

# Educational Data Generation: Implication for Planning and Resources Allocation in Public Secondary Schools in Rivers State

**PETER ANIEDI DARREL**

Department of Educational Management  
Ignatius Ajuru University of Education  
Port Harcourt, Rivers State  
Email:aniedipeter300@gmail.com

---

## Abstract

The paper examined educational data generation and its implications for planning and resource allocation in public secondary schools in Rivers state. The concept of education data has first clarified and thereafter areas of educational data generation such as students' information, administrative information, academic information, students' progress report, teachers' data, facilities/equipment data were highlighted and discussed. Finally, the paper critically examined the planning and resource planning implications of the various data as they affect the administration of secondary schools in River state. The paper concluded that for any planning and resource allocation activities to yield good result in terms of efficiency and effectiveness in schools' goal attainment, such plans must be based on accurate data generation by those involved in the day to day running of the school system. If the data so generated are inaccurate, the plans made will be faulty and this will result in poor resource allocation and deficiency in school goal attainment. The paper recommended among others that school managers should consider the training of academic and non-academic staff in data generation and management as priority in school administration.

**Keywords:** Data generation, Implication, Planning and Resources Allocation.

---

## INTRODUCTION

Educational data are those information that are generated in school settings such as students data, repeaters, new entries, drop out, completers, staff data such as (qualifications, retirement, recruitment, transfer, and number of teachers others are non-teaching staff and equipment/facilities (Banilower & Smith,2004). These data help the educational planners to carry out their analysis effectively. These data are classified into two groups which are the quantitative and qualitative data. These can be expressed in terms of figure. These are measurable documented information in the educational system, which gives meaningful interpretation for effective educational planning activities. Examples are: Population, number of schools, staff, financial resources and facilities. Qualitative data on the other hand are those data that are broad, nontangible and not easily measurable which helps the educational planners to take into consideration the course of their

planning, example educational policies as are contain in the national policy on education (Mortz, 1999).

The educational data generated in schools are of vital importance to the schools, parents, teachers, students and policy makers for internal and external purposes (Boyd et al, 2008). Educational data generation is therefore very important for the development of the educational sector in terms of allocation of infrastructures to the schools. This is if the data provided are accurate, the resources can be allocated to schools according to needs. When data generated are in-accurate, it will result to faulty plans. Educational data generation sometimes pose a serious problem to planners, as some of these data generated are cooked up from their offices and not from expected source. As a result, the planners may over plan or under plan base on the data presented to them. This invariably will affect the allocation of resources to schools. Educational data is helpful in so many ways;

- It helps students to know their strength and where their strength and where they need to grow to shape their educational journey.
- Through these data parents will know what action to take in order to guide their children educational success.
- The teachers also will know where the children are succeeding and where they are struggling in order to help them grow
- As school administrators, it help them to know what is working and what is not working in the school by so doing they can make timely decisions and also make sure that resources to support teaching and learning are in place for impale learning.

### **Educational data generation in public schools**

Iris (2019) declared that, “data” in education has huge potential to improve learning materials. However, Jose (2019) hinted that, when education data is interpreted effectively, it can be used to understand student’s needs and employ strategies to differentiate instruction. To him, education data analysis helps teachers fashion forth ways of tackling school problems. Tarece (2017) said, there are several types of education data and these include but not limited to;

Assessment data, attendance data, behaviour data, benchmark data, class data, demographic data, grades data, health data, home work/Assignment data, investment data, leadership data, observation data, participation data, quizzes data, result data, socio-economic data, and tests data.

Adiele, Obasi and Ohia (2017) said, there are several types of data that schools will want to gather and use to inform their school improvement plan, including demographic data, perception data, student learning data, and school processes data. The bedrock of any nation’s educational development is the data management. Data as a concept in this study are simply referred to as statistics. According to Durosaro (2008) data are numerical measures of phenomenon and they are used in the process of scientific decision-making. The planning and management of any nation’s educational system depends greatly on the quality of data collection, analysis, and storage. However, management as another unit of this research study has been described in a variety of ways.

