Data-Driven Decision Making: A Framework for Educational Development in Nigeria

By

Imowaji Felix Maclean Ph.D
Ignatius Ajuru University of Education
imaowagim@gmail.com

Raymond Emilia Ngozi
University of Port Harcourt
emiliaraymond71@gmail.com

&

Eunice Ayibakuro Suobite
University of Port Harcourt
eayibakuro79@gmail.com

Abstract
Data-driven decision making has gained significant attention in recent years as a tool for improving educational outcomes, in Nigeria, the need for evidence-based decision making is becoming increasingly important as the country strives to improve the quality of education for its citizens. This paper proposes a framework for implementing data-driven decision making in the Nigerian education system to enhance educational development. The frame work includes five key steps: identifying key educational goals and indicators, collecting relevant data, analyzing the data, interpreting the results, and making decisions based on the data. The challenges and opportunities for implementing this framework in Nigeria are also discussed. The paper highlights the need for collaboration among stakeholders, including policymakers, educators, researchers, and communities, to ensure successful implementation of the framework. The proposed framework has the potential to improve educational outcomes and contribute to the development of a mere evidence-based education system in Nigeria.

Keywords: Data Driven, Decision making, Educational Development.

Introduction

Education is the bedrock of any society, and its development cannot be overemphasized. In Nigeria, however, educational development has been plagued with several challenges, such as inadequate funding, poor infrastructure, and outdated teaching methods. To overcome these challenges and achieve significant progress in education, there is a need for data-driven decision-making. This framework allows educators to make informed decisions based on reliable data rather than relying on assumptions or guesswork. Teachers and school systems have long collected and used data in some form or another, whether recording scores in a grade book to track progress and calculate final grades or examining standardized test scores to measure district-wide achievement. However, today's technology has greatly increased educators' opportunities to use data and analytics to improve teaching. Teachers can now use tools that track their students' understanding in real time throughout the delivery of a lesson or provide them with the results of assigned homework before planning their next lessons.

Data-driven decision-making is an approach to decision-making that involves gathering and analyzing data in order to inform decisions. This approach has been increasingly adopted in various fields, including education, as a means of improving outcomes and increasing efficiency (MouzaLavigne, 2016).

Data-driven decision-making in education refers to the practice of using various types of data, such as student assessments, attendance records, and demographic information, to inform and guide decisions made by teachers, school administrators, and policymakers (Thomas & Peterson, 2013). The approach allows educators to identify areas that require improvement, track progress, and make evidence-based decisions to improve student outcomes. One key benefit of data-driven decision-making is that it can help educators identify and address achievement gaps. By analyzing data on student performance, educators can pinpoint areas where certain groups of students are struggling and tailor interventions accordingly. Additionally, data can help educators identify trends and patterns, such as the impact of certain instructional approaches on student outcomes.

In a study conducted by the American Institute for Research, researchers found that schools that used data-driven decision-making had higher rates of academic achievement, better attendance rates, and lower dropout rates compared to schools that did not use this approach.

Data-driven decision-making has the potential to improve educational development in Nigeria by-providing stakeholders with insights into educational challenges and opportunities (Adeyemo & Adeyemo, 2021). However, to effectively use data to inform decision-making, a framework is needed that outlines guidelines for data collection, analysis, and reporting, as well as recommendations for the integration of data into educational policy and practice.

Aims and Objectives

The aim of this paper is to develop a comprehensive understanding of the challenges faced by the Nigerian education system and identify the role of data-driven decision-making in improving outcomes. The objective of the study aims to:

i.   Identify the key challenges facing the Nigerian education system, including access to education, quality of education, teacher training, curriculum development, and funding.

ii. Analyze the current state of data-driven decision-making in the Nigerian education system, including the availability and quality' of data, the use of data to inform decision-making, and the barriers to effective data-driven decision-making.

iii. Develop a framework for data-driven decision-making in the Nigerian education system that includes guidelines for data collection, analysis, and reporting, as well as recommendations for the integration of data into educational policy and practice.

iv. Evaluate the potential impact of data-driven decision-making on educational outcomes in Nigeria, including improvements in student performance, teacher training, and resource allocation.

