decision-Making (DDDM) in education underscores its transformative potential in enhancing teaching effectiveness, learner achievement, and institutional accountability. This section explores the conceptual foundations of DDDM, its application in educational supervision, the role of teacher data literacy, challenges to implementation, and the relevance of DDDM within the Nigerian educational landscape.

2.1 Conceptual Foundations of Data-Driven Decision-Making

Data-Driven Decision-Making (DDDM) is an approach that relies on empirical data rather than intuition or experience alone to inform decisions about teaching, learning, and school management. According to Brynjolfsson and McElheran (2016), DDDM involves systematically gathering, analyzing, and interpreting data to guide policy and practice, thereby fostering organizational learning and improvement. In educational settings, DDDM encompasses the use of quantitative data (such as assessment results and attendance records) and qualitative data (such as teacher observations, reflections, and student feedback) to support informed instructional choices.

Mandinach and Gummer (2016) describe DDDM as both a process and a mindset, emphasizing that its success depends on a culture that values evidence, reflection, and continuous improvement. In teacher education, this translates to using data to monitor pre-service teachers' progress, identify instructional gaps, and design targeted support mechanisms. Effective DDDM helps institutions move from reactive to proactive strategies—anticipating challenges and addressing them before they escalate.

2.2 Application of DDDM in Educational Supervision

Educational supervision plays a crucial role in ensuring that teaching practices align with curricular goals and pedagogical standards. The integration of DDDM into supervision enables supervisors to evaluate performance using consistent, objective, and measurable indicators. Fernandes (2023) emphasizes that data-driven supervision fosters fairness and transparency by minimizing subjectivity in teacher evaluation. By employing structured data sources such as observation checklists, digital assessment forms, and performance dashboards, supervisors can identify strengths and weaknesses systematically.

Empirical studies support the efficacy of DDDM in improving teaching outcomes. For instance, studies conducted in the United States and Finland have shown that institutions that embed data use into supervision and feedback systems record higher levels of teacher effectiveness and student achievement (Mandinach & Gummer, 2016). Similarly, data-driven

supervisory feedback enhances teachers' reflective practice, as teachers are more likely to engage with evidence-based critiques than with general or anecdotal comments.

In teacher education contexts, DDDM supports the assessment of pre-service teachers' readiness for professional practice. Supervisors can analyze longitudinal data on lesson delivery, classroom management, and student engagement to determine growth trends and inform final evaluations. Such systematic monitoring ensures that feedback is not only immediate but also developmental—guiding pre-service teachers toward professional competence.

2.3 Teacher Capacity and Data Literacy

The effectiveness of DDDM hinges largely on teachers' and supervisors' capacity to interpret and use data meaningfully. Data literacy, as defined by Mandinach and Gummer (2016), is the ability to transform data into actionable knowledge through analytical reasoning and pedagogical understanding. Teachers with high data literacy can identify patterns, make inferences, and adapt instruction to address learners' diverse needs.

However, research has shown that many educators feel inadequately prepared to use data effectively (Datnow & Hubbard, 2016). This skill gap is particularly evident in developing countries where teacher preparation programs often lack structured training on data use. Building data literacy requires targeted professional development that goes beyond technical skills to include attitudinal change and reflective thinking. Fernandes (2023) argues that empowering supervisors and teachers to see data as a tool for improvement rather than surveillance can significantly enhance engagement with data practices.

2.4 Challenges in Implementing DDDM

Despite its potential, implementing DDDM in education systems—especially in developing contexts—presents numerous challenges. Sun, Cheng, and Shao (2016) identify several barriers, including inadequate data infrastructure, lack of standardized tools, insufficient training, and resistance to change. In many cases, teachers and supervisors perceive data collection as an administrative burden rather than a meaningful professional practice. Moreover, the absence of clear guidelines on what data to collect, how to interpret it, and how to use it constructively often results in inconsistent practices.

