

Principals' Data-Driven Leadership Behaviour: The Panacea for Teachers' Instructional Effectiveness in Post-COVID-19 Nigeria

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Abstract

Teachers' instructional effectiveness is an important issue in any teaching-learning activities. This is because both teaching and learning depend on teachers, hence an effective teacher is the one who produces the desired results. The study therefore investigated the relationship between Principals' data-driven leadership behaviour and teachers' instructional effectiveness in Lagos State public secondary schools using the descriptive survey research design. The population comprised all the 18, 054 teachers, in all the 669 public secondary schools in Lagos State, with a sample size of 1,955 teachers selected through stratified random sampling technique. Researchers' designed instruments titled: "Principals' Data-Driven Leadership Behaviour Questionnaire" (PD-DLBQ) and "Teachers' Instructional Effectiveness Questionnaire" (TIEQ) were used for data collection. Data generated were analysed using mean scores and standard deviation for the research question, while Pearson Product-Moment Correlation statistical tool was used to test the only null hypothesis at 0.05 level of significance. Findings showed that the level of teachers' instructional effectiveness in public secondary schools in Lagos State was high. Also, Principals' data-driven school instructional leadership behaviour was significantly related to teachers' instructional effectiveness. The study then concluded that the use of data to guide educational decisions has the potential to change teaching and learning. The study therefore recommended that education leaders should further strengthen data use across all the schools to improve teachers' instructional practices.

Key words: Teachers' effectiveness, Leadership behaviour, School instruction, Data-driven

Word Counts: 233

Introduction

On December 31 2019, the Chinese authorities announced some cases of pneumonia with unknown etiology in the city of Wuhan, the capital of Hubei. Zhu et al., (as cited in Moradi & Vaezi, 2020) avvered that about a week later, gene sequencing revealed that the etiologic agent was a coronavirus. It was first named SARS-Cov-2, and then code-named COVID-19, a shortened form of Coronavirus Disease of year 2019. The outbreak of Covid-19 pandemic and its continuous spread across 191 countries has resulted into serious learning disruptions, including teachers' instructional effectiveness. This then calls for the need for a new leadership thinking, considering the fact that the pandemic has brought about a new normal way of life.

Leadership has been regarded as a major success determinant in every organisation. This implies that every organisation needs quality leaders who can provide inspiration towards attaining set goals, which eventually determines effectiveness of such an organisation. Clark (cited in Ayeni, 2007), asserted that leadership in a school setting has the legitimate authority to direct, guide, and regulate the actions of both the teaching and the non-teaching personnel who, in turn use the physical, material, and financial resources so that the educational goals can be achieved.

A data-driven leadership should aim at contributing to instructional effectiveness and by implication students' achievement through the use of data carefully to inform thoughtful decision-making for continuous improvement. Principal's data-driven leadership in school instruction therefore, is no doubt, a very important factor in supporting students' achievement through data use to improve teaching and learning. This because the use of data by leaders and teachers in carrying out their task will make them become more effective (Wahlstrom & Louis, 2008).

A data-driven decision making leadership, according to a Researcher:

involves decision making in schools based on data; it involves the analysis of any form of information such as student test scores, student demographics (enrolment, gender, attendance and graduation rate), students' learning, stakeholders survey responses, teachers' characteristics, behaviour and professional learning, and some other data sources – to inform choices about school operations, policies and practices (Ibikunle, 2019:1).

Principals and teachers while performing their roles are also expected to be guided by analysis of data or information available within the school organisation to make instructional and resource allocation decisions for school improvement and accountability. However, in Nigeria, educational leaders have always had 'data' of some kinds available to them for making decisions. But these decisions are made mostly based on their experiences, intuitions, and political acumen on the course of action to pursue. However, the inability of Principals to provide the right data-driven leadership needed to meet the challenges of administering public schools may as well be partly responsible for the abysmal failure of public schools to satisfy the expectations of the public, particularly in the area of academic excellence. Supporters of data-driven decision-making practices argue that effective data use enables school system to learn more about their schools, pinpoint successes and challenges, identify areas of improvement, and help evaluate the effectiveness of programme and practices Mason (Ibikunle, 2019).