Schools use data from parents, students, classroom, and teacher to assess the success of the school (teacher performance, test scores, graduation rates, etc.) and to allocate resources where needed (Ibara, 2018). Schools then provide data to their school boards or ministry, state headquarter, which facilitates comparative analytics across state and national levels (Njoku, 2008). School data are required to maintain comprehensive longitudinal student databases complete with information including attendance, demographics, mobility, discipline, state test scores, course enrolment, and grades earned in courses (Wikipedia, 2019).

## **Concept of Data in Educational System**

According to Njoku (2008), data comes in many formats, serves many uses and passes through many corporate processes. It could be used in deciding or discussing a plan. According to Wikipedia (2008) refers data as a collection of facts usually collected as the result of experience, observation or experiment, or processes within a system, or a set of premises. This may consist of numbers, words, or images, particularly as measurement or observation of a set of variables. Data is often viewed as a lowest level of abstraction from which information and knowledge are derived. Data according to Durosaro (1995) are simply referred to as statistics. He further stated that data are numerical measures of phenomena and they are used in the process of scientific decision making. Data are of common occurrence in all disciplines and fields of practices.

Durosaro (2004) maintained that, the planning and management of any nation's educational system depends greatly on the quality of data collection, analysis and storage. He stated that educational data can easily be classified into two. These are stock data and flow data. The stock data according to him, referred to the numerical data on educational resource items as they exist at any particular point in time. Examples include number of schools, number of classrooms, enrolment, number of teachers, number of equipment, quantity of materials, and even fund available to the schools. Flow data on its own, is referred to the numerical value of the movement of human and material resources (teachers, pupils and other materials) as they flow into, flow through and flow out of the educational system.

He said, it is through this flow that we are able to generate information concerning new entrants, repeaters, dropouts, withdrawals and graduates of the educational system. These flow data according to Durosaro are useful for thorough analysis of the educational system and for projection of enrolment, teachers, physical facilities and other resource needs. Usually, stock data are expressed in ratio while the flow data are expressed in rates. According to Burch, Morrison and Reddin in Agbo (2006), data are language, mathematical or symbols, which are generally agreed upon to represent people, objects, events and concepts. Where-as information on the other hand, is the result of modelling, formatting, organizing or converting data in a way that increases the level of knowledge for its recipient. Osuala and Okeke (2006) viewed data as "a term that means fact of all kinds". Examples, include data of students' age, or school grades of learners.

In the schools there are different data that are generated either from teachers, students and equipment. These data help in the running of the school system, and attempt to falsified the information will destroy the educational system and even the society. This is because the school is an integral part of the society. The society depends on the school system for improvement and for this to materialize it start from the type of data that are generated in schools which helps thee government to make better plans and policies for the educational system based on these data. The data generated in the public schools are classified into the following types;

### **Student Data**

When a student is admitted into school certain information are obtained at the point of registration such as date of birth, sex, school transferred form, result of student from the former school, class to be admitted to and many other data to help the school manage the students stay in that school. This information is very useful for the educational planers to act on;

### **Administration information**

This is also a student information system that helps educators to manage data, maximize student success and communicate with parents and families. This system handles attendance, and report

cards/assessment schedule. The administration of students' information has to do with day to day update of what is going on in the school. (<https://www.rediker.com> solution).

It also provides information on the availability of facilities in the school, the number of teachers available the subject handle by each teachers per number of student the streams in the school per class. This information is necessary both to the students and parent. The parent will know how they are to contribute to help in their children wellbeing at school either to organize an extra lesson for their children where the school is not meeting up.

It is in the administration of the school that one can say how good or bad a school is. The administrative section of the school is the back bone of the school, because if any stone is left on turn things may go wrong in the school. They organize how the subject, class and duties are to be shared amongst the teachers for the smooth running of the school. They also throughout the term and make sure all work according to plan. They keep admission record of student from time of inception till date.

- **Academic information:** In the school setting all information concerning academic matter of student is handle by the vice principal academics. This information is about student academic progress in the school, subject combination, planning of diary by teachers on different subjects, planning of students competition, within and outside the schools, schedule of internal and external examination, keeping of student log book, punishment book, appointment of school prefects, etc., giving of students' result both within and outside and transfer script to those leaving the school.

