

Management of Materials and Human Resources in Education in Nigeria

Dr. Chris Chuks Okeyea

okeyeac@yahoo.com / okeyeachuks@gmail.com

**Local Government Education Authority, Aboh,
Delta State.
08035869131**

&

Onoriode Anthony Opiti

onoriodeaopiti@gmail.com

**Department of Educational Management
Faculty of Education, Niger Delta University Irri Campus
Delta State
07065473073**

Corresponding Author: Chris Chuks Okeyea, **Local Government Education Authority, Aboh.**

Abstract

A key factor in the development of education in Nigeria is the efficient use of human and material resources. Nigerian schools still face inefficiencies in human resource management and lack of necessary teaching and learning resources despite numerous governmental initiatives. This study looks at how public schools in Nigeria handle their human resources and instructional materials. It looks at hiring, educating, and motivating educational staff as well as the availability, use, and upkeep of educational resources. Data were gathered from educators, school officials, and education officers in a few states using a descriptive survey approach. The results show problems with staff motivation and professional growth, ineffective inventory methods, and large gaps in resource allocation. The study ends with suggestions for better resource allocation, frequent training, open hiring, and strategic planning to raise the standard of education in Nigeria.

Keywords: Management of Materials, Human Resources, Education, Nigeria

Introduction

1.1 Background to the Study

Education is still a crucial tool for national development, especially in nations like Nigeria where the populace demands effective use of limited resources. In addition to ensuring the seamless delivery of instruction, efficient management of human and material resources in schools affects student outcomes and the long-term viability of the institution (Okonkwo & Njoku, 2021). However, Nigeria's education system has long suffered from systemic inefficiencies brought on by deficiencies in infrastructure, instructional materials, and qualified staff (Uche & Onu, 2022).

To achieve national education goals, the human element in education—teachers, administrative workers, and other support personnel—is essential. Similar to this, the foundation of a successful learning environment is made up of resources including textbooks, lab apparatus, ICT tools, and classroom infrastructure. The provision of high-quality education is jeopardized when these resources are misused or underutilized (Adeleke & Musa, 2020).

The two facets of resource management—material and human—in the Nigerian educational setting are examined in this study. It aims to evaluate how these resources are acquired, distributed, maintained, and managed as well as how management techniques affect overall academic achievement.

In any country, education continues to be a vital force behind social, political, and economic change. It is anticipated that Nigeria's education system will promote sustainable growth, national integration, and the development of human capital. However, the efficient management of two key elements—materials (infrastructure, teaching aids, instructional resources) and human resources (teachers, administrators, support staff)—is crucial to the success of any educational institution. The quality of teaching and learning processes is greatly impacted by these resources when they are properly supplied and effectively managed (Akinyemi & Salami, 2020; Uche & Onu, 2022).

All physical components that support learning, such as classrooms, furniture, libraries, textbooks, ICT tools, science labs, and teaching aids, are considered material resources in education. For teachers and students to engage with the curriculum in an effective manner, several materials are necessary. However, the availability and condition of these resources are considerably below par in many Nigerian schools, particularly those located in rural regions. Lack of contemporary ICT equipment, inadequate classrooms, inadequate instructional materials, and poor infrastructure continue to be major problems (Ibrahim & Adamu, 2021). Academic performance suffers and learning is disrupted when materials are distributed, maintained, and used inefficiently (Nwankwo, 2021).

The recruitment, selection, training, motivation, evaluation, and retention of staff members who oversee the daily operations of educational institutions are the main objectives of human resource management (HRM) in the field of education. The foundation of any successful educational system is its teachers, but the Nigerian education system faces challenges like low pay, a dearth of in-service training, political hiring practices, and high turnover rates (Adejumo & Adebayo, 2023; Ogunyemi, 2022). Insufficient motivation and training of teachers result in subpar instruction, absenteeism, and a drop in student performance.

Access, equity, and educational quality have all been addressed by the Nigerian government through legislative initiatives like the Universal Basic Education (UBE) program. However, poor resource management at the administrative and school levels causes many of these programs to fail. Maintaining current infrastructure and increasing the capacity of educational staff receive less attention than capital projects, which are frequently given priority (Okonkwo & Njoku, 2021). This misalignment frequently leads to underutilization of resources, project abandonment, and a gap between learning objectives and results.

Furthermore, the COVID-19 epidemic revealed more serious structural flaws in Nigeria's educational resource management. Insufficient training and support left teachers unprepared for digital instruction, and many schools lacked the technological infrastructure necessary to make the switch to remote learning (Yahaya & Sule, 2023). In order to create a robust educational system, post-pandemic recovery initiatives have highlighted how crucial it is to not only acquire resources but also manage them well.