One of areas where data use has been found indispensable is in school instructional leadership. Instructional leadership according to Girman (2001) refers to those actions that a Principal takes or delegates to others with keen commitment to promoting growth in students' learning. According to him, instructional leadership involves setting clear goals, allocating resources to instruction, managing the curriculum, monitoring lesson plans, and evaluating teachers. Blasé and Blasé (2010) described instructional leadership as specific behaviours such as making suggestions, giving feedback, modelling effective instruction, collaboration, providing professional development opportunities, and giving praise for effective teaching. The responsibility of the Principal to ensure that effective teaching and learning takes place in the school through the use of data for making instructional and resource allocation decision is, therefore, one of the major issues in the endeavour to improve teaching and learning (Ibikunle, 2019).

Based on the fore-discussed background, it becomes highly expedient that attempt be made at investigating Principals' data-driven school instructional leadership behaviour and teachers' instructional effectiveness in public secondary schools in Lagos State, Nigeria.

Problem Statement

Teachers' instructional effectiveness is an important issue in any teaching-learning activities. This is because both teaching and learning depend on teachers, hence an effective teacher is the one who produces the desired results. However, the problem of teacher's instructional effectiveness due to poor instructional delivery in the classroom by teachers has caused steady decline and deterioration in public secondary school students' academic achievements resulting in low school output. Hardly is there any forum on education that the issue of teachers' ineffectiveness is not being mentioned by parents, communities, proprietors, employers, and learners themselves.

In addition, in Nigeria and other African countries, there appears to be a dearth of research done to test the efficacy of data-driven leadership practices or behaviour on teachers' instructional effectiveness particularly in public secondary schools. In fact, some educators often report that data cannot be relied on to solve the challenges of teaching and learning process, because they believe students are too complex, while some acknowledged the complexities of the teaching and learning process, they still maintain that using data appropriately can inform and improve the process (Wayman & Stingfield, 2006).

Teachers' instructional ineffectiveness needs to be studied because it has effects on students' academic performance, quality of secondary school outputs, and so on. This study therefore investigated principals' data-driven leadership behaviour, in terms of school instruction and teachers' instructional effectiveness in public secondary schools in Lagos State, Nigeria.

Purpose of the Study

The main purpose of this study is to investigate the relationship between Principals' data-driven school instructional leadership behaviour and teachers' instructional effectiveness in public secondary schools in Lagos State. Specifically, the study sought:

- i. to investigate the level of teachers' instructional effectiveness in public Secondary Schools in Lagos State.

- ii. to examine the relationship between Principals' data-driven school instructional leadership behaviour and teachers' instructional effectiveness in public Secondary Schools in Lagos State.

Research Question

Based on the purposes of the study, this research question was raised and answered to achieve the first objective:

- i. What is the level of teachers' instructional effectiveness in public Secondary Schools in Lagos State?

Research Hypothesis

One null hypothesis was also formulated and tested at 0.05 level of significance with a view to achieving the second objective:

- i. Principals' data-driven school instructional leadership behaviour does not significantly relate to teachers' instructional effectiveness in public Secondary Schools in Lagos State.

The Coronavirus Disease of Year 2019 (COVID-19) in Nigeria

According to Nigeria Centre for Disease Control, (NCDC) 2020, the Federal Ministry of Health on February 27, 2020 reported the first discovery of the index case of COVID-19 in Nigeria, which was occasioned by an Italian citizen who works in Nigeria and returned from Milan, Italy to Lagos, Nigeria on the 25th of February 2020. Two month later, the Nigeria Centre for Disease Control reported over 50 confirmed cases in the country. The statistics released from the Nigeria Centre for Disease Control showed that 69,645 cases have been confirmed, 64,947 cases have been discharged while 1,181 deaths have been recorded in 36 states and the Federal Capital Territory as December 8, 2020..