The above information of the school shows the academic information or what we can called achievement in the school. An academic achievement is the extent to which a student, teacher or institution has attained their short-term or long-term educational goals. It is through the academic information that a teacher or student performance is measured and this is through examination both internal and external which helps to portray the image of the school when it is successful. There are some element that boost students/teachers academic performance such as test, anxiety, environment, motivation and emotions require consideration when developing models of school achievement. This is because, schools are receiving money based on its students/ teacher academic achievements. A school with more academic achievement is better promoted than those with less academic achievement, so it is the duty of vice principal academic to portray a good image of the school by making sure the student academic performance is up to standard.

- **Student progress data:** The progress report is concerned with a document and provide specific feedback to students, parents and future teachers about student progress toward specific grade-level standards and social-emotional growth. All these are arranged by the academic section of the school. The student progress report are recorded in the assessment booklets, continuous assessment book and the broad sheet which contains the scores of all students performance in different subjects and also shows their average scores and position. The progress reports also allow all stakeholders to understand more clearly what a student is expected to know by the end of each grade level. Students' progress reports are confidential document which the school is are expected to treat confidential. These means that the schools are not to release student result to a third party without the consent of the student concern. The purpose of student report is to:
- Report student progress and achievement in years preparation to 10%

- Provide parents/careers with clear individualized information about progress against the achievement of their wards.
- Identify the student's area of strength and area of weakness.

What is the use of student progress report? It is used for the following:

- By students and parents careers to discuss achievements and progress with teachers.
- By teachers to identify students who require greater challenges or additional support
- By schools to identify strengths and weakness in teaching programs and set goals in literacy and numeracy.
- By school system to review programs and support offered to schools.
- **Drop-out data:** This will always be in any school setting; it is the percentage of students failing to complete a particular school or college course. The percentage of student drop out is equated at 31% (<https://www.collinsdictionary.com>) There are many reasons why students drop out which could be money, lost of parent or both, others think school is not relevant to their life while some believe they do not have what it takes to in school, academic inadequate, conflict with family and discouraging environment. Whatever the reasons may be, parents and teachers have a part to play in helping student to attain and obtain at least the minimum of a secondary school certificate before quitting school. should be parents and teachers have a part to play in helping students to attain and obtain at least the minimum of a secondary school certificate before quitting school.
- **Completion data:** completion rate is the period at which a student finally come to the end of the class in a secondary school setting, it is when the student have finally written his or her senior secondary school certificate examination (SSCE).
- **The completion/promotion data:** In school can be calculated by total number of students of any age in last grade of secondary school, minus the number of repeaters in that grade, divided by the number of children of official graduation age. June 13, 2019 ([https://datacatalog World Bank org.](https://datacatalog.worldbank.org))
- **The repetition data:** This gives a run-down of students who are repeating a particular class on a given year alongside the number of enrolment into a given class in an academic session

**Teachers data:** This has to do with all information concerning students which are gathered by the teacher. Data based decision-making can be defined as teachers systematic analysis of data sources in order to study and adapt their educational practices for the purpose of maximizing learning results. Teachers must apply the findings from their data use to their personal teaching activities. (<https://www.tandfonline.com>) Jan 19<sup>th</sup>, 2018. The teacher's assessment data is important information that helps the administrators, parent, as well as an educational planner in their decision making. When an administrator wants an answer to the question "how are our students doing, they cannot rely solely on the subjective responses of each teachers. Teachers are all different and have their different ways of relating to defining and assessing their students. As question able as assessments and standards may be data is the most solid form in administrator's eyes of an answer to "How are our students doing? Because teacher data:

