

Impact of Data-Driven Decision Making in Secondary Schools' Administration in Jema'a Local Government Area of Kaduna State

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Abstract

The study investigated the impact of data-driven decision-making in secondary school administration in Jema'a Local Government Area, Kaduna state. Three objectives and three research questions guided the study. The study adopted the descriptive survey research design. The population of the study comprised 306 principals and teachers in six selected secondary in the local government. A sample size of 150 was drawn from the six schools using a simple random sampling technique. The instrument used for data collection was a questionnaire titled "Data-Driven Decision Making on Secondary School Administration Questionnaire (DDDMSSAQ)". The instrument was validated and internal consistency reliability was carried out using Cronbach Alpha which yielded an index of 0.82. Mean and standard Deviation were used to answer the research questions. The findings revealed among other things that, there are some factors influencing the adoption of data-driven decision-making in education such as the availability of data, and government policies. The findings also revealed that DDDM has a significant impact in secondary school in that it improved students' achievement, lead to efficient resource allocation and budgeting among others. The challenges of DDDM include budget constraints and limited technical skills. Based on the findings, it was recommended that the government should emphasize the importance of providing administrators with adequate training in interpreting and utilizing data effectively in Jema'a Local Government Area.

Keywords: Data-driven Decision Making, Administration, Secondary School

Introduction

Decisions made in education systems can have a "butterfly effect" and impact numerous fields, depending on their success or failure. Schools must serve the interests, needs, and expectations of society, so when reforms fail or performance falls short of expectations, decisions made in the past are questioned and criticized (Kuchapski, 2001). Because of this, decisions made by educational institutions ought to be supported by science, predictions ought to be made, and their efficacy ought to be carefully considered. For schools and students in the Jema'a local government, academic performance indicators of national (ABIDE/monitoring and evaluation of academic skills) and international (PISA, PIRLS, TIMSS, etc.) exam reports are currently low, and ideological and arbitrary practices in education policies.

A methodical process known as "data-driven decision-making" uses data and analysis to inform organizational and business choices. It highlights how crucial it is to use both quantitative and qualitative data

in order to obtain understanding, make wise decisions, and accomplish desired results. This strategy is predicated on the notion that, when properly gathered, examined, and interpreted, data can offer insightful information and lessen prejudices and subjective judgments in the process of making decisions. (Prachi, 2023)

Making the appropriate choices regarding school practices during the decision-making process is crucial for educators. According to Anderson, Leithwood, and Strauss (2010), schools are under increasing pressure from society to improve student success. As a result, accountability in education is becoming more and more crucial for school organizations. It is far more common practice to criticize public decisions in both a broad and narrow context and to cast doubt on their scientific foundation. Evidence-based decision-making is necessary for the accountability process to operate effectively. Data relevant to the decision's nature must be used in

evidence-based decision-making. All information gathered to illustrate certain aspects of schools can be referred to as data for school organizations (Schildkamp, Ehren, & Lai, 2013).

In studies examining the conditions of a school that support the use of data in schools, it is observed that the most basic condition is the leadership behavior of principals, who are the decision-makers in schools (Ikemoto & Marsh, 2007; Datnow et al., 2007). In addition to being expected to be data literate, principals must offer incentives for teachers to participate in the data-driven decision-making process. These include but are not limited to fostering a culture of data literacy, offering guidance, establishing opportunities for teachers to use data, setting measurable goals, and establishing strong communication with them in particular (Berends & Goldring 2009). Data literacy is defined as "the ability to understand and use data effectively" and refers to the necessary knowledge and skills that must be learned. It is indicated as the foundation of data-driven decision-making (Mandinach & Honey, 2008). The literature reveals that, despite the importance of school administrators in the data-driven decision-making process, the school administrators have limited knowledge in terms of data use, they only benefit from data to support their decisions, and they misuse or do not use the data at all, but instead make decisions based on their intuition. (Datnow et al., 2007; Lachat & Smith, 2005; Young, 2006). Despite the fact that data is collected in schools in Nigeria, for many applications such as planning, organizing activities, and evaluating programmes, Demir (2009) & Doğan (2021), observed that, even though there is a rich data potential, it is seen that the number of empirical studies conducted is very limited. Since there is no approach for systematically collecting and analyzing data in Turkey, it is clear that there is a lack of information and uncertainty on this matter. There is a need for studies to reveal the use of data in decisions taken in school management in Jema'a local government and to address the problems in a comprehensive way.