The necessity of an integrative approach to managing educational resources is emphasized by theoretical frameworks like Human Capital Theory and Systems Theory. According to systems theory, for an organization to function effectively, all of its parts must cooperate. Therefore, the entire educational process would be disrupted if there is a breakdown in the administration of material or human resources (Okoro & Eze, 2021). According to the Human Capital Theory, the key to raising productivity and educational efficiency is investing in the development of human resources, particularly in the training and motivation of teachers (Ogunyemi, 2022).

Given this, it is essential to investigate the management of materials and human resources in Nigerian schools, evaluate any gaps that may exist, and suggest tactical ways to close them. By doing this, school operations will be strengthened, and national development and educational quality would be improved.

1.2 Statement of the Problem

Many Nigerian schools struggle with inadequate management of their people and material resources, even in the face of donor agency interventions and policy frameworks such as the National Policy on Education. While learning resources continue to be inadequate or out-of-date, teachers are frequently overworked, underpaid, and poorly trained (Yahaya & Sule, 2023). Both learning outcomes and teacher morale are negatively impacted by this poor management. Therefore, the study looks into these issues in order to recommend evidence-based fixes.

1.3 Objectives of the Study

The primary objectives are to:

1. Examine the current practices in managing materials in Nigerian schools.
2. Assess the human resource management practices in education.
3. Identify challenges hindering effective management of resources.
4. Propose strategies to improve material and human resource management in education.

1.4 Research Questions

1. What are the prevalent practices in the management of educational materials in Nigerian schools?
2. How are human resources recruited, trained, and motivated?
3. What challenges are faced in managing materials and human resources?
4. What strategies can enhance the management of resources in education?

1.5 Significance of the Study

By offering insights into optimal practices and suggesting policy changes, the findings will assist stakeholders in education, school administrators, and lawmakers. It will also be used as a resource for scholarly research in the future.

1.6 Scope of the Study

Between 2020 and 2025, the study looks at personnel management and instructional materials in public secondary schools in a few states in Nigeria.

1.7 Operational Definition of Terms

- **Materials Management:** The process of planning, acquiring, storing, and using instructional and infrastructural materials.
- **Human Resource Management:** The recruitment, development, and retention of educational personnel.
- **Education in Nigeria:** Formal academic institutions, including primary, secondary, and tertiary institutions.

Literature Review

2.1 Conceptual Review

2.1.1 Materials Management in Education

The acquisition, distribution, use, and upkeep of tangible and educational resources are all included in materials management (Nwankwo, 2021). These consist of furniture, ICT gadgets, lab apparatus, and textbooks. Good materials management reduces waste, guarantees resource availability, and promotes student-centered learning.

In the context of education, material management is the methodical process of organizing, purchasing, storing, allocating, using, maintaining, and discarding the tangible and instructional materials needed for instruction. Textbooks, classroom furnishings, lab apparatus, instructional aids, technology, and physical spaces like classrooms, libraries, and ICT centers are some examples of these items (Nwankwo, 2021). The smooth operation of educational institutions and the availability of resources for a productive learning environment for both teachers and students are guaranteed by effective material management.

Poor material management has been found to be a significant barrier to attaining high-quality education in Nigeria, especially in public institutions. Basic learning materials are severely lacking in many schools, and occasionally the resources that are accessible are misused or

badly maintained because of a lack of administrative ability or supervision (Okonkwo & Njoku, 2021). For example, overcrowded classrooms, inadequate or out-of-date texts, and poorly furnished or non-operational laboratories can all impede hands-on learning opportunities.

Effective material management is crucial because it has a direct impact on student achievement and institutional efficacy. Research indicates that effective management of educational resources improves instructional delivery, lowers teacher stress, and increases student engagement in schools (Ibrahim & Adamu, 2021). Teachers can concentrate on teaching instead of improvising because of material shortages when resources are accessible and properly maintained.

Procurement, which includes determining needs, creating a budget, finding suppliers, and procuring products and services, is a crucial part of material management. However, procurement procedures in Nigerian public schools are frequently hampered by red tape, a lack of openness, and even corruption, which causes delays or skews the distribution of materials (Yahaya & Sule, 2023). Resources are not tracked when appropriate inventory systems are not in place, which can result in theft or waste.

Maintenance, which includes making sure that materials stay in good shape over time, is another crucial component. Frequent maintenance lessens the need for frequent replacements and helps equipment last longer. Unfortunately, the lack of regular maintenance funding or procedures in many Nigerian schools causes the infrastructure to deteriorate quickly (Adeleke & Musa, 2020). Many public schools have issues with damaged whiteboards, leaking roofs, and broken chairs, all of which detract from the educational environment.