- **Provides a glimpse into long-term growth of classes and students;** This is because in school as student change so do teachers and this variably will keep changing over years but with proper collection of data when the same type of assessment is given year after year to students administrator can see the overall growth patterns of each student.
- **Teacher data is consistent and unbiased;** two different teachers may have two completely different interpretations of a student ability. Data on the other hand is consistent and unbiased. It doesn't play favourites or change from room to room. Data in the eyes of administrators, is like bringing in the same measuring stick to each room and seeing how tall students are. It gets a consistent answer because it asks the same question over and over again and records the result in the same way for everybody.
- Teacher data is comparable between students, teachers, subject locations and years since as stated above, data can be consistent and unbiased it also means that it is a consistent and unbiased form of comparison. Administrators are responsible for answering questions like "How are our teachers doing? And how is our school doing compared to the state average/ and is our school showing improvement year to year" Data can help them answer these questions. Being able to compare results is a powerful tool for leaders to see what's normal, what's exceptional and what requires attention
- **Teacher data gives a basis for making decision.** It is a necessity that administrators must make decisions relating to curriculum staffing, funding, professional development and a host of other components. Administrators must make it a point of duty to include equipping themselves with data as part of their decision-making process. This is because data can tell us things that aren't normally or reliably revealed in other ways, data provides information valuable enough to base decision. Administrators need a concrete basis for evaluating their judgments and data gives the foundation for their decisions as well as a means of justifying their decisions to others. Grison and Keiser (2011) noted that teacher data also involves teacher retirement rate: for administrators to be the best from their data this must also be put into consideration to derive the best from school. This simply refers to the rate at which new teachers leave the profession. (Wikipedia, 2019) A number of reasons are responsible to this which are:
  - Rural posting
  - Low salary
  - Poor working condition
  - Leadership style

Teacher salaries play an important role in determining teacher readiness to the teaching profession and as a factor can cause attrition (Bobbitt et al 1991; Theobald 1990).

- **Poor Working Condition-** This is another factor leading to teacher attrition. No matter how good, hardworking and committed a teacher is, if the environment is not good and conducive there is no way he can efficiently perform his duty as expected.
- **Leadership Style:** A bad leadership in a school can result to teacher dissatisfaction which can result to attrition, as Liza, Michelle & John (2008) conducted a qualitative study. Their results indicated that out of the eight participants interviewed, seven respondents agree that

administration was one of the biggest influential factors in not returning to the teaching profession

- **Rural Posting:** Rural schools experience difficulty in retaining teachers. Research on teacher retention in rural areas tends to assume that teachers will leave their positions for other districts because they feel isolated. The formula for measuring retention rate which is sometimes referred to as turnover rate is  $(\# \text{ of individual employees who remained employed for entire measurement period} / \# \text{ of employee at start of measurement period}) \times 100$  Example of retention and turnover rate. In adequate of eight, two people left and were replaced during the measurement period
  - $R \text{ (retention)} = (6/8) \times 100 = 75 \text{ percent}$
  - $T \text{ (turnover)} = (2/8) \times 100 = 25 \text{ percent}$   
(<https://www.shrm.org>)

The above will help the educational planner when he is taking decision based on the number of teachers left in the school when allocating resources. It helps to show stability of the workforce, but the downside is that it does not track the departures of employees who joined and subsequently left during the period being tracked.

**Teacher Retention:** This is a field of education research. That focuses on how factors such as school characteristics and teacher demographics affect whether teachers stay in their schools, move to different schools or leave the profession before retirement <https://en.m.wikipedia.org>. The field developed in response to a perceived shortage in the education labour market in the 1990s.

**Facility Data/Equipment Data:** This is very important in any school setting because with inadequate equipment in the school, teaching and learning would be in a slow move as the equipment are not enough, outdated or faulty. It is the function of the school head and the boards of ministries of education to see that all facilities that are or may be made available for continued school use are so used. In the school the following facilities are important such as learning space, library, dining hall, multi-purpose hall, health facilities, school ground, school offices, laboratory and sporting facilities etcetera.

Example of equipment in school includes the following: I.C.T equipment, sporting equipment, laboratory equipment, buses/chairs and tables, generator set, teaching Aids, air conditioners/fans and many others. These depends on the kind of school and its location if the school is populated, the number of equipment and facilities will not be the same as that of a school whose population is small. This is important information to the planner in the cause of his allocation of resources to schools.