Theoretical Background

One theoretical framework that can be applied to data-driven decision-making in the Nigerian education system is the Information-Action Model (IAM). The Information-Action Model (IAM) was first proposed by Lee and Song in 2017. The IAM posits that information must be actionable and relevant to decision-makers for it to be used effectively (Lee & Song, 2017). In the context of education in Nigeria, this means that the data collected and analyzed should be relevant to the

challenges faced by the education system and should provide actionable insights that can inform decision-making.

Another theoretical framework that can be applied to this study is the Continuous Improvement Model (CIM). The CIM posits that decision-making should be an ongoing process of collecting data, analyzing it, and implementing changes based on the findings (Sawatzky et al., 2012). In the context of education in Nigeria, the CIM can be used to ensure that data is continuously collected and analyzed, and that changes are implemented based on the insights gained.

Conceptual Clarification

Decision Making and Data-Driven Decision Making

Decision-making is a fundamental process in every organization. Okwo and Walson (2020) define decision-making as the process by which judgment is attained or a choice is made on given situations or issues. Decision-making is the thought process of selecting a logical choice from the available options (Owhondah, 2020). Robert-Okah (2005) asserted that decision-making is an important management function and that it is central to all aspects of management: planning, organizing, staffing, directing, coordinating, reporting, and budgeting. According to Nwanchukwu in Robert-Okah (2005), it is the selection of an alternative course of action from available options in order to achieve a given goal.

As human beings, we usually make decisions without taking the outcome or consequence into account. But when it comes to taking decisions that have to do with education, it is important to take decisions based on facts. Through the process of data-driven decision-making, these facts can be gathered before taking any decision-making action.

Saleforce (n.d.) defined data-driven decision-making as using facts, metrics, and data to guide, strategic education decisions that align with goals, objectives, and initiatives. Data-driven decision-making allows for a better understanding of educational needs by leveraging real, verified data instead of just making assumptions. Data-driven decision-making is the process of using data to inform decisions and improve outcomes. According to Calzon (2022), data-driven decision making is the process of using data to make informed and verified decisions to drive organizational (educational) growth.

Fundamentally, using data for decision-making means working towards key educational goals by leveraging verified, analyzed information rather than merely shooting in the dark. However, to extract genuine value from the information gotten, it must be accurate as well as relevant to the objectives (Calzon, 2022).

Challenges of Educational System in Nigeria

The Nigerian education system is facing several key challenges, including:

Inadequate funding: Inadequate funding is one of the major challenges facing the Nigerian education system, and it has a significant impact on the quality and accessibility of education. The low level of funding for education in Nigeria has led to a lack of resources, inadequate infrastructure, and a shortage of qualified teachers. According to a report by the United Nations Children's Fund (UNICEF), Nigeria's education sector has been underfunded for many-years, with education spending accounting for only 7% of the national budget in 2020 (UNICEF, 2018). This low level of funding has led to a shortage of basic educational resources such as textbooks, science equipment, and teaching materials. In addition, many schools lack basic infrastructure such as classrooms, libraries, and toilets, which makes it difficult to provide a safe and conducive learning environment for students.

The shortage of qualified teachers is another consequence of inadequate funding. Many schools in Nigeria are understaffed, and those that do have teachers often have a high student-to-teacher ratio. This means that teachers are often overworked, and students do not receive the individual attention they need to learn effectively. Furthermore, the quality of teaching in Nigeria is generally low, and this is partly due to inadequate teacher training and professional development opportunities, which are often not provided due to lack of funding (UNICEF, 2018).

The impact of inadequate funding is particularly severe on children from disadvantaged backgrounds, who are more likely to attend underfunded schools and to have less access to educational resources. This exacerbates existing inequalities in the education system and perpetuates cycles of poverty and low academic achievement (UNICEF, 2018).

The poor quality of education: The poor quality of education in Nigeria is one of the major challenges facing the Nigerian education system. The quality of education is generally low, with

a high rate of illiteracy and low levels of academic achievement. This has serious implications for the future of Nigeria, as education is critical for economic and social development.

