

Development of a Computerised Management Information System: a Research on Impact of Management Information System on School Administration

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Abstract:- This study aimed to develop and implement management information system for Nasarawa State polytechnic lafia and thus determine its impact on school administration. Stratified random sampling was adopted to sample the target population. Questionnaire and interview were the data gathering instruments used. This study established that management information system is very effective in carrying out series of administrative and managerial activities within the institution compared to the manual system currently in use. The respondents opined positively regarding the effectiveness and the impacts of MIS in different activities it was employed during the implementation phase of the new system (MIS). Improvement in productivity, registrations, performance of duties and decision making were the key areas of success recorded as a result of MIS. The study recommended that, MIS should be fully adopted by Nasarawa State Polytechnic lafia. And that, there should be training and retraining of staff and students on the use of the MIS package.

Key word:- MIS; Institution; ICT.

I. INTRODUCTION

Advancement in technology has cut across every facets of life. The role of innovative technologies in today's competitive society cannot be overemphasized. The success recorded in educational administration in various academic institutions across the globe won't be in place without the involvement of innovative technologies. One instance of these technologies is the management information system (MIS). Information is a life-wire of any organization, be it academic or otherwise. The manner through which information is propagated in an organization determines the overall wellbeing of the organization.

Management information system refers to a computer-based system that provides managers with the tools to organise evaluate and efficiently manage departments within an organization. In order to provide past, present and prediction information, a management information system can include software that helps in decision making, data resources such as databases, the hardware resources, decision support systems, people management and project management applications, and any computerised processes that enable the department to run efficiently (Vangie, 2018).

A management information system (MIS) is a set of systems and procedures that gather data from a range of sources, compile it and present it in a readable format. Managers use an MIS to create reports that provide them with a comprehensive overview of all the information they need to make decisions. Today's management information systems rely largely on technology to compile and present data (David Ingram, 2018).

Nwankwo (1985), described Management information system (MIS) as the combination of human and computer based resources that results in the collection, storage, retrieval, communication and use of data for the purpose of efficient management of operations in an organization.

The use of management information system in educational management and administration has rapidly increased due to its efficiency and effectiveness. In an academic institution, MIS comprises of the admission system, financial or payroll system, human resource system, academic information system, lecture and examination time tabling system, electronic learning system, inventory control system and students' information system.

School managers who used to spend large amount of time in solving complex problems such as staff allocation, resource allocation, timetabling, semester and course registrations, school fees payment etc have now better options due to enhanced technologies.

Laudon & Laudon (2009), described information systems as set of interrelated components that collect, process, store, and distribute information to support decision-making in an organization.

Every academic institution has got a number of objectives and this determines the kind of MIS package to be adopted in the institution. MIS has been proved to facilitate administrative functions in an institution and consequently creates a platform for increased productivity, efficiency and effectiveness.

Nasarawa State Polytechnic lafia, for years has not fully keyed into this innovative system. It is on this premise that, this study seeks to develop an MIS application (Administrative System) for Nasarawa State Polytechnic Lafia; implement it for a period of one session and thus determines its impacts on school administration.

The study will critically address the following research question:

- What are the impacts of MIS on school administration? (Registrations, result processing, requisition orders, students and staff record management,)

II. REVIEW OF LITERATURES

Educational institutions across the globe nowadays are facing the need to adapt to a rapidly changing platform, in which technology is both the main cause of change and a tool for dealing with the change (Shoham& Perry, 2009). Rapid advancement in technology has changed entirely the ways things are done in all levels of human endeavours. Many institutions of learning these days have embraced this technological advancement with lots of vigor and have involved information system in their overall activities. The main essence of information system is to convert data into information. Information is the backbone of any organization so; the manner through which information is propagated in an organization is a matter of concern. If information is well managed in an organization, then such organization is set for success. Gone are the days of conventional approach as MIS packages are readily available in different fashion and according to specifications.