Affective factors also play a role. Data-related anxiety, lack of confidence, and mistrust of data processes can impede teachers' willingness to engage with DDDM. Additionally, infrastructural constraints such as unreliable electricity, limited internet access, and scarcity of digital devices further restrict the effective use of data tools in educational supervision. Addressing these challenges requires a multifaceted strategy that combines technical training, organizational leadership, and supportive policy frameworks.

2.5 DDDM in the Nigerian Educational Context

In Nigeria, data-driven decision-making has gained prominence in recent years, particularly through initiatives aimed at improving educational planning and accountability. The Nigerian Education Data Initiative (NEDI), for example, was established to create a centralized education databank that supports evidence-based policymaking. Similarly, the Edo Basic Education Sector Transformation (EdoBEST) program demonstrates how real-time data from classroom observations can drive instructional improvements at scale.

However, most Colleges of Education, especially those outside major urban centers, have yet to institutionalize DDDM practices. Supervisory processes in teaching practice are often manual, fragmented, and devoid of systematic analysis. Studies by local researchers (e.g.,

Adeyemi, 2021; Eke, 2022) highlight persistent issues such as limited data literacy among supervisors, inconsistent evaluation criteria, and inadequate support for technology integration.

Against this backdrop, implementing DDDM at Jigawa State College of Education and Legal Studies, Ringim, represents a pioneering step toward aligning teacher education with international standards of accountability and quality assurance. Understanding how DDDM can be integrated effectively into teaching practice supervision will not only enhance local supervisory practices but also contribute valuable insights to the broader discourse on teacher education reform in Nigeria and sub-Saharan Africa.

In summary, the literature establishes DDDM as a robust framework for improving instructional supervision and teacher preparation. However, its successful implementation depends on institutional commitment, data literacy, and infrastructural readiness. The present study builds upon these insights to empirically examine how DDDM can enhance teaching practice supervision at Jigawa State College of Education and Legal Studies, addressing contextual challenges and proposing sustainable solutions.

3. Methodology

3.1 Research Design

This study adopted a **mixed-methods case study design**, integrating both quantitative and qualitative approaches to provide a comprehensive understanding of Data-Driven Decision-Making (DDDM) in teaching practice supervision. The mixed-methods approach was selected because it allows for triangulation of data, thereby enhancing the validity and depth of the findings (Creswell & Plano Clark, 2018). The quantitative component captured measurable indicators such as the extent of data use and supervisors' data literacy levels, while the qualitative component explored the perceptions, experiences, and contextual factors influencing DDDM implementation.

The case study design was particularly appropriate given the study's focus on an in-depth exploration of a single institution—Jigawa State College of Education and Legal Studies, Ringim. This design facilitated a holistic analysis of the institution's supervisory framework, data practices, and emerging challenges in adopting DDDM.

3.2 Study Area and Context

Jigawa State College of Education and Legal Studies (JSCOELS) is located in Ringim, Jigawa State, Northwestern Nigeria. The College is one of the key institutions responsible for teacher preparation in the region, offering Nigeria Certificate in Education (NCE) programs in various fields. Teaching practice supervision forms a critical component of its curriculum, enabling pre-service teachers to apply pedagogical theories in real classroom environments.

The context of the study is particularly relevant because, despite the College's emphasis on quality assurance, supervision processes have historically been manual and intuition-based. The institutional environment thus provides an ideal setting for examining how DDDM can be introduced, operationalized, and sustained within a developing educational context.

3.3 Population and Sample

The study population comprised all teaching practice supervisors and pre-service teachers in the Department of Curriculum and Instruction at JSCOELS. From this population, a purposive sampling technique was employed to select participants based on their direct involvement in the 2024/2025 teaching practice exercise.
The final sample included:

- **25 teaching practice supervisors**, representing varying levels of experience and departmental roles.
- **60 pre-service teachers**, drawn from the NCE III cohort, who were under the direct supervision of the selected lecturers.

This sampling strategy ensured that participants possessed firsthand experience with supervision processes and data usage, thereby enhancing the credibility of the findings.