One of the factors contributing to the poor quality of education in Nigeria is a lack of effective teaching methods and inadequate teacher training. According to a report by the United Nations Children's Fund (UNICEF), many teachers in Nigeria lack the necessary skills and training to teach effectively. Teachers often rely on outdated teaching methods, such as rote learning, which do not encourage critical thinking or creativity (UNICEF, 2018). In addition, there is often a lack of support and supervision for teachers, which means that they do not receive feedback on their teaching or have the opportunity to improve their skills.

Another factor contributing to the poor quality of education in Nigeria is a lack of resources. Many schools lack basic educational resources, such as textbooks, science equipment, and teaching materials. This means that students do not have access to the resources they need to learn effectively. Furthermore, the shortage of infrastructure, such as classrooms and libraries, limits the ability of students to engage in independent learning and research.

The impact of poor-quality education is significant. Students who receive a poor-quality education are less likely to succeed academically and are more likely to drop out of school. This can lead to a cycle of poverty and limited opportunities. Furthermore, the lack of critical thinking skills and creativity among students limits their ability to contribute to society and hinders economic and social development in Nigeria.

The poor quality of education in Nigeria is a significant challenge facing the Nigerian education system, and it has serious implications for the future of the country. A concerted effort is needed to improve teaching methods, provide adequate Training and resources for teachers, and improve the overall quality of education in Nigeria.

Inequitable Access: Inequitable access to education is also a major challenge facing the Nigerian education system. Access to education is not evenly distributed across the country, with significant disparities in access to education between different regions, socioeconomic groups, and gender.

According to a report by the United Nations Children's Fund (UNICEF), access to education in Nigeria is characterized by significant disparities. Children from rural areas, low-income

households, and marginalized communities are less likely to attend school than their urban, wealthy, and non-marginalized counterparts (UNICEF, 2018). Gender disparities in access to education are also significant, with girls less likely .to attend school than boys, particularly in Northern Nigeria where cultural norms and practices often discourage girls' education (UNICEF, 2018).

Inadequate infrastructure is one of the factors that contribute to inequitable access to education. Many schools lack basic infrastructure such as classrooms, libraries, and toilets, which makes it difficult to provide a safe and conducive learning environment for students. This disproportionately affects children from rural and marginalized communities, who are more likely to attend schools with inadequate infrastructure.

Poverty is another factor that contributes to inequitable access to education. Poor families often cannot afford the costs associated with education, such as school fees, uniforms, and textbooks. This limits the ability of children from low-income families to attend school and perpetuates cycles of poverty and limited opportunities.

The impact of inequitable access to education is significant. Children who are excluded from education are more likely to live in poverty, suffer from poor health outcomes, and be at risk of exploitation and abuse (UNICEF, 2018). The lack of education also limits their ability to participate fully in society and to contribute to economic and social development.

Inequitable access to education is a significant challenge facing the Nigerian education system, and it has serious implications for the future of the country. A concerted effort is needed to improve access to education for marginalized communities, reduce gender disparities, and improve the overall quality of education in Nigeria.

Security challenges: Security access is another significant challenge facing the Nigerian education system. The country has experienced a significant increase in violence and insecurity in recent years, particularly in the Northeast region, where the Boko Haram insurgency has disrupted education and displaced millions of people (UNESCO, 2021). This has had a significant impact on access to education, with many schools closed or destroyed, and children unable to attend school due to safety concerns.

The impact of insecurity on education is significant. According to UNESCO, over 1,400 schools have been destroyed or damaged since the start of the Boko Haram insurgency in 2009, and over 600 teachers have been killed (UNESCO, 2021). This has resulted in a significant reduction in the number of children attending school, particularly in the Northeast region, where over 2.8 million children are out of school (UNICEF, 2021).

In addition to the impact on access to education, insecurity also affects the quality of education. Schools that remain open often struggle to provide a safe and conducive learning environment for students, which affects their ability to learn and develop. Teachers and students are also at risk of violence and attacks, which can lead to trauma and mental health issues.

The impact of insecurity on education extends beyond the individual level and has significant implications for the future of Nigeria. Education is critical for economic and social development, and the disruption of education due to insecurity can have long-term implications for the country's development.

Security access is a significant challenge' facing the Nigerian education system, and it has serious implications for the future of the country. A concerted effort is needed to address the root causes of insecurity, provide a safe and conducive learning environment for students, and improve access to education in areas affected by violence and conflict.

