



Impact of Managing Information System on School Administration of Secondary Schools in Yenagoa Local Government Area of Bayelsa State

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Abstract

The study investigated the impact of managing information system (MIS) on school administration of secondary schools in Yenagoa, LGA of Bayelsa state, Nigeria. The study adopted descriptive research design. The population of the study comprised of 27 male and 13 female principals, in the 40 public secondary schools in Yenagoa LGA of Bayelsa State. The sampling technique size comprise the entire population because of the small size, so the census sampling technique was adopted. The instrument used for this study was a researcher developed questionnaire titled “Impact of Managing Information System on School Administration Questionnaire” (IMISSAQ). The instrument was validated and its reliability tested using Pearson Product Moment Correlation and a reliability index of .89 and .93 was obtained respectively. Mean and standard deviation were used to answer the research questions, while independent t-test statistic was used to test the hypotheses at .05 levels of significance. Findings of the study reveal that adequate utilization of MIS objectives enhance the administration of public secondary schools in Yenagoa, Bayelsa State. The study recommended that secondary schools should adopt the MIS model to provide relevant information for effective and efficient management of the institutions.

Keywords: Impact, Managing Information System, Administration.

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INTRODUCTION

Electronic systems for information gathering, processing, storing, and retrieval make up information and communication technology (ICT). ICT includes media for information gathering, transmission, and presentation as well as hardware, software, networks, and networks (Pulkinen, 2004). Information can be found in a variety of formats, including text, images, audio, and data. Information creation, management, and distribution are all supported by ICT. In addition to the more traditional media such as print, radio, and television, it also incorporates the more recent digital technologies such as computers, the internet, e-mail, wireless, and the World Wide Web (www). ICT creates new possibilities and risks for the pursuit of sustainable development. The usage of ICT in all facets of education has grown significantly during the past several years and is still growing (Farrel & Wachholz, 2003).

Nowadays, to support and facilitate teaching, learning, research, and management, education and administration rely on reliable Management Information Systems (MIS) programs. MIS include gathering, processing, analyzing, and disseminating educational data and information and making it accessible to educational administrators for decision-making in a timely, regular, trustworthy, and predictable manner. According to Lucey (1989), MIS is a system that employs formalized procedures to give management at all levels in all functions appropriate information, based on data from both internal and external sources, to enable them to make prompt and efficient decisions for planning, directing, and controlling the activities for which they are responsible.

Most schools, especially those in Bayelsa, have been observed to be confronted with numerous administrative challenges which could be attributed to the absence of appropriate data management component of the MIS to guide the administrators in decision-making (Ololube et al., 2013). These administrative problems include clashes timetables, late release of students' results and difficulties in obtaining information relating to students, staff or activities or programmes. These schools may find it difficult to collate and send reports to other stakeholders as most information may be contained in files which are always difficult to locate. Decisions in these schools may not usually be based on accurate and reliable data since these data are not readily available in an accessible format. MIS lacked appropriate data management component and could not provide the required and timely information to guide the administrators in decision-making in most public secondary schools in Bayelsa, Nigeria.

Management is the process which seeks to achieve specific goals by using human efforts and available material resources in an organization. The process of decision-making is at the centre of management activities in the system. Fabunmi and Isah (2004) identified personnel quantity and quality, lack of basic infrastructure as requirements for attaining efficiency in Management Information Systems (MIS) activities in secondary school system. In addition, Fadekemi and Ajayi (2017) observed that MIS is not adequately used for decision-making on long-term, short-term and financial issues in schools and that more emphasis should be placed on the utilization of MIS by the system. In the same vein, Ahmed (2009) also identified poor infrastructure, undefined policy gap and poor awareness as militating against efficient Management Information Systems (MIS) activities in the secondary schools. Schools in Bayelsa are also affected by these problems. Although inadequate facilities constitute a problem, one major issue remains that of data management.