Furthermore, strategic planning is also necessary for material utilization. Purchasing and storing educational resources is insufficient; school administrators also need to make sure that they are used effectively during the teaching and learning process. Modern teaching tools like interactive whiteboards, digital content delivery platforms, and audiovisual equipment require training for teachers. However, underutilization of available resources, particularly technological ones, is frequently caused by a lack of teacher competence and training (Uche & Onu, 2022).

The significance of material preparation in the form of digital infrastructure became acutely apparent with the start of the COVID-19 epidemic. Due to a lack of ICT resources and staff and student digital competence, many schools were ill-prepared for distance learning. The necessity of strong material management systems that are adaptable and resistant to outside shocks was highlighted by the pandemic (Yahaya & Sule, 2023).

For best results, all educational resources—material and human—should be integrated and coordinated, according to theoretical frameworks like systems theory. According to this theory, the effectiveness of the overall educational system is jeopardized if one component—such as material resources—is not managed well (Okoro & Eze, 2021). Nigerian schools must therefore improve their material management procedures through open procurement, frequent audits, strategic distribution, and capacity-building in order to meet Sustainable Development Goal 4 (Quality Education).

To sum up, effective material management is essential to providing high-quality instruction. Education administrators and government organizations must carefully plan, carry out, and

oversee it to guarantee sustainability, cost-effectiveness, and fair access. For Nigeria's educational revolution, improving material management is not only a practical need but also a strategic need.

2.1.2 Human Resource Management in Education

In education, human resources include both teaching and non-teaching personnel, whose contributions are vital to the operation of the school. Higher employee performance and educational results are associated with effective HRM methods, including recruiting, training, appraisal, and motivation (Akinyemi & Salami, 2020).

The strategic and administrative procedures involved in hiring, training, inspiring, assessing, and keeping the staff that provides and supports educational services are all included in human resource management, or HRM, in the field of education. Education officers, non-teaching employees, school administrators, and teachers are all included in this. Since student accomplishment, institutional development, and educational delivery are all directly impacted by the caliber of an educational system's human capital, effective HRM is essential to its operation (Akinyemi & Salami, 2020; Ogunyemi, 2022).

A sizable amount of the inputs in the education value chain in Nigeria are derived from the human resource base. For example, the most important in-school element affecting students' learning outcomes is their teachers. Nonetheless, Nigeria still has a number of HRM issues, including a lack of teachers, unequal staffing, low pay, low morale, and insufficient training opportunities (Uche & Onu, 2022). These problems are particularly noticeable in underprivileged and rural areas, where it is still challenging to recruit and retain skilled teachers.

1. Recruitment and Selection

Selection and recruitment are the cornerstones of human resource management. Rather than merit or school need, bureaucratic and political agendas frequently impact teacher recruitment in Nigeria (Yahaya & Sule, 2023). As a result, subject allocation and instructor specialty are out of sync, which makes education less effective. To guarantee that competent people are hired on the basis of their qualifications and professional competence, a clear and competency-based hiring process is essential.

2. Training and Professional Development

The foundations of human resource management are recruiting and selection. In Nigeria, political and bureaucratic objectives usually influence teacher recruitment more than merit or school need (Yahaya & Sule, 2023). Education becomes less effective as a result of the misalignment of subject allocation and instructor specialization. A transparent and competency-based hiring procedure is necessary to ensure that qualified individuals are employed based on their credentials and professional competence.

3. Motivation and Retention

In education, motivating human resources entails offering sufficient financial and non-financial incentives that promote dedication, excellence, and job satisfaction. Regretfully, Nigerian educators usually face a lack of accommodation, poor working conditions, delayed

salaries, and few prospects for career progression (Adejumo & Adebayo, 2023). High attrition rates are a result of these factors, particularly for young, qualified teachers who leave for better opportunities overseas or in other industries.

To increase motivation and lower turnover, good HRM policies should provide pension security, prompt promotions, recognition, and a positive work environment. Higher student achievements and more efficient institutional administration are reported by schools with highly engaged employees (Adeleke & Musa, 2020).

4. Performance Appraisal and Supervision

The purpose of performance appraisal systems is to evaluate and enhance worker performance. However, performance reviews are either nonexistent or viewed as pointless procedures in many Nigerian schools (Ibrahim & Adamu, 2021). Employee accountability should be promoted, training needs should be identified, and appraisals should be connected to professional development.

In HRM, supervision—particularly instructional supervision—is essential since it makes sure that teachers follow guidelines and raise the caliber of their instruction. In nations with robust HRM systems, the implementation of school-based mentoring and monitoring has shown success.