Concept of Data-Driven Decision Making (DDDM)

The concept of Data-Driven Decision Making (DDDM) does not have a clearly defined inception date or even a person who can be identified as the originator of this practice (Spencer, 2014). On the other hand, Marion (2002, p.22) added that although, most researchers credit Frederick Taylor and his work related to the Scientific Management Movement as the quasi beginning, he was hardly the only actor in its development. Taylor's work with respect to data collection, analysis, and efficiency in business had a profound effect on the leadership in education.

Gordon and Bridglall (as cited in Spencer, 2014) explained that data was used in schools as early as the late 1940's to make decisions about educational practices. To some extent, schools have always been data-driven. What has changed over the time is the type and amount of data utilized. Buttressing this position, (Marsh et al., 2006) pointed out that the concept of DDDM in education is not new and can be traced to the debates about measurement-driven instruction in the 1980's.

Teachers' Instructional Effectiveness

Teachers' instructional effectiveness is a concept that is as old as the school itself. Despite this, there has been no consensus among authors on what teacher's effectiveness means. Some authors (Cheng, 1996; Lockhead & Hanushek, 2008) observed that it has to do with the teachers' input-output perspective. Teachers' effectiveness has been accepted as a multidimensional construct since it measures a variety of different aspects of teaching such as; subject mastery, effective communication, lesson preparation and presentation (Onyeachu, 1996).

The analysis of Creemers (as cited in Ololube, 2006) stated that:

On the whole, instructional effectiveness and research on teaching show that the important conditions of effective teaching include direct instruction (i.e., a conglomerate of factors such as reinforcement, highly structured learning tasks and frequent monitoring of students' progress), time and class management. That is, the amount of instruction enhanced by using the school's days more effectively and successful methods of instruction which lead to greater student academic achievement through mastery learning with an emphasis on reinforcement and feedback, co-operatives learning, personalized and adaptive instruction, use of advanced organizers, high teacher expectations, longer wait time and good questioning techniques determine teachers' job effectiveness (p. 66-67).

School Instructional Leadership Behaviour and Teachers' Instructional Effectiveness

Instructional leadership according to Girman (2001) refers to those actions that a Principal takes or delegates to others with keen commitment to promoting growth in students' learning. He makes quality instruction the top priority of the school and endeavours to bring that vision to realization. According to him, instructional leadership involves setting clear goals, allocating resources to instruction, managing the curriculum, monitoring lesson plans and evaluating teachers. Instructional leadership focuses on teaching and learning and on behaviour of teachers in working with learners (Bush & Glover, 2003).

Similarly, School Principals are expected to be practising instructional leadership where they stress the direction of the influence process. Blasé and Blasé (2010) explained instructional leadership as specific behaviours such as making suggestions, giving feedback, modelling effective instruction, collaboration, providing professional development opportunities, and giving praise for effective teaching.

Studies as pointed out by Freedman, Fullan and Glickman (as cited in Kruger, 2003) found out that Principals were key to instructional programme coherence and the delivery of high-quality instruction. For example, Principals who are present in classrooms and who build instructional capacity through detailed feedback showed great impact on teachers' instructional effectiveness. A study conducted by Marks and Printy (2003) revealed that the leadership of higher performing schools was distinguished by its active oversight and coordination of the instructional programme. Ibikunle (2019) asserted that the principals' main responsibility is to create conditions in the school to ensure that effective teaching and learning takes place in the school through the use of data for making instructional and allocation decision

Theoretical Framework

This study was anchored on Gill, et al.,(2014)'s Data-Driven Decision Making Theory of Action and Organization Supports in Education. The theory of action for DDDM in education- a casual chain for how DDDM can lead to improved student achievement through effective instructional practices. It involves the collection and analysis of high-quality raw data which are relevant and diagnostic through formative, diagnostic and summative assessment of students' records; administrative records; human resources; standardized tests; qualitative interview and observations. After the collection of the data is the conduct of analysis that ensure resulting data are relevant and diagnostic; data to be use in decision making must be relevant (timely) and diagnostic of the issue at hand (valid).