Statement of the Problem

Effective managing information system in secondary schools encourages the quick gathering and sharing of information, which improves management. Majority of secondary schools in Bayelsa state, Nigeria continues to encounter administrative issues related to a lack of information on students, staff, and financial affairs despite the implementation of Schools Management Information Systems (SMIS) across Nigeria. Currently, department heads, vice principals, and other unit heads consistently supply data to support decision-making and the filing of reports to statutory agencies. Majority of the time, several files are created and replicated within and across departments and Units without any oversight, resulting in data redundancy and unnecessary spending, mostly as a result of the data management component's shortcomings. Schools in Bayelsa State are faced with numerous administrative challenges, ranging from clashes of timetables, late release of students' results to meet up admission datelines, difficulties in obtaining information relating to students, staff or programmers. These administrative lapses may be attributed in part to the inefficiency of the existing SMIS infrastructure and the absence of an appropriate and effective data management component of MIS. However, no remarkable attempt has been made to investigate the impact of MIS for data management for decision-making for the secondary schools other than the initiative through SMIS. Thus, the problem of the study was what is the impact of Managing Information Systems on secondary school administration in Bayelsa state?

Aim and Objectives of the Study

The aim of this study is to investigate the impact of managing information system on School Administration of secondary schools in Yenagoa Local Government Area of Bayelsa State. Specifically, the objectives of the study are:

- To determine how managing information system objectives enhance public secondary school administration in Yenagoa local government area of Bayelsa State.
- To determine how managing information system data processing and analysis methods enhance public secondary school administration in Yenagoa local government area of Bayelsa State

Research Questions

The following Research Questions guided the study:

- To what extent do managing information system objectives enhance public secondary school administration in Yenagoa local government area of Bayelsa State?
- To what extent do managing information system data processing and analysis methods enhance public secondary school administration in Yenagoa local government area of Bayelsa State?

Research Hypotheses

The following null hypotheses were formulated to guide the study and were tested at .05 level of significance:

- There is no significant difference between the mean rating of male and female principals responds on how managing information system objectives enhance public secondary school administration in Yenagoa Local Government Area of Bayelsa State
- There is no significant difference between the mean rating of male and female principals responds on how managing information system data processing and analysis methods enhance public secondary school administration in Yenagoa Local Government Area of Bayelsa State.

THEORETICAL REVIEW

Systems Theory

The study was anchored on systems theory which was propounded by Ludwig von Bertalanffy (1940). The theory recognizes the parts or departments of an organization such as school and the university and the interactions of the various departments. This concept of interrelated subsystems suggests that the managing information system consists of many interrelated components working together to achieve the goals of these organizations. These components must recognize each other and their impact on one another in producing information for making decisions. However, no remarkable attempt has been made to investigate the impact of MIS for data management for decision-making for the secondary schools other than the initiative through SMIS. The problem of the study was what is the impact of Managing Information Systems on secondary school administration in Bayelsa state?

Conceptual Review

Management Information Systems (MIS)

A system called a managing information system (MIS) is created to systematically arrange data pertaining to various management-related topics. For users of educational information, it is in charge of gathering, processing, analyzing, publishing, disseminating, and providing information services (Bodo, 2006). According to Zwass (1996), MIS includes all computer-based systems and the supporting manual tasks that go with them. The creation and use of information for policy formulation, decision-making, monitoring, and assessment of educational systems are all made easier by MIS. Similar to this, Boorne (2002) defined MIS as a structured interacting complex of people (MIS Unit Personnel), tools (MIS Facilities), and processes (MIS Processes), created to produce an orderly flow of data gathered from both intra and extra organizational sources for use as the foundation for decision-making.

Information technology literacy among both the users, (Lecturers, students, management staff) and top management (Vice Chancellors, Deputy Vice Chancellors, Deans, Heads of Departments) is of high importance to the success of information systems (Uwadia et al., 2006).