5. Policy and Institutional Challenges

There are still implementation gaps in spite of laws like the Teachers Registration Council of Nigeria (TRCN) recommendations and the National Teacher Education Policy. Federal, state, and local education authorities frequently don't coordinate well, which results in redundant work or a failure to do essential human resources tasks (Nwankwo, 2021). Inadequate finance is another issue facing the education industry, which restricts institutions' ability to invest in efficient HRM systems.

6. Post-COVID-19 Realities

The vulnerability of Nigerian education's human resource systems was further highlighted by the COVID-19 epidemic. A lack of digital skills and insufficient training left many teachers unprepared for remote learning. Rethinking HRM practices to incorporate resilience planning, flexible work schedules, and digital competency development is made possible by the post-pandemic phase (Yahaya & Sule, 2023).

2.2 Theoretical Framework

2.2.1 Systems Theory

According to systems theory, organizations are interconnected systems in which the failure of one part has an impact on the entire system (Bertalanffy, 1968; Okoro & Eze, 2021). The entire learning process in school is disrupted by poor staff or material management.

A theoretical framework known as systems theory sees an institution or organization as a complex collection of interdependent and connected pieces that cooperate to achieve a common objective. Systems Theory was first created by the scientist Ludwig von Bertalanffy

in the 1940s and has since been used in a number of domains, such as management, organizational behavior, and education (Bertalanffy, 1968). The idea offers a comprehensive viewpoint in the educational setting, emphasizing the necessity of integrating all functional elements for the system to operate well, including students, instructors, administrators, infrastructure, instructional materials, and policies (Okoro & Eze, 2021).

1. Systems Theory in the Educational Context

Comprising subsystems like human resources (teachers, students, administrators), material resources (classrooms, books, laboratories), instructional methods, and evaluation mechanisms, an educational institution operates as an open system that interacts dynamically with its surroundings. To accomplish the main objectives of learning and development, these subsystems need to be appropriately coordinated and regulated. The system's overall performance suffers if any of its components are inadequate or poorly run (Uche & Onu, 2022).

For instance, if the required teaching resources are not available, even a highly qualified instructor might not be able to provide high-quality education. In a similar vein, if there are no skilled teachers or maintenance personnel, a fully furnished science lab may be underutilized. As a result, Systems Theory emphasizes how managing material and human resources in educational institutions is interdependent.

2. Inputs, Processes, Outputs, and Feedback

* Organizations operate using a cycle of inputs, processes, outputs, and feedback (IPOF model), according to systems theory. Students, instructors, textbooks, infrastructure, and finance are all considered inputs in the field of education. Teaching, learning, assessment, and administration are all part of the processes.

- Educational results like student achievement, instructor efficacy, and school reputation are known as outputs. Evaluation reports, performance measurements, and policy reviews are examples of feedback systems that help guide changes to increase system effectiveness (Ibrahim & Adamu, 2021).

Inadequate teacher recruitment, poor material distribution, and a lack of professional development are just a few examples of the input and process stage failures that frequently occur in the Nigerian educational system and eventually result in inferior outputs (Akinyemi & Salami, 2020).

3. Application to Resource Management

- In education, systems theory is very helpful in directing the planning and administration of people and material resources. It suggests that:
 - Instructional materials (physical resources) and teachers (human resources) need to be managed cooperatively and strategically.
 - Data-driven resource allocation that supports institutional objectives is required.
 - Training, procurement, and deployment changes must be informed by feedback from supervision and performance reviews (Okonkwo & Njoku, 2021).

The compartmentalization of resource management, wherein infrastructural initiatives are undertaken without equivalent investments in human capacity or instructors are deployed without the necessary instruments to succeed, is a significant issue in Nigerian schools (Yahaya & Sule, 2023). Systems theory promotes a unified, integrated system and cautions against such disjointed methods.

4. Enhancing Sustainability and Performance

Through the implementation of a systems approach, educational institutions can guarantee more durable results. This entails matching infrastructure development to population expansion, integrating ICT training with the deployment of digital resources, and coordinating teacher recruitment with actual subject needs. To guarantee the best possible communication and use of resources, it also comprises bolstering school leadership as a coordinating node within the system (Adeleke & Musa, 2020).

2.2.2 Human Capital Theory

According to this notion, spending money on education and training can lead to higher output (Becker, 1993). It backs up the notion that efficient human resource management is essential to the advancement of a country (Ogunyemi, 2022).

A fundamental economic and educational paradigm, human capital theory (HCT) sees investments in people—through health, education, training, and skill development—as crucial drivers of both individual productivity and the expansion of the national economy. According to the notion, which was made popular by academics like Gary Becker and Theodore Schultz, humans are assets whose value can be raised via methodical growth rather than merely being workers (Becker, 1993). This theory backs up the notion that improving the general caliber and effectiveness of the educational system requires the efficient administration and growth of educators, administrators, and students.