Lastly, according to Gill et al., (2014), the use of relevant and diagnostic data to inform instructional and operational decision as best data and best analysis will not improve outcomes, if the results are not used. The DDDM process requires infrastructure, policies, and practices to support it. Hence, the need for organizational supports for data-driven decision-making in education which includes Data infrastructure, Analytic capacity, and Culture of data-driven decision-making. The creation of data systems is essential to the ability of an institution to effectively collect, transfer, and manipulate information; all these require data infrastructure. Data infrastructure development includes the replacement or improvement of technical hardware such as servers, computers, internet connections (Gill, et al, 2014).

METHODOLOGY

This Section discussed the entire procedure used in carrying out the study. It was done under the following sub-headings:

Research Design

The study used the descriptive survey research design. Descriptive survey research design is used in a study that aims at gathering information on certain phenomena or examining a situation by describing important factors associated with the situation such as attitudes, behaviours, experiences and knowledge in order to estimate specific parameters in a population and to describe associations. (Kelley, et al., 2003).

Population of the Study

The study population for the research comprises all the 18, 054 teachers, in all the 669 public secondary schools within the six Education Districts of Lagos State. Out of these teachers, 11,508 were females while 6,546 were males. The choice of public schools was due to the concern in the recent time by the general public on the deterioration in the quality of education in Nigerian public education system.

Sample Size and Sampling Techniques

A total number of 1,955 teachers selected through stratified random sampling technique constituted the sample size for the study. In the first stage, the population was statutorily stratified into six Education Districts that make up the State and were therefore adopted for this study so as to ensure that all parts of the State are represented in order to increase the efficiency and reduce errors in the estimation.

In the second stage, the six Education Districts were sub-divided into Local Government Education Authorities (LGEA) resulting in 20 LGEA,s. Furthermore, the LGEA,s were sub-divided into schools. The Lagos State Public Secondary School Census report was obtained for the 20 Local Governments making up the six Education Districts. The proportionate stratified random sampling technique was then used to determine the number of schools, teachers and students for the study across the entire LGEAs making up each of the Districts. The simple random sampling techniques was then used to select the sample schools from each LGEAs totalling 262 schools in all.

Thirdly, having determined the proportionate number of sample schools, the proportionate sample size of teachers from each LGEA was selected equally from the sampled schools in each LGEA using simple random sampling techniques through lottery system and teachers nominal roll respectively. Thus, 1,955 teachers constituted the sample size for the study.

Research Instruments

Two research instruments were used for this study. These are School Instructional Leadership Sub-scale of Principals' Data-Driven Leadership Behaviour Questionnaire (PD-DLBQ), developed by Ibikunle (2019) that was adopted for the study. This sub-scale has five items, and was scored on a modified four-point liker scale of 1= Not like me (NLM), 2 = Least like me(LLM), 3 = Like me(LM) and 4= Most like me(MLM) for positive items while the negative items were scored in reverse order. The second instrument is Teachers' Instructional Effectiveness Questionnaire (TIEQ) adapted from the combination of the Teachers' Standards (2012). It has five domains: Good subject and curriculum knowledge; Accurate and productive use of assessment data; Ability to teach well-structured lessons; and Supportive and safe learning environment with 25 items. It was scored on a modified four-point Likert scale of strongly agree (SA), agree (A), disagree (D), to strongly disagree (SD) which were scored 4, 3, 2 and 1 respectively for positive items while negative items were scored in reverse order.

Validity of the Research Instruments

The initial items generated for TIEQ and PD-DLBQ were submitted to the researcher's supervisors, two professors in the Department of Educational Management and experts in Measurement and Evaluation in the Department of Educational Foundations, University of Lagos for the establishment of content and face validity. The valuable suggestions and corrections made by these experts led to some essential modifications of the instruments. Thus, face and content validity were assured.

Reliability of the Research Instruments

The instruments were pilot tested in a study conducted by the researcher using test-retest method for the reliability of the instruments so as to determine their psychometric properties. It was conducted using a sample of 40 teachers and 20 Principals randomly selected from Mainland Local Government, which were not part of the schools chosen for the main study. The PD-DLBQ and TIEQ instruments were administered to the participants.