Lack of technological infrastructure: The lack of technological infrastructure is another significant challenge facing the Nigerian education system. Technology has become an essential tool for teaching and learning, and its integration into education has become increasingly important in the 21st century. However, the lack of technological infrastructure in! Nigeria limits the ability of schools to provide quality education and prepare students for the modem workforce.

According to a report by the World Bank, Nigeria lags behind other countries in terms of access to technology and internet connectivity (World Bank, 2020). Only 39% of Nigerians have access to the internet, and this access is often limited to urban areas, leaving many rural communities without access to technology (World Bank, 2020). This has significant implications for education, as students in rural areas are less likely to have access to digital resources and online learning opportunities.

The lack of technological infrastructure also affects the quality of education in Nigeria. Many schools lack basic technological infrastructure such as computers, internet connectivity, and software, which makes it difficult for teachers to integrate technology into their teaching methods. This limits the ability of students to develop digital literacy skills and hinders their ability to compete in the modem workforce.

The impact of the lack of technological infrastructure on education is significant. It limits the ability of students to access digital resources, collaborate with peers, and develop 21st-century skills. This, in turn, limits their ability to compete in the global economy and hinders the overall development of the country.

The lack of technological infrastructure is a significant challenge facing the Nigerian education system. A concerted effort is needed to address this issue, including increasing access to technology and internet connectivity, providing training for teachers on how to integrate technology into their teaching methods, and investing in the development of digital resources and online learning platforms.

Decision Makers and their Data Needs

The effective utilization of data commences with identifying the individuals who will have access to, scrutinize, or evaluate the data, as well as the intended purpose of such activities. The present study delineates the various data users based on their hierarchical positions and elucidates the objectives that they may pursue through data analyses. The graphical representation of this information is provided in Figure 2a. Whilst Figure 2amay be structured according to the decision maker's level, it is imperative to acknowledge that data frequently traverse across various levels and that decisions made based on such data can have an impact on multiple levels.

Classroom Teachers: Classroom teachers utilize data to evaluate the requirements, proficiencies, advancements, and accomplishments of their pupils, either independently or in collaboration with others. This prompts educators to contemplate the necessity of modifying or enhancing existing and projected instructional practices. As an illustration, a cohort of educators teaching second grade may scrutinize the reading scores of their pupils, subsequently reorganizing them according to their advancements. Educators have the ability to utilize data for the purpose of introspection

regarding their personal areas of proficiency and areas in need of improvement. Following the mentor's recording of observations of a teacher's practice utilizing a standardized rubric, a collaborative discussion between the teacher and mentor ensued to analyze the observations. Subsequently, it was determined that the teacher would derive advantages from attending a district-sponsored professional development session on classroom management.

School administrators: The responsibility of evaluating the performance of a school falls on the school administrators, who are tasked with analyzing the collective progress and achievements of both students and staff members. The attainment of a school's objectives, aims, and aspirations necessitates the establishment and oversight of educational practices, initiatives, and regulations by school administrators. These measures are often developed in partnership with or with the involvement of classroom teachers, with the intention of effecting change. In order to accomplish this task, it is imperative to gather data not only pertaining to the unprocessed academic results of students-, but also regarding the specific impact of individual educators on the growth of student achievement, the pedagogical techniques employed by teachers in the classroom, and their ora professional performance evaluations as assessed by supervisors, educators, or parents.

Superintendents, School Boards, District Staff, Charter Management Organization Leaders, Charter Authorizers

Similar to educational administrators at the school level, district leaders and leaders of other educational organizations, such as charter-school management organizations, frequently engage in data utilization practices that entail evaluating student academic progress and personnel effectiveness.

District personnel utilize data to guide their initiatives, implementing standards and creating curricula that are subject to revision in cases where progress falls short or surpasses expectations. District officials are responsible for establishing and overseeing district-level procedures, initiatives, and regulations. They also utilize data to evaluate the effectiveness and execution of these endeavors. District-level decisions are informed by a variety of data sources, including student assessments, classroom observations, school visits, staff surveys, revenues, expenditures, and other relevant sources.