3.4 Research Instruments

Three key instruments were developed and validated for data collection:

1. **Supervisory Practices Questionnaire (SPQ):**
   A structured questionnaire designed to capture quantitative data on supervisors' frequency of data collection, types of data used, and confidence in data interpretation. The SPQ included both closed-ended and Likert-scale items.

2. **Interview Guide for Supervisors (IGS):**
   A semi-structured interview schedule developed to elicit detailed qualitative insights into supervisors' attitudes, experiences, and challenges regarding DDDM. The guide allowed for flexibility in probing emerging themes during the interviews.

3. **Document Analysis Checklist (DAC):**
   This instrument facilitated the systematic review of existing supervision documents—such as observation forms, assessment rubrics, and feedback records—to evaluate how data was currently collected, recorded, and used for decision-making.

All instruments underwent expert validation by two scholars in Educational Measurement and Evaluation and one in Curriculum Studies to ensure content and construct validity. A pilot test involving five supervisors (not included in the main study) yielded a Cronbach's alpha reliability coefficient of 0.84, indicating satisfactory internal consistency.

3.5 Data Collection Procedures

Data were collected over an eight-week period during the 2024/2025 teaching practice semester. The process unfolded in three phases:

1. **Phase One – Quantitative Data Collection:**
   The SPQ was administered to the 25 supervisors and 60 pre-service teachers. The researcher provided clarifications where necessary to ensure accurate responses. The completed questionnaires were retrieved within two weeks.

2. **Phase Two – Qualitative Data Collection:**
   Using the IGS, in-depth interviews were conducted with 10 supervisors selected through maximum variation sampling to capture diverse perspectives. Each interview lasted between 30–45 minutes and was audio-recorded with participants' consent.

3. **Phase Three – Document Analysis:**
   The DAC was used to examine 40 supervision reports, feedback forms, and performance records to identify patterns of data use, gaps, and opportunities for data-driven improvement.

To ensure ethical integrity, participants were informed about the purpose of the study, and written consent was obtained before participation. Confidentiality and anonymity were guaranteed throughout the process.

3.6 Data Analysis Techniques

Quantitative data from the SPQ were analyzed using the Statistical Package for the Social Sciences (SPSS) version 26. Descriptive statistics (mean, standard deviation, frequency, and percentage) were computed to summarize patterns of data use and perceived competencies. Inferential statistics, specifically Pearson correlation, were used to examine the relationship between supervisors' data literacy and their reported use of DDDM in supervision.

Qualitative data from interviews were transcribed verbatim and analyzed using thematic analysis following Braun and Clarke's (2019) six-step framework: familiarization, coding, theme generation, review, definition, and reporting. The data were coded manually and categorized into major themes such as *data literacy, institutional barriers, feedback quality,* and *attitudinal change.*

Document analysis findings were triangulated with survey and interview data to provide a multi-dimensional understanding of DDDM implementation. The use of multiple data sources strengthened construct validity and reduced the risk of researcher bias.

3.7 Ethical Considerations

Ethical approval for the study was obtained from the College Research Ethics Committee. Participants were assured that their involvement was voluntary and that they could withdraw at any stage without consequences. All data collected were treated with strict confidentiality and used solely for academic purposes. Pseudonyms were assigned to interview participants to protect their identities.

To promote transparency and academic integrity, the study adhered to the ethical principles of respect for persons, beneficence, and justice, as articulated in the Belmont Report (U.S. Department of Health & Human Services, 1979).

3.8 Methodological Rigor

To enhance trustworthiness, the study employed member checking—participants were allowed to review and verify interview transcripts to ensure accuracy. Triangulation of quantitative, qualitative, and documentary evidence enhanced the credibility of findings. Thick description was provided to allow for transferability to similar institutional contexts. Dependability was ensured through detailed documentation of research procedures, while confirmability was achieved by maintaining an audit trail of all research decisions.

Overall, this methodological design provided a robust and comprehensive framework for investigating the integration of Data-Driven Decision-Making into teaching practice supervision, ensuring that findings were both contextually grounded and empirically sound.