The instruments were scored according to the provisions in the manual and the scores collated were correlated using Pearson Product-Moment Correlation Statistic to estimate their reliability

coefficients. The School Instructional Leadership Sub-scale of Principals' Data-Driven Leadership Behaviour Questionnaire (PD-DLBQ), has .87 while Teachers' Instructional Effectiveness Questionnaire (TIEQ) has .78 reliability values respectively.

Methods of Data Analysis

The data collected were analysed with the aid of the Statistical Package for Social Sciences (SPSS version 23.0). Descriptive statistics such as frequency count, percentage, mean scores and standard deviations were used to answer the Research Question 1, while inferential statistics, specifically Pearson Product-moment Correlation statistic was used to test the only null hypothesis at 0.05 significant level.

Data Analysis and Findings

This section presents the analysis of the collected data as well as the findings generated there from

Research Question One:

What is the level of teachers' instructional effectiveness in public secondary schools in Lagos State?

Table 1

Level of teachers' instructional effectiveness in public secondary schools in Lagos State

	Items: Teachers in my school	Mean	SD
1.	possess good knowledge of their main subject area	3.68	0.50
2.	display good mastery of their main subject area	3.55	0.52
3.	have good understanding of their main subject area	3.61	0.51
4.	grade students fairly	3.31	0.52
5.	engage in discussing the learning development of a specific student with parents using exams results	3.17	0.62
6.	use public examination assessment to secure students' progress	3.18	0.66
7.	do not provide students with feedback on assignment in time to help them improve	3.15	0.84
8.	place emphasis on improving students' test scores in their teaching	3.25	0.60
9.	use classroom assessment to secure students' progress	3.23	0.60
10.	allow students to think of solutions to practical problems by themselves before being shown how to solve	3.36	0.58
11.	is creative in developing activities and learning	3.19	0.57
12.	do not use different teaching methods	3.20	0.78
13.	ensure that students work in small groups based upon their abilities to come up with a joint solution	3.33	0.60
14.	do not ask students whether or not they understand a topic	3.38	0.80
15.	know how to plan teaching appropriately to meet the specific learning needs of different students	3.35	0.58
16.	is clear in explaining important concepts in ways that students can understand	3.36	0.56
17.	state the importance of each lesson at the beginning	3.43	0.62
18.	allow students to feel free to ask questions and participate in discussions and activities	3.68	0.50
19.	do not have clear classroom rules and procedures for students' behaviour	3.14	0.79
20.	take responsibility for promoting good moral behaviour in the classroom and around the school	3.49	0.56
21.	manage classes effectively using approaches which are appropriate for students' needs	3.54	0.53
22.	believe that students' well-being is important	3.55	0.52
23.	do not create good atmosphere for learning	3.34	0.80
24.	review with the students the home work they submit	3.28	0.61
25.	do not offer constructive criticism as well as reward for good behaviour	3.09	0.84
	Grand	3.36	0.62

Evidence from Table 1 shows that the aggregate mean and standard deviation of teachers' instructional effectiveness are 3.36 and 0.62 respectively. When the teachers' mean score of 3.36 was compared with the criterion mean value of 2.50, the teachers' instructional effectiveness mean was higher than the criterion mean. This implied that the instructional effectiveness of teachers in Lagos State public secondary schools was above average and therefore high according to the decision rule. This implies that instructional effectiveness of teachers in Lagos State public secondary schools was high.

Hypothesis 1

Principals' data-driven school instructional leadership behaviour does not significantly relate to teachers' instructional effectiveness.

Data-Driven School Instructional Leadership Behaviour and Teachers' Instructional Effectiveness

Variable	N	Mean	Std Dev.	df	r _{Cal}	P-Value	Remark	Decision
Data-Driven School Instruction	1955	15.34	2.26	1953	.33**	.001	Significant	Null Hypothesis Rejected
Teachers' Instructional Effectiveness		87.40	7.24					

* Correlation is significant at 0.05 level (2-tailed).