State Education Agency Officials: One of the primary responsibilities of officials working in state-level education agencies is to conduct analyses aimed at monitoring the levels of achievement and attainment across the state. Frequently, the duties of these professionals entail submitting reports to federal entities, districts, or other organizations. It is imperative to monitor the academic progress of students at a statewide level, as well as within subgroups of students, grade levels, districts, or individual schools. Furthermore, it is imperative to ensure the caliber of educators and administrators, thereby enabling the assessment of teacher- and school-level value-added to scrutinize the present workforce. Additionally, the certification programs for teachers and principals must be monitored to guarantee the excellence of the forthcoming education workforce. Ultimately, it is the duty of state education agency officials to assess and appraise the execution of initiatives and endeavors that are currently undergoing trial phases within certain districts or schools, or have been fully implemented throughout the state.

Current State of Data-Driven Decision-Making in the Nigerian Education System

In the Nigerian education system, data-driven decision-making has been identified as a critical tool for improving the quality of education and achieving better outcomes for students. However, the content state of data-driven decision-making in the Nigerian education system is not fully developed, and there are several challenges that need to be addressed.

One of the key challenges facing data-driven decision-making in Nigeria is the lack of reliable and accurate data. Many schools in Nigeria lack the infrastructure to collect and analyze data effectively, and there is often a lack of standardization in data collection methods (Adeyemo et al, 2021). This makes it difficult for policymakers and educators to make informed decisions based on data.

Another challenge is the lack of capacity among education stakeholders to use data effectively. Many teachers and administrators in Nigeria lack the training and skills needed to analyze and interpret data, limiting their ability to use data to inform decisions (Adeyemo et al., 2021). This, in turn, limits the impact of data-driven decision-making on education outcomes.

Despite these challenges, there have been some efforts to promote data-driven decision-making in the Nigerian education system. For example, the Nigerian government has developed a National

Education Management Information System (NEMIS) to collect and analyze education data (World Bank, 2021). Additionally, some organizations have developed tools to support data-driven decision-making, such as the Edusoft platform, which provides data analytics and visualization tools to educators in Nigeria (Edusoft, n.d.).

While data-driven decision-making has been recognized as an important tool for improving education outcomes in Nigeria, the current state of data-driven decision-making is not fully developed. Addressing the challenges of data collection, standardization, and capacity building is essential to promote the use of data to inform education policies and improve outcomes for students.

Availability and Quality of Data in the Nigerian Education System

The National Education Management Information System (NEMIS) is responsible for collecting and analyzing education data in Nigeria. However, the quality of data collected by NEMIS is often inadequate due to inadequate funding and the absence of a standardized data collection process (Adeyemo et al., 2021). This results in incomplete, inconsistent, and inaccurate data, making it difficult to make informed decisions based on such data.

Furthermore, while data is collected in Nigeria, much of it is not being utilized effectively. The data collected by NEMIS is not being fully utilized due to a lack of capacity among education stakeholders to use data effectively (Adeyemo et al., 2021). Many educators lack the necessary skills to analyze and interpret data, limiting their ability to use data to inform decisions.

Additionally, there is also a lack of integration of data into decision-making processes. The available data is not being integrated into decision-making processes at the school and policy levels, leading to suboptimal decision-making and wasted resources (Adeyemo et ah, 2021).

The availability and quality of data in the Nigerian education system remain a significant challenge. Adequate funding and standardization of data collection methods are essential to improve data quality, while training and capacity building are necessary to improve data utilization. It is also important to integrate data into decision-making processes to optimize its value in improving education outcomes in Nigeria.

The use of Data to Inform Decision-Making in the Nigerian Education System

The Nigerian education system faces significant challenges in effectively using data to inform decision-making. While data is collected through various channels, it is often not effectively utilized to improve education outcomes.

One major challenge is the limited use of data in school-level decision-making. A study by Nwankwo, et al. (2021) found that many Nigerian schools lack the capacity to analyze data and use it to inform decisions. This is due to a lack of training and resources for educators, limiting their ability to effectively use data to identify areas of improvement and develop evidence-based strategies to address them.

Another challenge is the lack of data integration in policy-level decision-making. While the Nigerian government has made efforts to collect and analyze education data, the data is often not used to inform policy decisions. A study by Agbatogun, Adeyemo, and Adeyemo (2021) found that data is not effectively used in policy-making due to a. lack of institutional capacity and political will.