Secondary school administrators are essential to the efficient operation and advancement of educational establishments. School administrators in the Jema'a Local Government area must use evidence-based practices in order to make well-informed decisions, given the growing complexity of educational systems. Data-driven decision making (DDDM) is a methodology that involves the methodical gathering, examination, and interpretation of pertinent data to inform administrative decisions and strategic planning.

The impact of DDDM in secondary administration will be examined in this article, along with its advantages, difficulties, and recommended practices.

Research Questions

- i. What are the factors that are influencing data-driven decision-making in secondary school administration in Jema'a Local Government Area?
- ii. What are the benefits of data-driven decision-making in secondary school administration in Jema'a Local Government Area?
- iii. What are the challenges in Implementing Data-driven decision-making in secondary school administration in Jema'a Local Government Area?

Methodology

The study employed a descriptive survey research design. The design was fundamentally a non-experimental quantitative design in which a questionnaire was administered to a representative sample of the population to illicit responses on the impact of DDDM in secondary school administration in Jema'a local government, Kaduna State. The population of the study comprised all 306 principals and teachers from six (6) selected secondary schools in the local government. A sample size of 150 principals and teachers was drawn through a simple random sampling technique. The instrument for data collection was a structured questionnaire developed by the researchers titled Data-Driven Decision Making on Secondary School Administration Questionnaire (DDDMSSAQ). The instrument has two sections, A and B, respectively. Section A elicits demographic information, while Section B provides information on the topic under investigation. There are 17 structured in line with the Likert four-point response options of strongly agreed (SA) and agreed (A). Strongly Disagreed (SD) and Disagreed (D). were divided into three clusters answering one of the research questions. The instrument was subjected to a reliability test using Cronbach's alpha to determine the reliability coefficient and internal consistency of the instrument. The reliability coefficient obtained was 0.82. This means that the instrument is considered high enough for the study. The mean and standard deviation were used to analyze responses to the research questions. A criterion mean was set so that any item mean of 2.50 and above is accepted and any item mean below 2.50 is rejected.

Results

Table One: Mean rating and Standard Deviation on factor influencing Data-Driven decision-making in secondary school administration in Jema'a Local Government.

S/N	Item	SA	A	SD	D	Mean	SD	Decision
1.	Availability of Data	75	40	30	5	3.23	0.88	A
2.	Analytical skills	60	37	33	20	2.91	1.07	A
3.	School culture	35	40	60	15	2.63	0.95	A
4.	Technology infrastructure	80	45	10	15	3.37	0.96	A
5.	Government policies	40	50	40	20	2.73	1.	A
6.	Funding	90	40	10	10	3.4	0.88	A
7.	Collaboration with stakeholders	35	50	55	10	2.73	0.89	A
Cluster mean and standard deviation						3	0.2	A

Data on table one shows that item 1, 2, 3, 4, 5, 6 and 7 had mean scores of 3.25, 2.91, 2.63, 3.37, 2.73, 3.4, 2.73 and the cluster means of 3.0. This shows that the respondents agreed that availability of data, analytic skills, school culture, technology infrastructure, government policies, funding and collaboration with stakeholders are factors influencing data-driven decision-making in the administration of secondary schools in Jema'a local government area

Table Two: Mean rating and standard deviation on the benefits of Data-Driven Decision Making in secondary school administration in Jema'a Local Government..

S/N	Items	SA	A	SD	D	Mean	SD	Decision
8.	Improved students achievement	75	35	35	5	3.2	0.91	A
9.	Efficient resource allocation and budgeting	45	40	50	15	2.77	0.99	A
10.	Enhanced teachers professional development	65	30	30	25	2.9	1.14	A
11.	Increased accountability and transparency	90	40	8	12	3.39	0.91	A
12.	Continuous improvement of teaching and learning practice	45	50	35	20	2.8	1.01	A
Cluster mean and standard deviation						3.01	0.17	A

The data in Table 2 show the mean ratings and standard deviation of principal and teachers on the benefits of Data-Driven Decision Making in secondary school administration in Jema'a Local government. The results indicated that the respondents accepted all the five items as impact of data-driven decision-making for

item 8, 9, 10, 11 and 12 with a mean rating of 3.2, 2.77, 2.9, 3.39 and 2.8. These mean scores are above the criterion mean of 2.50, therefore, it is indicated that DDDM has high impact in the secondary school administration in Jema'a Local Government Area, Kaduna state.