4. Results and Discussion

This section presents and interprets the findings of the study on the implementation of Data-Driven Decision-Making (DDDM) in teaching practice supervision at Jigawa State College of Education and Legal Studies, Ringim. The findings are organized under major themes derived from quantitative and qualitative data analyses, including (1) the extent of data use in supervision, (2) supervisors' data literacy and competence, (3) the impact of DDDM on pre-service teacher performance, and (4) institutional challenges to DDDM adoption.

4.1 Extent of Data Use in Teaching Practice Supervision

Quantitative results from the Supervisory Practices Questionnaire (SPQ) revealed that a substantial proportion of supervisors (68%) reported collecting some form of data during teaching practice supervision. The most frequently collected data included lesson observation

scores, student engagement records, and pre-service teachers' self-evaluation forms. However, only 42% of the respondents indicated consistent use of structured or standardized instruments such as observation rubrics or digital checklists for supervision.

Qualitative data further revealed that data collection was often ad hoc, driven by individual supervisors' discretion rather than a unified institutional policy. One supervisor noted:

"We gather observations during class visits, but there is no uniform format for recording or analyzing them. Each supervisor writes notes differently, and this affects how feedback is given."

This finding aligns with Fernandes (2023), who observed that the absence of standardized data protocols often leads to inconsistent decision-making within teacher education institutions. Despite the inconsistency, supervisors expressed a positive attitude toward data use, acknowledging that it promotes fairness and transparency in assessment.

The results suggest a transitional stage in the college's supervision culture—where the value of data is increasingly recognized but its systematic integration remains underdeveloped. Establishing institutional guidelines for supervision data management could therefore enhance consistency and comparability across departments.

4.2 Supervisors' Data Literacy and Analytical Competence

Data literacy emerged as a central determinant of effective DDDM implementation. Findings indicated that only 36% of the supervisors demonstrated high confidence in interpreting data to guide feedback and instructional improvement. The remaining 64% reported challenges in synthesizing information, analyzing patterns across reports, and using data visualization tools.

The correlation analysis revealed a significant positive relationship ($r = 0.61$, $p < 0.05$) between supervisors' data literacy levels and the quality of feedback provided to pre-service teachers. Supervisors with higher data competence tended to give more specific, evidence-based recommendations rather than general comments.

Interview data corroborated these findings. One participant remarked:
"I know how to record scores, but analyzing them to identify strengths or weaknesses across students is where I struggle. We need training on how to use digital tools for analysis."

This resonates with the assertion by Mandinach and Gummer (2016) that data literacy is not inherent but must be intentionally developed through structured professional development. The results reinforce the need for capacity-building programs that equip supervisors with technical and interpretive skills to maximize the benefits of DDDM.

4.3 Impact of DDDM on Teaching Practice Outcomes

Evidence from both survey and interview data suggests that DDDM-based supervision significantly improved pre-service teachers' performance and professional growth. Supervisors who employed data-driven feedback methods reported noticeable changes in lesson planning, classroom management, and reflective practices among student teachers.

Quantitative comparison showed that pre-service teachers who received DDDM-aligned supervision scored 15% higher in overall teaching effectiveness than those under traditional supervision models. These improvements were particularly evident in the areas of instructional clarity, use of teaching aids, and learner engagement.

Pre-service teachers described data-based feedback as more "specific," "objective," and "motivating." One participant noted:
"When my supervisor showed me the breakdown of my lesson observation scores, I understood where I needed to improve. It helped me to focus on my weaknesses rather than guessing."

This finding supports Datnow and Hubbard's (2016) argument that data-informed feedback enhances teachers' reflective capacity and sense of accountability. By grounding evaluation in measurable evidence, DDDM fosters professional dialogue between supervisors and pre-service teachers, transforming supervision from a judgmental exercise into a developmental partnership.

The observed improvement in pre-service teacher performance demonstrates the transformative potential of DDDM in teacher education. It confirms the global evidence that data-based supervision not only improves teaching quality but also builds a sustainable culture of continuous learning and self-evaluation (Brynjolfsson & McElheran, 2016; Fernandes, 2023).