1. Relevance of Human Capital Theory to Education

According to human capital theory (HCT), a foundational paradigm in education and economics, investments in people—through training, education, health care, and skill development—are essential for boosting individual productivity as well as the growth of the national economy. The idea, popularized by scholars such as Gary Becker and Theodore Schultz, holds that people are not just workers but also assets whose value may be increased by systematic growth (Becker, 1993). This theory supports the idea that good management and development of teachers, administrators, and students are necessary to raise the overall standard and efficacy of the educational system creates a workforce with the necessary skills to propel economic change. HCT highlights that long-term socioeconomic progress is impossible without significant investment in the educational workforce (Akinyemi & Salami, 2020).

2. Human Resource Development as Investment

According to human capital theory, educational personnel training and development are considered essential investments rather than expenses. For instance, instructors who receive frequent training in ICT integration, pedagogical skills, and student engagement techniques are more likely to provide instruction that is effective and to have a favorable impact on

student accomplishment (Uche & Onu, 2022). On the other hand, ignoring staff development results in attrition, inefficiency, and stagnation.

Although this is acknowledged in many Nigerian education programs, underfunding and a lack of political will frequently prevent effective implementation. The Teachers Registration Council of Nigeria (TRCN), for instance, requires continuous professional development and basic qualifications, but state-by-state compliance varies (Yahaya & Sule, 2023). To produce long-term benefits, such programs must be prioritized and institutionalized, according to human capital theory.

3. Material Resources and Learning Outcomes

Although Human Capital Theory primarily focuses on human development, it also acknowledges that investment in material resources (like ICT tools, laboratories, and libraries) complements human capital development. These resources improve student learning and the efficacy of instruction, particularly when teachers are properly prepared to use them. A well-educated teacher, for example, becomes even more impactful when supported with modern instructional technologies and conducive learning environments (Ibrahim & Adamu, 2021).

Thus, both human and material inputs are mutually reinforcing, and their optimal combination is essential to maximizing returns on educational investment.

4. Economic Implications

HCT links national productivity with education. Long-term economic underperformance will be experienced by a country that makes insufficient investments in its educators, school administrators, and educational facilities. Ineffective educational practices associated with subpar human resource management are partially to blame for Nigeria's high youth unemployment rate and low level of global competitiveness (Okonkwo & Njoku, 2021). This supports the Human Capital Theory's assertion that a country's ability to advance is hampered by its inability to produce a population that is informed and talented. Additionally, international research has demonstrated that nations that invest more in school resources and teacher quality routinely beat others on indices of innovation, literacy, and numeracy (World Bank, 2022). Therefore, in order for Nigeria's educational system to compete in the global knowledge economy, its initiatives must be in line with HCT principles.

5. Policy and Strategic Implications

From the perspective of Human Capital Theory, improving education in Nigeria demands a **deliberate policy shift** that treats teacher training, welfare, and infrastructure development as long-term investments with measurable returns. Policymakers must prioritize:

- Competitive teacher remuneration to attract and retain talent.
- Regular in-service training and certification updates.
- Strengthened school leadership and HR structures.
- Incentivized postings to rural areas.
- Increased budgetary allocation to the education sector.

By doing so, Nigeria can build a competent, motivated, and productive educational workforce that contributes meaningfully to societal advancement.

2.3 Empirical Review

Numerous studies have demonstrated how resource management directly affects academic achievement. According to Ibrahim and Adamu (2021), a lack of instructional resources decreased test scores and student involvement. In a similar vein, Adejumo and Adebayo (2023) found that equitable compensation and professional development greatly improved teacher retention.

The results of modern research on the management of human and material resources in education are presented in the empirical review. It highlights the ways in which these factors affect student results, teacher effectiveness, and school effectiveness in various Nigerian situations. Empirical studies offer insight into the practical realities, challenges, and strategies employed within the Nigerian education system.

1. Human Resource Management in Education

A study on the effect of teacher motivation on retention in public secondary schools in Nigeria was carried out by Adejumo and Adebayo (2023). The study, which used a survey design in three states, discovered that low pay, postponed promotions, and unfavorable working conditions were the main causes of high teacher turnover rates. In order to guarantee employee stability and job happiness, the study suggests reforming incentive schemes. In a similar vein, Uche and Onu (2022) investigated the connection between instructional efficacy and teacher workload in public secondary schools. According to their quantitative research, instructors' instructional quality was adversely affected by an excessive workload, which included administrative responsibilities and big class sizes. They underlined the importance of having enough employees and clearly defining work roles.