**Personnel Data:** In the school teaching staff include professional personnel directly involved in teaching students, including classroom teachers, special education teachers and other teachers who work with students as a whole class in small groups or in one-to-one teaching.

Teaching staff also include department chairs of whose duties include some teaching, but it does not include non-professional personnel who support teachers in providing instruction to students, such as teachers' aides and other paraprofessional personnel. This is necessary for effective teaching and learning like in some schools they employ extra hand to help in a particular subject

where there is no teacher. It is the duty of an education planner to put into consideration this need when allocating resources to schools that is why personnel data is important.

### **Implication for planning**

Planning is decision taken a head of time to achieve a predetermined objective. In planning education, statistical data of various forms are needed to guide planning activities (Imageki. 2005). He said, data generated from public secondary schools are important variables in educational planning. These data are:

**Teacher data:** As stated previously, teacher data is seen in two forms, the attrition rate and the retention rate. It is important for the educational planner to know the attrition rate and the retention rate; this will help him to know the numbers of teachers who have left their job and the once remaining. By so doing he will be able to equitably distribute teachers to where they are needed. He will also be able to report back whether new teachers should be employed to fill the vacant space.

**Equipment/Data Facility:** This is an important information to the educational planners in the cause of his duties because when the knowledge of data is at his disposal he will be able to know if the equipment are adequate or inadequate considering the size and location of the school. A school with less facility and equipment cannot perform as a school with adequate facilities and equipment. It is the information at his disposal that will help the planner in his judgment.

**Personnel Data:** Personnel data is another important variable that helps in educational planning. This is generated in school by the school administrator, the personnel data in school takes into consideration the number of students, teachers and subjects including classes. In a school that the population is high, it will require a large number of personnel taking into consideration the admission rate per year. This will help the education planner to plan ahead base on the information given to him and by so doing there will be no lapses, but where the information is faulty the planner may plan and fail to achieve the objective due to the wrong data presented to him as such the situation remains the same. As these data are so important to the educational planner, it must be properly verified before handing them over to the planners.

### **Implications of educational data for resource allocation**

According to Agbo (2006), resource allocation is concerned with the mobilization and allocation of resource to schools. This is of outmost important to the government because there is high expectation on both the school and the students. This cannot be achieved if when government allocate resources to school. They are not equitably distributed due to inadequate data. These data according to Osuala and Okeke (2006) are as follows;

- **Teacher Data:** This is very important in the allocation of resources to school. If adequate teacher data is not provided to the planner, it will affect the number of teachers to be distributed to the school. It is because of lack of knowledge on teacher data that makes some schools to be over populated by teachers when there are some schools that are in need of even one teacher in a subject area. When data on teachers are adequately provided to the planner, he will be able to distribute teachers to schools according to number of subject and the population of the school.
- **Equipment and Facility Data:** Facility and equipment are very vital in any school as it is belief to improve teaching and learning in any school setting all things being equal. Proper

allocation of these facilities can only be possible when there is adequate knowledge of these data and same made available to the educational planner for effective implementation and allocation of these resources at an appropriate time, place, and quantity. Imagine a situation where equipment and facility are allocated to a school where there is no need for or where it is insufficiently or in excess allocation. This will simply be a waste of resources, time and money, so educational planners need adequate data on the availability of facility and equipment in other to plan. Effectively and allocate these resources appropriately in order to achieve result.

- **Personnel Data:** Personnel data is so important in order to properly allocate subject and class to teachers in secondary schools. This data helps the administrators as well as educational planner to know areas where teachers are most needed or excess in order to effectively allocate to schools. The knowledge of this data and proper planning and distribution of teachers in school will help keep the schools in good shape to achieve set goals and objectives. The educational planner cannot do this alone with the right information which will help the planner to make the fight decision based on the quantitative data at their disposal.