4.4 Institutional Challenges to DDDM Implementation

While the study established the benefits of DDDM, several contextual and structural barriers were identified as limiting its full adoption. The major challenges include:

1. **Inadequate Technological Infrastructure:**
   Many supervisors reported lack of access to laptops, tablets, and reliable internet connectivity. Data analysis and storage were mostly manual, making it difficult to aggregate and compare results across sessions.

2. **Absence of Institutional Policy Framework:**
   The college lacks formal guidelines or a centralized data management system for teaching practice supervision. This has led to inconsistent practices and limited institutional ownership of the data collected.

3. **Insufficient Training and Technical Support:**
   Supervisors highlighted the absence of professional development programs focused on data analysis and digital literacy. Without systematic training, most supervisors rely on personal judgment rather than evidence-based interpretation.

4. **Resistance to Change:**
   Some supervisors expressed apprehension about adopting DDDM, perceiving it as time-consuming or as a means of external control. This aligns with the findings of Sun et al. (2016), who noted that affective factors such as data anxiety can impede educators' engagement with data practices.

5. **Resource Constraints:**
   Limited funding for research, supervision logistics, and ICT tools was cited as a persistent obstacle. This restricts the college's capacity to invest in digital systems and data management software.

These challenges echo the broader realities in Nigerian teacher education, where systemic underfunding and limited technological integration often impede innovation. Nevertheless, the study found strong willingness among supervisors to embrace DDDM if institutional support, training, and infrastructure are provided.

4.5 Discussion of Findings in Relation to Literature

The results of this study corroborate international findings that effective DDDM enhances instructional quality and student outcomes. Similar to Mandinach and Gummer's (2016) model of data-informed pedagogy, the findings demonstrate that when supervisors possess adequate data literacy, they can transform raw information into meaningful instructional improvement.

The positive relationship between data literacy and supervision quality reinforces Fernandes' (2023) observation that competence in data interpretation is a key determinant of effective educational leadership. Additionally, the improvements in pre-service teacher performance validate earlier studies by Brynjolfsson and McElheran (2016), who linked DDDM to measurable gains in productivity and decision accuracy.

However, consistent with Sun et al. (2016), the study underscores that without institutional support structures—such as policy frameworks, ICT tools, and professional development—the implementation of DDDM is unlikely to be sustainable. The findings also reveal a unique contextual dimension: while supervisors recognize the value of data, their engagement remains constrained by infrastructural and cultural factors typical of many Nigerian tertiary institutions.

Overall, the integration of DDDM in teaching practice supervision at Jigawa State College of Education and Legal Studies represents a promising but evolving initiative. With appropriate support, it has the potential to transform teacher preparation from a routine evaluative process into a data-informed, reflective, and outcome-oriented practice.

4.6 Summary of Key Findings

1. Supervisors at JSCOELS demonstrate moderate awareness of DDDM but limited practical application due to lack of institutional frameworks.
2. Supervisors' data literacy significantly influences the quality and precision of supervisory feedback.
3. DDDM-based supervision leads to measurable improvement in pre-service teachers' teaching effectiveness and reflective practice.
4. Institutional challenges—especially technological, financial, and attitudinal—remain major barriers to full-scale DDDM implementation.
5. Despite challenges, there is strong readiness among supervisors to adopt DDDM if given adequate training and infrastructure support.

These findings provide the empirical foundation for the recommendations presented in the subsequent section.

5. Conclusion and Recommendations

5.1 Conclusion

This study investigated the implementation of Data-Driven Decision-Making (DDDM) in teaching practice supervision at Jigawa State College of Education and Legal Studies, Ringim, with the goal of evaluating how systematic data use can enhance supervision quality, teaching effectiveness, and institutional accountability. The results demonstrated that DDDM, when properly integrated, has the capacity to transform the supervision process from a subjective exercise into an objective, evidence-based system that promotes continuous professional growth among pre-service teachers.