Ogunyemi (2022) investigated professional development and its effect on teacher productivity in Lagos State. The study evaluated the impact of in-service training on teachers' classroom involvement using a combination of methodologies. Results indicated that better lesson design, content delivery, and student engagement were strongly correlated with regular professional development. But training was hard to come by and varied from school to school.

2. Material Resource Management in Schools

Ibrahim and Adamu (2021) investigated the availability and utilization of instructional materials in junior secondary schools in Kano State. The results showed that while some schools possessed basic materials like chalkboards and textbooks, many lacked laboratories, libraries, and ICT resources. Additionally, poor maintenance and underutilization of available tools hindered learning effectiveness.

A research comparing the use of resources in South-East Nigerian rural and urban schools was carried out by Nwankwo (2021). According to his research, urban schools outperformed their rural counterparts in terms of infrastructure, amenities, and material access. The study blamed inefficient school administration, misallocation of cash, and political meddling for the discrepancies.

Yahaya and Sule (2023) evaluated how educational resources were managed in northern Nigerian public schools under COVID-19. According to their survey, the majority of schools lacked digital gadgets and internet connectivity, making them unfit for remote learning. Virtual learning initiatives during school closures were further undermined by teachers' lack of digital competence. The authors advocated for investments in ICT training and e-learning infrastructure.

3. Combined Human and Material Resource Management

The relationship between material and human resource management in Nigeria has not been empirically studied in many studies. In an effort to close this gap, Adeleke and Musa (2020) investigated the combined effects of these factors on secondary school students' academic performance in Ogun State. Regression analysis was used to determine that the availability of both qualified teachers and sufficient teaching resources had a substantial impact on student performance. Performance deficiencies resulted from the lack of either, highlighting the necessity of integrated resource planning.

Okonkwo and Njoku (2021) conducted a study on school effectiveness and resource allocation techniques. The study found that the appropriate distribution of material and human resources was severely hampered by poorly managed budgetary allocations and opaque procurement procedures. According to their findings, administrative responsibility and capability are important facilitators of efficient resource use.

Strategic human resource development in the education sector was also covered by Akinyemi and Salami (2020), who made the case that investments have little impact if teacher development programs are not coordinated with the availability of facilities and instructional materials. They discovered that better staff retention rates and more student engagement were the results of integrated resource planning.

4. Gaps Highlighted in Empirical Studies

Although these studies provide insightful information, few of them use a longitudinal or comparative methodology, and the majority have a narrow emphasis (concentrating on particular areas or school types). The use of integrated theoretical models, such Systems Theory or Human Capital Theory, in empirical research is also conspicuously lacking. The majority of research views resource constraints as discrete factors rather than components of an intricate educational system. Additionally, despite their susceptibility to resource shortages, rural educational environments continue to be underrepresented in empirical research.

2.4 Gaps in the Literature

Without combining the two for a comprehensive understanding, the majority of research concentrate on material or human resource concerns independently. Research on post-pandemic recovery techniques for overseeing educational resources is likewise scarce.

Even if the amount of research on education in Nigeria is increasing, there are still a lot of unanswered questions about the integrated management of people and material resources, especially when it comes to educational reforms and recovery following a pandemic. The majority of current research tends to concentrate on either the provision of material resources

or human resource management, with little investigation into the ways in which these two factors interact to influence educational quality and school efficacy (Akinyemi & Salami, 2020; Nwankwo, 2021).

1. Fragmented Research Focus

While some studies have looked into infrastructure issues, instructional materials, and the adoption of technology in schools (Ibrahim & Adamu, 2021; Yahaya & Sule, 2023), others have focused on topics like teacher motivation, recruitment strategies, and instructional delivery (Ogunyemi, 2022; Adejumo & Adebayo, 2023). The synergistic impacts of managing people and material resources as an interdependent system within the school environment, however, have not been thoroughly studied in many studies. This creates a significant knowledge gap about how shortcomings in one area could affect the efficacy of the other.

2. Limited Post-COVID-19 Studies

The COVID-19 epidemic exposed serious structural flaws in Nigeria's educational system, notably in the areas of teacher readiness, digital resource deployment, and remote learning readiness. There is also a dearth of empirical evidence on how educational institutions are combining human and material resources to recoup learning losses and increase system resilience, despite several recent research starting to examine post-pandemic problems (Yahaya & Sule, 2023). Since 2020, the majority of policy reviews and assessments have been macro-level or anecdotal, lacking localized data and school-level investigations.

3. Inadequate Use of Integrated Theoretical Frameworks

The implementation of integrated theoretical frameworks that can comprehensively explain the interdependence of resource inputs, institutional processes, and educational outcomes—such as Systems Theory and Human Capital Theory—is frequently lacking in existing research (Okoro & Eze, 2021). When theoretical frameworks are used in research, they are typically applied narrowly, concentrating on discrete factors like textbook distribution or teacher absenteeism without taking into account the larger institutional dynamics that affect both.