Table Three: Mean rating and standard deviation on the challenges in Implementing Data-Driven Decision Making in secondary school administration in Jema'a Local Government.

S/N	Item	SA	A	SD	D	Mean	SD	Decision
13.	Lack of access to quality data	85	35	15	15	3.27	0.32	A
14.	Data privacy and security concerns	40	40	50	20	2.67	1.01	A
15.	Limited technical skills	70	45	25	10	3.17	0.94	A
16.	Budget constraints	60	70	10	10	3.2	0.84	A
17.	Resistance to change	65	40	40	5	3.1	0.91	A
Cluster mean and standard deviation						3.08	0.17	A

Results from table 3 present the mean ratings and standard deviation of respondents on the challenges in implementing data-driven decision-making in secondary school administration in Jema;a Local Government Area, Kaduna state. The table shows that that respondents responded to the items 13, 14, 15, 16 and 17 with a mean score of 3.27, 2.67, 3.17, 3.2 and 3.1. the cluster means 3.08 and standard deviation 0.17 indicated the extent of the challenges in the implementation of DDDM. Therefore, it is clear that lack of access to quality data, data privacy and security concerns, limited technical skills, budget constraints and resistance to change are some of the major challenges of implementing DDDM in secondary school administration in the local government.

Discussion of findings

The findings of the study revealed that there are some influencing factors regarding the adoption of DDD by schools according to the studies of Brynjolfsson and McElheran (2016) and Sleep et al. (2019). Even though both studies have researched the factors regarding the adoption of DDDM, the study of Brynjolfsson and McElheran (2016) focuses more on the increased rate of adoption, while the study of Sleep et al. (2019) focuses more on the maturity stages of DDDM. The study shows that there are external and internal drivers for educational institutions when adopting DDD M. The external drivers that Sleep et al. (2019) mentioned are Collaboration with Stakeholders, Government Policies and competitive intensity. The internal drivers that Sleep et al. (2019) mentioned are Availability of Data, departmental dynamics, Technology Infrastructure and firm complexity. These drivers influencing the adoption of DDDM for organizations can be found in table 1. The combination of external and internal drivers determines the stage of DDD adopted by an educational organization (Sleep et al., 2019).

The findings of the study revealed that DDDM has a significant impact in the administration of secondary schools improve the administration of secondary schools in Jema'a local government area by enhancing student achievement, promoting efficient resource allocation, supporting teacher professional development, and increasing accountability and transparency. By utilizing authoritative resources and best practices, school administrators can effectively implement DDDM to support the overall success of their schools and students. The findings agrees with the

findings of Estrellado (2022), who assert that DDDM can offer many benefits for education, such as enhancing students learning and achievement, improving teaching and curriculum, increasing accountability and transparency and fostering collaboration and innovation.

The findings of the study also revealed that Data-driven decision-making offers numerous benefits, such as increased accuracy, improved efficiency, and better insights. However, it also comes with its own set of challenges. Here are some common challenges associated with data-driven decision-making: Data Quality and Reliability, Data Privacy and Security, Talent and Skills Gap, Change Management (Prachi, 2023).

Conclusion

Making decisions based on data is becoming more and more important in educational settings like secondary schools. Educational institutions can make well-informed decisions that result in better student outcomes, effective resource allocation, and continuous improvement by utilizing the power of data. To fully reap the rewards of DDDM, however, issues like data quality, privacy concerns, and technology infrastructure need to be resolved. Principals and staff have the ability to leverage data-driven decision making to revolutionize secondary school education by putting best practices into practice and keeping up with emerging trends.

Recommendations

Based on the findings, the following recommendations were made:

1. The government should stress how crucial it is to give administrators sufficient training so they can understand and use data effectively.
2. The government should emphasize the necessity of having precise policies and procedures controlling how educational data is gathered, stored, and used in classrooms.
3. The government ought to promote the use of predictive analytics tools to identify at-risk students, forecast trends in student performance, and allocate resources as efficiently as possible.
4. To gain access to state-of-the-art techniques for analyzing educational data, it is recommended that

research organizations and educational institutions collaborate more closely.

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