The findings revealed that while supervisors at the College possess a growing awareness of DDDM's importance, their practical engagement with data remains limited by skill gaps, infrastructural challenges, and the absence of an institutional data policy. Supervisors who demonstrated higher levels of data literacy were able to provide more targeted and meaningful feedback to pre-service teachers, leading to measurable improvements in lesson delivery, classroom management, and reflective practice.

The study further established that DDDM contributes to enhanced accountability and transparency in supervision, allowing decisions to be supported by empirical evidence rather than intuition. However, successful adoption requires more than awareness; it depends on organizational readiness, resource availability, and sustained professional development. The results underscore the importance of embedding data culture within institutional operations—where data collection, analysis, and use are normalized aspects of teaching and supervision rather than occasional tasks.

From a broader perspective, the study affirms that DDDM aligns with global best practices in teacher education and contributes to achieving Sustainable Development Goal 4 (SDG 4), which seeks inclusive and equitable quality education. By fostering data-informed supervision, Nigerian Colleges of Education can enhance teacher preparation, improve learning outcomes, and strengthen institutional effectiveness.

5.2 Recommendations

Based on the key findings and implications of this study, the following recommendations are proposed to enhance the implementation of Data-Driven Decision-Making in teaching practice supervision:

1. **Institutionalization of a Data-Driven Framework:**
   The College should develop a formal DDDM policy that clearly outlines procedures for data collection, analysis, reporting, and utilization. A centralized supervision data management system should be established to store and analyze information across semesters. This would ensure consistency, comparability, and institutional ownership of data.

2. **Capacity Building for Supervisors and Teacher Educators:**
   Continuous professional development programs should be organized to strengthen supervisors' data literacy and analytical competence. Training should cover data visualization, use of digital tools (such as Excel, Google Forms, and SPSS), and interpretation of statistical results for pedagogical decision-making.

3. **Integration of ICT and Digital Infrastructure:**
   The College management, in collaboration with the state government and donor agencies, should invest in digital tools that facilitate data-driven supervision—such as tablets for field supervision, mobile data collection applications, and online dashboards. Reliable internet access and power supply must also be prioritized to sustain digital operations.

4. **Embedding DDDM in Teacher Education Curriculum:**
   Courses on data literacy and educational analytics should be integrated into the NCE curriculum. This will ensure that pre-service teachers acquire foundational competencies in data interpretation and evidence-based instructional decision-making early in their professional training.

5. **Strengthening Institutional Leadership and Quality Assurance Mechanisms:** The Directorate of Quality Assurance and the Teaching Practice Unit should collaborate to establish clear performance indicators for supervision. Regular monitoring, evaluation, and data review meetings should be conducted to ensure that findings inform policy and practice within the College.

6. **Collaboration and Knowledge Sharing:**
   The College should establish partnerships with other institutions, research bodies, and educational technology organizations to share best practices on DDDM. Participation in national and regional conferences on teacher education and data use would also promote professional learning and innovation.

7. **Provision of Incentives and Recognition:**
   Supervisors who demonstrate excellence in using data to improve supervision outcomes should be recognized and rewarded. Such incentives can motivate broader adoption of DDDM and create a culture that values innovation and evidence-based practice.

5.3 Implications for Policy and Practice

The findings of this research hold significant implications for educational policy and institutional practice in Nigeria. At the **policy level**, integrating DDDM aligns with the objectives of the National Commission for Colleges of Education (NCCE) to promote data-based quality assurance and performance evaluation. Policymakers should therefore incorporate DDDM indicators into national accreditation and monitoring frameworks for Colleges of Education.

At the institutional level, embedding data-driven practices into daily operations can strengthen accountability, optimize resource use, and improve decision-making across all facets of teacher preparation. The transition from traditional to data-informed supervision will not only elevate the professional standards of teacher educators but also contribute to producing reflective, competent, and adaptive classroom practitioners.

In conclusion, the successful implementation of DDDM in teaching practice supervision is both a necessity and an opportunity for Nigerian Colleges of Education. It offers a sustainable pathway toward evidence-based teacher education—one that places data, rather than intuition, at the heart of professional practice and institutional growth.

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