4. Underrepresentation of Rural and Public School Data

There is little information from rural or public school settings, where resource shortages and managerial inefficiencies are frequently more noticeable, and a large amount of the literature that is now available disproportionately represents urban, private, or mission-owned schools (Uche & Onu, 2022). The gap between educational theory and practice may therefore grow as a result of policies and interventions based on this type of study not being adequately adapted to grassroots reality.

5. Lack of Longitudinal and Outcome-Based Studies

The long-term effects of material and human resource management strategies on student achievement, teacher retention, and institutional efficiency are also not well documented in longitudinal studies. The majority of research is descriptive and cross-sectional, providing

brief overviews of problems without documenting long-term patterns or proving a link between resource management techniques and results (Adeleke & Musa, 2020).

6. Neglect of Management Capacities and Policy Implementation

The management skills of school administrators and leaders represent yet another significant gap. Although resource scarcity is frequently covered in the literature, less emphasis is placed on the managerial decision-making, leadership philosophies, and skill sets that affect staff productivity and resource use. Furthermore, there is a dearth of empirical study on the implementation of educational policies regarding the distribution of material and human resources at the school level (Okonkwo & Njoku, 2021).

Research Methodology

3.1 Research Design

In order to collect participant opinions, experiences, and observations regarding resource management techniques, this study uses a descriptive survey approach.

3.2 Population of the Study

Principals, instructors, and education officers from a few chosen public secondary schools in three Nigerian states make up the population.

3.3 Sample and Sampling Techniques

15 schools per state were chosen using a multi-stage sample process that included purposive and random sampling. There were 270 responders in all.

3.4 Instrumentation

The "Material and Human Resource Management in Education Questionnaire (MHRMEQ)" is a structured questionnaire that was created, approved, and utilized to gather data.

3.5 Validity and Reliability

Three educational management specialists validated the tool. A pilot study was used to assess reliability, and the results showed a Cronbach's alpha of 0.81.

3.6 Method of Data Collection

Data was gathered over a four-week period using both in-person and email distribution of questionnaires.

3.7 Method of Data Analysis

Using SPSS version 26, the data were examined using both descriptive (mean and standard deviation) and inferential (chi-square and ANOVA) statistics.

Summary

The cornerstone of attaining high-quality education in Nigeria is the efficient use of human and material resources. The success of education, which is a key factor in the growth of a country, depends on how well schools manage their personnel and physical resources. Learning environments are physically supported by material resources like classrooms, teaching aids, libraries, and ICT infrastructure. Nonetheless, enduring problems such as subpar procurement procedures, poor upkeep, and underuse of teaching resources continue to reduce their influence on student results (Ibrahim & Adamu, 2021; Nwankwo, 2021).

In a same vein, human resources—especially educators and administrators—are essential to the implementation of the curriculum and academic achievement. However, Nigeria's education system is beset by issues such hiring incompetent teachers, low motivation, a lack of professional development, and uneven deployment (Ogunyemi, 2022; Uche & Onu, 2022). These vital resources' efficacy is further compromised by inadequate policy implementation and a lack of integrated planning.

The necessity of comprehensive coordination between different subsystems in education is emphasized by systems theory. A breakdown in one area, such as a lack of supplies or inexperienced staff, affects how well the school system functions as a whole (Okoro & Eze, 2021). In the same way, Human Capital Theory promotes resource planning and teacher training as a means of achieving national economic development (Becker, 1993; Akinyemi & Salami, 2020). These ideas emphasize how resource inputs and educational outcomes are interdependent.

Critical gaps are identified in the literature, such as disjointed studies that handle material and human resources separately, the underrepresentation of rural schools in empirical research, and the absence of longitudinal data to assess the effects of policies (Yahaya & Sule, 2023). Furthermore, few studies use thorough theoretical models to direct integrated resource management, and little attention is paid to school leadership potential.

In conclusion, systemic reforms are necessary to overcome the shortcomings in the management of people and material resources in Nigerian education. These include stronger school leadership, continuous teacher development, transparent procurement processes, and more alignment between resource allocation and real requirements. A more robust and inclusive educational system that can propel national change will be supported by filling in the gaps in the scholarship and practice that have been highlighted.

Conclusion

One of the primary factors influencing the effectiveness, sustainability, and quality of education in Nigeria is the management of human and material resources. It is becoming more and more obvious that people and material resources cannot be seen in a vacuum as the country works to achieve its developmental and educational objectives. Both reinforce one another and need to be carefully synchronized to improve student performance and the learning environment.