Furthermore, there are concerns about the quality of data being collected. A study by Adeniyi and Adewale (2019) found that the quality of data collected on education in Nigeria is often poor, with inconsistencies and inaccuracies in data collection processes. This limits the usefulness of the data for decision-making and undermines efforts to improve education outcomes.

While data is collected in the Nigerian education system, its effective use to inform decision-making remains a significant challenge. To improve data-driven decision-making, there is a need for increased investment in training and resources for educators, as well as greater institutional capacity and political will to integrate data into policy-making processes. Additionally, efforts to improve the quality of data collection and analysis must be prioritized to enhance the usefulness of data for decision-making

The Barriers to Effective Data-Driven Decision-Making in the Nigerian Education System

Effective data-driven decision-making in the Nigerian education system is hindered by several barriers. These barriers can be categorized into institutional, technical, and cultural barriers.

Institutional barriers include the lack of clear guidelines for data collection, management, and utilization, as well as insufficient resources and infrastructure for data management. These institutional barriers create challenges for stakeholders in accessing and analyzing the data effectively. A study by Agbatogun, Adeyemo, and Adeyemo (2021) found that these institutional barriers are one of the significant hindrances to data-driven decision-making in Nigeria.

Technical barriers include the poor quality of data, lack of technical skills, and inadequate software for data analysis. These technical challenges limit the ability of education stakeholders to accurately analyze and interpret data. According to a study by Adeniyi and Adewale (2019), data quality' issues, such as inconsistencies and inaccuracies in data collection processes, is a significant technical barrier to effective data-driven decision-making in Nigeria.

Cultural barriers include a lack of buy-in from education stakeholders and resistance to change. A study by Nwankwo, Chukwu, and Orji (2021) found that resistance to change and lack of willingness to implement data-driven decision-making processes among education stakeholders was one of the significant cultural barriers.

To overcome these barriers, education stakeholders in Nigeria need to prioritize the development of institutional, technical, and cultural strategies to enable effective data-driven decision-making. These strategies include the development of clear guidelines for data collection, management, and utilization, investment in infrastructure and resources for data management, provision of technical training and support for stakeholders, and the promotion of a data-driven culture in the education system.
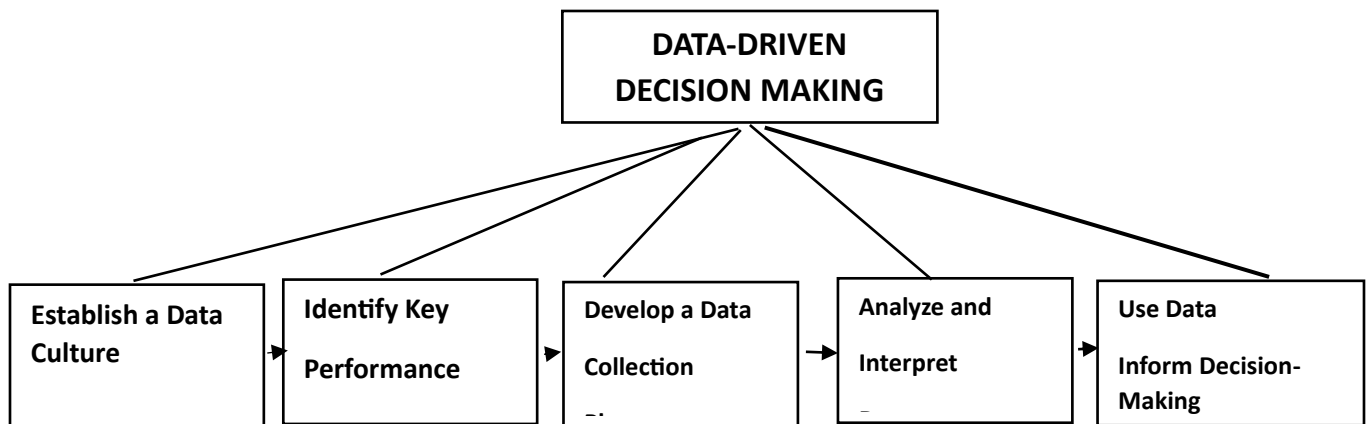
A Framework for Implementing Data-Driven Decision Making for Educational Development in Nigeria.