Data usage enables more effective evaluation of programs, resources, and interventions to facilitate student, school, and district success. State and federal systems also use data to create legislation that focuses on student achievement, progress, and meeting the specific needs of the state and district. Understanding data terms and the role of data is critical to ensuring the systemic functionality and cultural integration of data usage for student and school achievements. Data collection, accuracy, analysis, and interpretation facilitate the identification of accomplishments and interventions to ensure students' academic needs are met. Because data is omnipresent, it must also be objectively reviewed and analyzed to communicate accurate information. The information should be cross-functionally shared with teachers, parents, administrators, and district leaders to ingrain the value of data into the cultural operations of the educational system. Collectively, these systems work to benefit the overall success of district, state, and federal systems.

## CONCLUSION

The paper sees the need for proper generation of data in secondary schools as they are important variables for educational planners to make their decisions when allocating resources to schools. It is often said that if one is not informed he would be deformed, the information generated in schools to the planners must be accurate for effective planning to take place which will enhance the achievement of set goals and objectives in schools. It is based on the knowledge of these quantitative and qualitative data given to the educational planner that help him to equitable allocate resources to the right place, at the right quantity and time all things being equal.

## SUGGESTIONS

The following suggestions were made:

- Falsification of educational data by teacher administrator or assistant teacher should attract a penalty that will save as a deterrent to others.
- There should be uninform routine checkup of schools for proper confirmation of what is going on in schools
- The secondary school board should introduce a package to encourage teachers teaching in the rural areas to remain at their stations

- Data in secondary schools should be documented in their hard and soft copies to avoid loss of information by fire, termite and flood.

## REFERENCES

- Adiele, E., Obasi, K. & Ohia A. (2017). *Fundamentals of Educational Planning*: Harey Publication Coy.
- Banilower, E. R, G., & Smith P.S. (2004). Analysis of data of the 2000 National survey of science and mathematics Education for the committee on High school science laboratories: Role and vision (September), chapel Hill, NC.
- Bienle, J., Motz, W. (1999). *NSTA guide to school science facilities*. Arlington, VA: National science Teacher Association.
- Boyd, D, G., Lankford, H., Loeb, S., & Wyckoff, J. (2008). Who leaves; teacher attrition and student achievement National Bureau of Economic Research. Retrieved from <http://www.nber.org/papers/14022>
- Durosaro, D.O. (1995). Issues and problems of education data Management, in Ehiametalor, E.T. (Eds). *Data Management in schools and other issues*, Benin City, Nigerian Educational Research Association, pp178-195.
- Durosaro, D.O. (2004). *Statistical Needs for Educational Planning in Nigeria*. Ibadan: Regina sons Book Publishers.
- Essays, Uk. (2018). causes of Teacher Attrition Education Essay. Retrieved from [https://www.ukessay.com/essays/education/causes.ofteacher.attrition-education essay.Phy?Vref=1](https://www.ukessay.com/essays/education/causes.ofteacher.attrition-education%20essay.Phy?Vref=1)
- Federal Republic of Nigeria (2004). *National policy on education*. Abuja; NERDC press.
- Green, E. (2015). *Building a Better Teacher*. W.W. Norton & company.
- Grisson, J.A., & Keiser, L.R. (2011). A supervisor like me: Race, representation, and the satisfaction and turnover decisions of public sector employees. *Journal of policy Analysis & Management*.
- Hornby, A.S. (2011). *Oxford Advanced Learner's Dictionary*; Oxford University Press New York.
- Ibara, E.C. (2018). *SCHOOL Mapping and plant management in Nigeria* Harey Publication company.
- Imageki, J. (2005). Teacher salaries and teacher attrition-Economics of Education Review; 24, 431-449.
- Iris, G. (2019). *Data in Education: National Research Consultant Press*, Caroluria.
- Njoku, U.C. (2008). *Data Management Problems of Educational Administration in Imo state Secondary School Management Board*, UNN Press, Enugu.
- OECD (2018). Teaching staff (indicator). doi: 10.1787/6a3246b-en (Accessed on 06 October 2019)
- Okunamiri, P.O. (2000). *Resources and guidelines for educational financing in tertiary institutions*. Owerri: Fasmen Educational and Research Publication.
- Tarece, J. (2017). *Educational Leadership and Data Management: Columbia University Press*, Columbia.
- Wikipedia (2019). *The Free Online Dictionary*.