The ongoing issues facing Nigeria's educational system—from outdated teaching aids and underutilized instructional materials to underqualified and unmotivated teachers—emphasize the negative effects of disjointed and inefficient resource management. Significant progress is

nevertheless hampered by shortcomings in planning, execution, monitoring, and accountability, particularly in public and rural schools, despite policy initiatives and other interventions.

A useful lens for comprehending the dynamics of educational resource management is offered by systems theory and human capital theory. According to systems theory, the entire educational process might become unstable if one of the subsystems in the school environment fails, whether it be a material or human one. Since teachers' professional growth, well-being, and efficacy are essential to accomplishing national educational and economic goals, human capital theory emphasizes the value of investing in people as assets.

The literature evaluation identifies important gaps, including a dearth of integrated research on resource management, a lack of focus on under-resourced and rural areas, and a lack of empirical evidence on how post-pandemic realities have changed the demands on education. Comprehensive, data-driven research and creative policy design are required to close these gaps.

In conclusion, improving the management of materials and human resources in Nigerian education requires a multidimensional strategy that combines efficient allocation, continuous capacity building, adequate funding, and accountability mechanisms. To convert Nigeria's education sector into a robust and inclusive system that serves the needs of all students, it would be crucial to close the theory-practice gap and build institutional capacities at all levels.

Recommendations

1. Adopt an Integrated Resource Management Framework

A systems-based strategy that unifies material and human resource management under a single planning framework should be adopted by educational stakeholders. To enhance overall school performance, federal, state, and local ministries of education should make sure that hiring, training, infrastructure development, and the supply of instructional materials are coordinated and interdependent (Okoro & Eze, 2021).

2. Strengthen Teacher Recruitment and Deployment Policies

Teachers must be hired and assigned according to their qualifications, need, and area of expertise. This calls for open recruiting procedures, frequent teacher evaluations, and regulations that guarantee a fair distribution of competent teachers, particularly in underserved and rural areas (Ogunyemi, 2022).

3. Institutionalize Continuous Professional Development (CPD)

Teachers and school administrators require continuous in-service training and capacity building, which governments and education providers must fund. Pedagogy, ICT integration, inclusive education, and leadership should be the main topics of training. The Teachers Registration Council of Nigeria (TRCN) should support and implement mandatory continuing professional development (CPD) (Uche & Onu, 2022).

4. Improve Procurement and Maintenance of Educational Materials

Instructional resources should be purchased in a timely, transparent, and needs-driven manner. To guarantee the longevity of facilities and resources, schools should establish maintenance budgets and have precise inventory systems. Using digital monitoring technologies will decrease waste and increase accountability (Yahaya & Sule, 2023).

5. Incentivize and Motivate Education Personnel

Better pay, housing plans, opportunities for advancement, and recognition initiatives must be implemented for both teaching and non-teaching personnel in order to increase employee retention and productivity. These incentives must be set up to promote sustained dedication and reward performance (Adejumo & Adebayo, 2023).

6. Expand Infrastructure and ICT Capacity

ICT integration and the development of fundamental educational infrastructure, such as classrooms, labs, libraries, and internet access points, should be top priorities for the government. Funding shortages can be filled and digital resources for contemporary teaching and learning can be made available through public-private partnerships (PPPs) (Ibrahim & Adamu, 2021).

7. Enhance School Leadership and Management Competence

Administrators and school heads should receive training in material resource management, human resource planning, and strategic leadership. According to contemporary educational leadership standards, these positions must entail proactive decision-making, monitoring, and accountability procedures in addition to ceremonial responsibilities (Akinyemi & Salami, 2020).

8. Strengthen Monitoring and Evaluation Systems

For resource management at all school levels, education authorities should set up strong monitoring and evaluation (M&E) frameworks. To ensure data-informed decision-making, these systems should monitor performance metrics pertaining to student outcomes, instructor effectiveness, and material consumption (Okonkwo & Njoku, 2021).

9. Prioritize Rural and Low-Income Schools

Schools in remote areas and those with little resources should receive targeted interventions because these are the areas with the greatest shortages of both people and material resources. To increase fairness in the delivery of education, special funding, hardship allowances, mobile teaching materials, and distant learning platforms ought to be implemented (Nwankwo, 2021).

10. Foster Research and Data-Driven Policy

Research on the integrated management of educational resources that is empirical, longitudinal, and at the school level is required. To inform policies and best practices, government organizations, NGOs, and universities should work together to translate research

and generate data (World Bank, 2022). Nigerian education authorities and stakeholders may close existing gaps, strengthen system performance, and raise the standard and inclusivity of education delivery nationwide by putting these suggestions into practice.

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