A framework for data-driven decision making involves several essential components that are critical to the success of educational development in Nigeria.

Fig 1: Framework for implementing data-driven decision making for educational development in Nigeria

A robust framework for data-driven decision making has the potential to transform education in Nigeria by empowering educators with actionable insights into what works best for their students'

learning needs. According to Adeoye and Nwachukwu (2020) the following are framework for implementing DDDM for educational development in Nigeria.

Fig 1: Framework for Implementing Data-Driven Decision-Making for Educational Development in Nigeria.

Establish a Data Culture: The first step in implementing DDDM is to establish a culture that values data, this involves creating awareness of the importance of data in decision-making among stakeholders, such as teachers, school administrators, policy-makers, and parents. Training programs and workshops can be organized to build capacity in data literacy and analysis.

Identify Key Performance Indicators: The next step is to identify key performance indicators (KPIs) that will be used to measure progress in educational development. These may include student enrollment, retention rates, learning outcomes, teacher attendance, and infrastructure development.

Develop a Data Collection Plan: A data collection plan should be developed to ensure that the required data is collected accurately and consistently. This may involve developing data collection tools, such as surveys, questionnaires, and observation checklists. It is important to ensure that the data collection process is streamlined and efficient to avoid duplication and errors.

Analyze and Interpret Data: The collected data should be analyzed and interpreted to inform decision-making. This may involve using statistical software to analyze quantitative data and qualitative analysis techniques, such, as content analysis, to analyze qualitative data. The results

of the analysis should be presented in a clear and concise manner, using visual aids, such as graphs and charts, to facilitate understanding.

Use Data to Inform Decision-Making: The final step is to use the analyzed .data to inform decision-making. This may involve making adjustments to policies, programs, and interventions to improve student outcomes and enhance teaching practices. It is important to monitor the impact of the decisions made and make adjustments as needed.

Impact of Data-Driven Decision-Making on Educational Outcomes In Nigeria

Data-driven decision-making has the potential to positively impact educational outcomes in Nigeria in the following ways:

Improved student outcomes: By using data to track student progress, educators can identify areas where students are struggling and tailor their teaching strategies accordingly. This can lead to improved academic outcomes for students, as well as better attendance and behavior. For example, a study by the National Center for Education Statistics found that schools that used data to inform instruction saw significant improvements in student achievement (NCES, 2017). Several studies have demonstrated the positive impact of data-driven decision-making on educational outcomes in Nigeria. A study by Adedoyin and Soji-Adekunle (2(321) found that data-driven decision-making positively impacted student learning outcomes in primary schools in Nigeria. Similarly, a study by Abdullahi and Okolie (2019) found that data-driven decision-making positively impacted student academic performance in secondary schools in Nigeria.

In addition to improving student-learning outcomes, data-driven decision-making can also help to improve school management and teacher effectiveness. A study by Agoha and Eze (2021) found that data-driven decision-making positively impacted teacher effectiveness and school management in Nigeria.

More effective resource allocation: Data can help educators identify areas where resources are needed most, whether it be additional staffing, technology, or instructional materials. This can lead to more effective use of resources and better outcomes for students. According to a report by the Data Quality Campaign, data-driven decision making can help schools "align resources to meet

student needs, prioritize funding, and make informed decisions about how to allocate resources most effectively" (Data Quality Campaign, 2015).

Increased accountability: Data can help educators and schools identify areas where they need to improve and hold themselves accountable for student outcomes. By regularly reviewing data, educators can identify areas where they need to make changes and track their progress over time. As the National Education Association notes, data-driven decision making "fosters a culture of accountability and continuous improvement" (National Education Association, n.d.). By using data to identify areas of need, education stakeholders can design and implement targeted interventions to improve student performance.

Conclusion

Data-driven decision making is a critical tool for educational development in Nigeria. The current state of education in the country calls for more practical and evidence-based approaches to addressing challenges and exploiting opportunities. By leveraging data analytics and insights, stakeholders can make informed decisions that lead to better outcomes for students, teachers, schools, and the entire system.