Frenzel&Frenzel (2004),stated that MIS provides a focused view of information flow as it develops during the course of business activities.He furthermore, stated that Information dissemination in an organization is critical for the completion of tasks or activities and this provides an avenue for an informed decision.

According to Shoham& Perry (2009), the impacts of ICT generally in organizations are complex and significant both as a creator of change and as a tool for dealing with the change.

Oliveira et al. (2011) noted that, institutions are resorting to technology to enhance and simplify information management.

Ramachandra & Srinivas (2012) stated that,MIS plays a crucial role in the management of anorganization. They further stated that, the benefits of using MIS includes improving the effectiveness of anorganization, ensuring effective and efficient use of resources and promoting proactive management.

According to Husain, K.M (1973), Management information system supplies educational decision makers with facts and enhances their overall decision making process. It provides accurate and timely information to all levels of decision making in an organization.

Nasarawa State polytechnic, lafia has continually experienced a significant increase in students' enrolment since its inception, leading to the institution needing to incorporate MIS to accommodate the implications of such growth.The use of management information systems encourages decentralisation, thereby strengthening management controls. MIS means cost benefits, time-saving

and stored data can easily be accessed and analysed without time consuming manipulation and processing (Pathak, 2011).

To this end, this study aimed to establish the impact of MIS, as well as its perceived benefits with particular reference to Nasarawa State Polytechnic, Lafia.

III. RESEARCH METHODOLOGY

This section discusses the research design, population of study, sampling technique, instrument for data collection and analysis.

A. Research Design

The researchers chose a survey research design. The survey research is one in which a group of people or items is studied by collecting and analyzing data from only a few people or items considered to be representative of the entire group. In other words, only a part of the population is studied, and findings from this are expected to be generalized to the entire population (Nworgu, 1999).

B. Population of Study

Polit and Hungler (1999), referred to population as an aggregate or totality of all the objects, subjects or members that conform to a set of specifications. For the purpose of this study, the target population includes staff and students of Nasarawa State Polytechnic lafia. While the accessible populations are staff and students selected at random from two departments. In this study, the accessible population comprised of 50 students and 15 staff in computer science department; 70 students and 20 staff in the department of Science Laboratory Technology.

C. Sample Selection

That portion of the population under study is called a sample of the population (Nworgu, 1991).

A sample in this study is therefore, a smaller group of elements drawn through a definite procedure from an accessible population. The elements making up this sample are those that are actually studied. The population of this study stood at 35 staff and 120 students making a total of 155 respondents out of a total population of 575 individuals (staff and students)

D. Sampling Technique

The stratified random sampling procedure was used for selecting the participants in this study. This technique was employed to ensure a fairly equalrepresentation of the sample. The stratification was based on ICT related department and non ICT related department in Nasarawa State Polytechnic lafia. Within each section, selection of staff and students were by simple random sampling. This was achieved by writing out the names of the staff and students in pieces of paper which was folded and put in a basket. After thorough reshuffling, the researchers selected elements, recorded them and puts them back in the basket until the required number were obtained. That is, the researchers applied sampling with replacement. Proportionate stratified random sampling technique was employed to select 50 students and 10 school staff from the two departments chosen. The proportionate stratification

was based on the fact that, there were more students and staff in SLT than computer science department

institution, which gave similar conditions to a controlled environment.

E. Data collection and analysis

The data for this study were gathered through primary and secondary sources. The primary sources involved the use of questionnaire and interview while the secondary sources included information gotten from journals, online articles and blogs, newspaper, and text books. The questionnaire was pilot tested to check how long it will take to complete it and to ensure that all questions and instructions are clear.