Modeling Managing Information Systems

The data management component of Managing Information Systems (MIS) Model may consist of the following components: MIS objectives, Data collection procedures, Data processing and

analysis methods, Data publication methods, Decision-making areas, and Feedback Mechanisms (DA Graca, Peano & Saito, 2005). According to Sarwani (2003) the objectives of MIS in decision-making process in schools include: to provide information and analysis to support decision-making in school, providing quality data ,relevant and timely to meet the needs of administrators in making decisions, facilitating accessibility of officers to educational data, providing information to support benchmarking and assessment of school programmes/activities, supporting central development and delivery of information in secondary school, responding to priority and ad-hoc requests from school administrators on information , permitting broad-based access to educational information , and ensuring protection of sensitive school information. The MIS Model objectives also include the production of reports and statistical information on staff, students and programmes to NUC and other agencies, ensuring accuracy of data, reports and statistical information in school, and providing support for institutional accountability in the school (NUC, 1991). It includes developing useful IT solutions that effectively address school administrators' information needs, to provide data to support committees and administrative bodies in the school. Schools in Nigeria could benefit from these objectives if any appropriate data management model is used in the schools.

Data Processing and Analysis Methods

Data processing involves the organization of data into its many different types so that it is usable for planning and decision making purposes (Wako, 2003). Data processing utilizes Data entry programmes which are carried out by trained encoders or data entry clerks and programme analysts. The main objective of data entry is to computerize written information from the questionnaire and make them more manageable. Data processing is achieved through the use of computer software and it ensures that data is compiled based on their various variables and arranged differently for different users (Momoh & Abdusalam, 2014).

Data analysis involves looking more closely at the data and in various ways, in order to extract information useful for planning and decision-making. Analysis is done to provide information to planners, decision-makers, researchers, policy-makers, and other users so that they can establish whether their actions are appropriate or whether their actions need to be modified (Alter, 2013).

METHODS

The type of research design used for this study was the descriptive survey design. The population of the study comprised of 27 male and 13 female principals, in the 40 public secondary schools in Yenagoa LGA of Bayelsa State The sampling technique size comprise the entire population because of the small size, so the census sampling technique was adopted. The instrument used for this study was a researcher developed questionnaire titled "Impact of managing information system on School Administration Questionnaire" (IMISSAQ). This was structured to elicit respondents' opinions on each item through a 4-point scale of Very High Extent (VHE),= 4 points, High Extent = 3 points, low extent, = 2points, and very low extent =1 point. They were assured of confidentiality in the responses they will give as the data were for research study only. The researcher collected back all the distributed copies of the questionnaire from the respondents. The face and content of the instrument was validated by one expert of measurement and evaluation and one expert of educational management and planning, their criticism and

correction resulted to the final draft used in the study. A test-retest method was used to obtain the reliability of the instrument. Applying the method, the researcher administered 20 copies to principals who are outside the study sample. Two weeks later the same instrument was re-administered to the same respondents. The scores obtained were scaled using Pearson Product Moment Correlation and a reliability index of .89 and .93 was obtained respectively. Mean and standard deviation was to answer the research questions, while t-test statistic was used to test the hypotheses at 0.05 level of significance. The decision rule for answering the research question was arrived at by finding the average of the 4–point scale, thus; $\frac{4+3+2+1}{4} = \frac{10}{4} = 2.5$ thus, any item with mean of 2.50 and above was interpreted as high extent, while scores below 2.50 were interpreted as low extent. For the hypotheses, the decision rule is that if the calculated t-value is greater than the critical or table value, the null hypotheses would be rejected, otherwise, it would not be upheld.

RESULTS

Research Question 1: To what extent do managing information system objectives enhance public secondary school administration in Yenagoa Local Government Area of Bayelsa State?

Table 1: Mean (X) and standard deviation scores (SD) of managing information system objectives and managing information system objectives

S/N	Items	Male Principals' N= (27)		Female Principals N= (13)		SD	Mean Set N= (40) (\bar{x}_1, \bar{x}_2)	Remarks
		(\bar{x}_1)	SD ₁	(\bar{x}_2)	SD ₂			
1.	Providing information to support bench making and assessment of school programmes/activities	2.68	1.18	2.82	1.12	1.12	2.75	HE
2.	Supporting central development and delivery of information in the school	3.12	1.62	2.58	1.09	1.09	2.85	HE
3.	Providing data support to committees and administrative bodies in the school.	2.81	1.23	2.61	1.14	1.14	2.71	HE
Grand Mean						1.10	2.83	HE