The framework outlined above provides a roadmap for implementing data-driven decision making in education in Nigeria. However, it requires commitment from all stakeholders: policymakers must prioritize investment in infrastructure and capacity building; educators must embrace technology and new methods of teaching; researchers must conduct relevant studies to generate useful data; parents and communities must become active partners in their children's learning journeys.

If everyone plays their part effectively, we can' create an educational system that not only meets the needs of today but also prepares our youth for tomorrow's challenges. Data-driven decision making is not just about collecting numbers or generating reports but using them as tools to drive change at scale.

Suggestions

Based on the discussion of the current state of data-driven decision-making in the Nigerian education system, here are some recommendations for policymakers and educators on how to effectively implement the proposed framework:

1. Strengthen data collection and management systems: To ensure that high-quality data is available for decision-making, policymakers should invest in improving data collection and management systems. This may involve training personnel responsible for data collection, developing standardized data collection tools, and implementing technology-driven data management systems.

2. Build technical capacity: Policymakers and educators should prioritize the development of technical capacity in data analysis and interpretation. This may involve providing training and professional development opportunities for educators and administrators in data analysis tools and techniques.

3. Develop institutional strategies: Policymakers should prioritize the development of institutional strategies that promote a culture of data-driven decision-making. This may involve the creation of data teams or committees responsible for analyzing data and making evidence-based decisions.

4. Ensure stakeholder engagement: Policymakers and educators should ensure that stakeholders, including teachers, parents, and students, are engaged in the data-driven decision-making process. This may involve providing regular feedback on student performance and involving stakeholders in the design and implementation of interventions.

5. Monitor and evaluate interventions: Policymakers and educators should prioritize monitoring and evaluating interventions to ensure that they are effective in improving student outcomes. This may involve using data to track student, progress and adjust interventions as needed.

References

Adeniyi, A. F., & Adewale, F, O. (2019). Issues and challenges of data quality in Nigeria. *International Journal of Management, Technology and Engineering,* 9(3), 1-7.

Adeyemo, D. A., Adeyemo, E. A., & Agbatogun, A. J. (2021). Data-driven decision making in education management information system: An assessment of Nigeria's primary schools. *International Journal of Emerging Technologies in Learning (iJET), 16(A),* 200-217.

Akpochafo, S. M. (2021). Insecurity and education in Nigeria: Implications for sustainable development. *Journal of Educational Research and Reviews,* 9(1), 1-7.

Calzon, B. (2022). Why data driven decision making is your path to business success. https://www.datapine.com/biog/data-driven-decision-making-in-business

Edusoft. (n.d,). *About us*.https://edusoft.tech/about-us/https:/7\vw\v.air.oru/.i:esource/data-driven-decision-making:-schools-v»ʳh,at-works-case-smdies

Mouza, C., & Lavigne, N (2016). Emerging technologies for data-driven decision making in education: Research on teachers' perceptions and practices. *Journal of Research on Technology in Education, 48(3),* 196-213

Nwankwo, F. O., Chukwu, C. M., & Orji, N. B. (2021). The nexus between data-driven decision making and school effectiveness in Nigeria. *Journal of Education and Practice,* 72(14), 43-52.

Okwo, F.A., & Walson, O.B.A. (2020). *Educational management issues and principles*. Pearl.

Robert-Okah, I. (2005). *Educational management in Nigeria: Functional Approach.* Harey.

Salesforcce (n.d). A guide to data driven decision making: What it is, its importance and how to implement it. https:/Avww.tableau.com/learn/articles/data-driven-decision-making

Stobierski, T. (2019). The advantages of data-driven decision-making. *Harvard Business Review, 26.*

Thomas, P., & Peterson, P. (2013). Data-driven decision making in education: Challenges and opportunities. *Journal of Applied Research on Children: Informing Policy for Children at Risk, 4(1%* 1-14.

UNICEF. (2018). *Education.* https://vYww.unicef.org/nigeria/education

World Bank. (2021). *Nigeria - education data,* https://datacatalog.worldbank.org/dataset/nigeria-education-data

World Bank. (2020). *Nigeria-COVID 19 education response plan,* https://documents:worldbank.org/en/publication/documentsreports/documentdetail/78042 1589008063458/nigeria-c-ovid-19-education.-response-plan.