A Pearson Product-Moment Correlation was run to test the hypothesis which postulated that Principals' data-driven school instructional leadership behaviour did not significantly relate to teachers' instructional effectiveness. Table 2 presents the summary of the analysis between data-driven school instructional leadership behaviour and teachers' instructional effectiveness in public secondary schools in Lagos State. The Table showed that there was a significant and positive relationship between the two constructs ($r=.33$; $P<.05$; $df=1953$). Thus, the Researchers failed to accept the null hypothesis which stated there is no significant relationship between data-driven school instructional leadership behaviour and teachers' instructional effectiveness in public secondary schools in Lagos State, Nigeria. This means that data-driven school instructional leadership behaviour had significant relationship with teachers' instructional effectiveness.

Discussions of Findings

The result of the analysis of the research question showed that the instructional effectiveness of public secondary school teachers in Lagos State was high. This finding is in line with those of Martin, et al., (2000) who showed that in a situation where experienced teachers were not promoted out of the classroom into management positions, level of experience had a significant influence on the teaching effectiveness of the teachers and Aiken (1991) who found out that teaching experience of teachers is significantly related to their teaching effectiveness. In a similar manner, Onyekuru and Ibegbunam (2013) in one of their studies on teaching effectiveness of

secondary school teachers in Emohua Local Government Area of Rivers State, discovered that secondary school teachers who had five or more years of teaching experience were significantly more effective than those who had less than five years of teaching experience. Also, Chacko (1981) found that teaching experience contributed highest to variance in mathematics achievement.

The possible explanation of this result could be to the fact that there were experienced teachers in Lagos State. It was also observed by the researchers that over the years, teachers in Lagos State public secondary schools in the course of training in a particular discipline have acquired extra skills and aptitude, mastered the subject matter and built up confidence needed in transmitting that knowledge to students through training and retraining of teachers' and educators by government as well as the requirement by the Education Districts for data use in schools to make decisions concerning instructional programmes such as professional development programmes and curriculum improvement approaches.

This finding also concurs with the finding of Akinwande and Okunola (2015) that the Lagos Eko Secondary Education Project (LESEP) with specific requirement that the school leaders should engage in the use of data for making instructional and resources allocation decisions has really improved the professional status and teaching methods of the teachers in Lagos State and also boosted the students' academic performance; and that there was restoration of confidence in public secondary schools in Lagos State as some parents now withdraw their wards from private schools to improved public schools with motivated teachers and improved learning environment.

The result of the tested hypothesis indicated that Principals' data-driven school instructional leadership behaviour was significantly related to teachers' instructional effectiveness. This result was in agreement to the position of Kruger (2003) that good instructional leadership is the path to good teaching and learning and that instructional leaders ensure a sound culture of learning and teaching in their schools at all times. It also agrees with the observation of Freedman, Fullan, and Glickman, (as cited in Kruger, 2003) that Principals who build instructional capacity in schools showed great impact on teachers' instructional effectiveness. However, the Principal's main responsibility is to create conditions in the school in which the learners can receive quality instruction (Olson, 2000:1). Instructional leadership occurs when the Principal provides direction, resources and support to both educators and learners with the aim of improving teaching and learning at schools (Kruger, 2003). The result of the study further corroborates the position of Marks and Printy (2003) that the leadership of higher performing schools was distinguished by its active oversight and coordination of the instructional programme.

Conclusion

In considering the focus of this study and the observed shortcomings in the effective use of data in Nigeria education system knowing that Principals are busy and often overloaded with many tasks and key administrative responsibilities in their daily work, it is important to identify specific and highly effective data-driven leadership behavioural characteristics of the Principal which has significant relationship with teachers' instructional effectiveness. This study underscored significant relationship between principals' data-driven leadership behaviour in terms of school instruction and teachers' instructional effectiveness in the classroom. It supports the idea that the use of data has the potential to change teaching and learning, as data use by

leaders and teachers in carrying out their task will make them become more effective in reviewing their existing capacity, identifying weaknesses, and charting plans for improvement.

Implications for Educational Planning

In line with the findings of the study, the following are the study's implications for educational planning:

1. The Principal must ensure that there is adequate planning in the use of data for the allocation of needed resources like human (teachers), money, materials.
2. investment in data management systems and particularly time for data analysis so as to avoid a trade-off between data-driven inquiry work and their teaching.

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