Table 1 above showed that, in item 1, mean set score of 2.75 SD 1.12 which implied high extent that choosing appropriate taxation style promote educational development. In item 2, the mean set score of 2.85 SD 1.09 showed high extent, which indicated that students learning outcome determine the level of fund allocation to school. In item 3, mean set score of 2.71 SD 1.14 showed high extent, this indicated that when taxation is levied accordingly promote educational development. Thus, having a grand mean set of 2.83 and SD 1.10 indicated that application of managing information system enhance educational development of public secondary schools in Bayelsa State.

Research Question 2: To what extent does managing information system data processing and analysis methods enhance public secondary school administration in Yenagoa local government area of Bayelsa State?

Table 2 Mean ratings and standard deviation of the impact of managing information system enhance educational development of public secondary schools in Bayelsa State

S/N	Items	Male Principal		Female Principal			Mean Set N= (40) (\bar{x}_1),(\bar{x}_2)	Remarks
		N= (27) (\bar{x}_1)	SD ₁	N= (13) (\bar{x}_2)	SD ₂	SD		
4.	Foundation of education is weak when education is not well funded	2.58	1.10	2. 81	1.12	1.05	2.68	HE
5.	Tax has positively impacted Nigeria's educational development.	2.55	1.11	2. 62	1.09	0.95	2.58	HE
6.	Without the education tax, institutions would be a weakened compared to their counterpart	2.59	1.12	2.54	1.10	1.01	2.56	HE
Grand Mean						1.11	2.64	HE

Table 2 above showed that, in research question two item 4 mean set score of 2.68 which implied high extent that foundation of education is weak when education is not well funded. Mean set score of 2.58 in item 5 indicated high extent that tax has positively impacted Nigeria's educational development. In item 6, mean set score of 2.56 showed high extent indicating that without the education tax, institutions would be a weakened compared to their counterpart. Thus, having a grand mean score of $2.64 > 2.5$ and SD 1.11 indicated that the impact of managing information system enhances educational development of public secondary schools in Bayelsa State.

Test of Hypotheses

Hypothesis I: There is no significant difference between the mean responses of administrators and MIS principal regarding the objectives of the MIS Model administration of secondary schools in Yenagoa LGA of Bayelsa state.

Table 3: Summary of t-test on the mean difference between male and female principal responds on how the impact managing information system enhances educational development of public secondary schools in Bayelsa State

Description	N	Mean	Std.	Df	t-test	Sig.	Remark
Male Principal	27	3.86	1.13	38	0.791	0.098	Not Significant
Female Principal	13	3.73	1.10				

The results from the table of analysis above for hypothesis one shows that the mean rating and standard deviation of male principal in their mean rating responses on the impact of managing information system enhance educational development of public secondary schools in Bayelsa State are 3.86 (SD=1.13), while the mean rating and standard deviation of rural teachers are 3.73 (SD=1.10), t-value of (0.79), and p-value of $0.098 > 0.05$. Hence the null hypothesis that states that there is no significant difference between the mean rating of male and female principal responds on the impact of managing information system enhance educational development of public secondary schools in Bayelsa State is accepted at 0.05 level of significance with 1, 423 degree of freedom.

Hypothesis 2: There is no significant difference between the mean rating of male and female principal responds on the impact of managing information system enhance educational development of public secondary schools in Bayelsa State.

Table 4: Summary of t-test on the mean difference between the mean rating of male and female principal responds on the impact of managing information system enhance educational development of public secondary schools in Bayelsa State

Description	N	Mean	Std.	Df	t-test	Sig.	Remark
Male Principal	27	2.95	1.10	38	.067	0.085	Not Significant
Female Principal	13	2.51	0.91				

The results from the table of analysis above for hypothesis two shows that the mean rating and standard deviation of urban teachers in their mean rating responses on how the impact of managing information system enhance educational development of public secondary schools in Bayelsa State are 2.95 (SD=1.10), while the mean rating and standard deviation of rural teachers are 2.51 (SD=0.91), t-value of (0.79), and p-value of 0.085>0.05. Hence the null hypothesis that states that there is no significant difference between the mean rating of urban and rural teachers' how the impact of optimal taxation enhance educational.

DISCUSSION

The Discussion of the results was guided by the specific purposes of the study:

Managing Information System Objectives

The result showed the opinions of the respondents on the MIS objectives considered by the experts as appropriate for inclusion in the MIS Data Model for decision-making for administrators of Nigerian schools. The considered objectives include: provision of information to support decision-making by school administrators, provision of information to support benchmarking and assessment of school programmes/activities, support for central development and delivery of information in the school, ensuring accurate and timely submission of reports to NUC and other agencies, provision of data support to committees and administrative bodies in the school. The findings on the objectives of the MIS Model corroborate with the findings of Al-Dhmour (2010), which stated that it is essential for information systems to possess fundamental objectives to provide useful information relating to the schools' planning, policy formation, oversight, co-ordination and decision-making. The MIS objectives ensure that the goals of the school are achieved efficiently by the school administrators; that decisions in the school are data-based as a result of the MIS activities.

The experts' opinions regarding the MIS objectives agreed with the prescription of the National Universities Commission (NUC, 1991) that information systems like MIS should be guided by its objectives which includes, organizing data/information for planning, budgeting and decision-making in the universities. These assist in the management of the universities as well as keeping updates of school human resources and physical infrastructure. The findings on the MIS objectives will guide and direct the MIS operations and assist school administrators in decision-making process in the school. The results of the study revealed no significant difference between

the mean opinion scores of administrators and MIS experts on the objectives of the MIS data Model for decision-making for administrators of Nigerian schools. The staff might have been exposed to MIS activities through seminars/workshops which were organized by NUC and other agencies for public institutions in Nigeria. These would have sensitized them to the objectives that could be achieved by MIS in the schools consequently hence the administrators and MIS experts did not differ in their opinions on the objectives of the MIS data Model for decision-making for administrators of Nigerian schools.

Data Processing and Analysis Methods

The results of the study on data processing and analysis methods for MIS data Model show a total of 10 items on data processing and analysis methods considered appropriate by the experts for inclusion in the MIS data Model. These methods include; utilizing software such as SPSS, OLAP and data mining, processing data according to variables such as Courses, arranging data/information differently for different target users such as students, researchers, lecturers, administrators and external bodies, processing data according to variables such as ability levels, using descriptive statistics such as mean, mode, median, percentages and standard deviation to summarize data and processing data according to variables such as departments.

The findings of the study on data processing and analysis methods agreed with the ISD methodology which specified that captured data in information systems like MIS should be processed and analyzed to be consistent with the objectives of the system and the utilization of data (Alter, 2013). The ISD stipulates that Information Systems like MIS should develop the required software needed to generate the data/information that meets the needs and desire of school administrators in decision-making process in the schools. The software in the MIS database should be able to process and analyze the captured data that meet the goals and objectives of the MIS and enhance data-based decision-making in schools. There is no significant difference between the opinions of administrators and MIS experts on the data processing and analysis methods for MIS data Model for decision-making for administrators of Nigerian schools. The agreement on data processing and analysis methods is an indication that the two groups; those who are the users of information and the MIS experts who are the providers do not differ on how to process the data collected.

CONCLUSION

Based on the findings of the study and discussions thereof, it was concluded that the MIS objectives and data processing and analysis methods should be areas to be covered by the MIS data Model for decision-making for administrators of schools in Nigeria. Managing information systems possess fundamental objectives to provide useful information relating to the schools' planning, policy formation, oversight, co-ordination and decision-making. Thereof, the purpose of the study will be archived.

Recommendations

- As information systems such as MIS possess defined objectives, the identified MIS objectives in the study should guide the school administration in utilizing the MIS outputs decision-making in schools in Nigeria.

- The MIS personnel should use the data processing and analysis methods identified to process the captured data and transform them into information. This information should be used for administrative decision-making in schools.

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