Categories	Quantity Sent	Quantity Received	Percentage Response
Staff Respondents	35	34	95%
Students Respondents	120	115	85%
Total	155	149	90%

Table 1. Percentage Response

IV. PRESENTATION OF FINDINGS

The percentage response is presented in Table 1, and it shows the rate of responses by the two categories of respondents involved in this study (staff and students). The response rate for staff is 95%, whilst the response rate for the students is 85%. The staff responded better than the students. The response rate for this study is quite okay and this is because the study was carried out in a single

A. The use of MIS in School Administration

• Students' Registration

The respondents (staff and students) were asked to state their opinions about MIS especially in the area of administrative systems such as course registration, semester registration etc.. This was to ascertain the impacts of MIS on departmental administrations. The findings are presented in Table 2:

Facilitating registrations	1-Very Poor	2-Poor	3-Fair	4-Good	5-Very Good	6-Not sure
Students	0%	0%	0%	26	74%	0%
Staff	0%	0%	0%	20	80%	0%

Table 2. Facilitating students' registrations

Table 2 represents the opinions of the respondents regarding the performance of management information system on students' registration. The result showed that 74% of the respondents (students) agreed that MIS is very good at students' registration processes; 26% were of the opinion that MIS is good at students' registrations. 80% of the respondent (staff) agreed that MIS is very good at students' registrations (semester, departmental and course

registrations), while 20% of the respondents (staff) opined that MIS is good at students' registrations.

• Result Processing

The Staff (respondents) were asked to state their opinions about the performance of MIS on students' result processing. The findings are contained in Table 3.

Result processing	1-Very Poor	2-Poor	3-Fair	4-Good	5-Very Good	6-Not sure
Frequency	0%	0%	0%	3	6	1%
Percentage	0%	0%	0%	30%	60%	10%

Table 3. Facilitating the processing of students result

Table 2 shows the opinions of staff respondent on performance of MIS in result processing 60% stated that MIS is very good at result processing, 30% opined that MIS is good at result processing. 10% of the respondents were not sure about the impacts of MIS on result processing.

• Inventory Control (store record)

The staff (respondents) were also asked to state their opinions about the performance of MIS in inventory control and management. The findings are presented in Table 4.

Inventory control	1-Very poor	2-Poor	3-Fair	4-Good	5-Very good	6-Notsure
Frequency	0	0	8 0	3	7	0
Percentage	0%	0%	0%	30%	70%	0%

Table 4. Inventory Control

The respondent believes that MIS is very good at inventory control; this can be deduced from the 70% very

good opinions of the respondents and 30% good opinions of the

- *MIS is effective in record management (staff and students)*

This question sought to find out the extent to which respondents view the impact of the MIS on record keeping (students and staff record). Both groups were asked to agree or disagree with a statement, and the findings are presented in Table 5.

MIS is effective in record management					
	StronglyDisagree	Disagree	Neutral	Agree	StronglyAgree
Staff	0%	0%	0%	25.22%	74.78%
Students		0%	0%	22.22%	77.78%

Table 5. Improving Record Keeping

The findings showed 25% of the respondents (students) agreed that MIS is effective in record management; 75% of the respondents (students) strongly agreed that MIS is very effective in record management. 22% of the respondents (staff) agreed that MIS is effective in record management while 78% of the respondents (staff) strongly agreed that MIS is effective in record management.

B. Benefits of MIS in academic activities

This section seeks to identify the impacts of MIS in Nasarawa State Polytechnic, Lafia

- *The key impacts of MIS on school administration*

The respondents (staff and students) were asked to state their opinions about MIS especially in the aspect of daily academic activities. Their responses are captured in Table 6.

Electronic information system	3	30%
Accurate information for decision-making	3	30%
Time saving	1	10%
Proper Record management	2	20%
Reduction of Paper work	1	10%
Total	10	100%

Table 6. Benefits of MIS (Staff)

The result showed that majority of the staff believed that MIS improves access to information and is very accurate at facilitating informed decisions. This is shown by the 30% responses in the table. Proper record management is seen as the next key benefit of employing MIS, with a 20% representation amongst respondents. The other benefits identified are time saving and reduction of paper work, which were each selected by 10% of the respondents.

The students also identified some benefits of management information system. These are outlined in Table 7.

Benefits	Frequency	Percentage
Convenience in registrations	5	31.25%
E-learning platform	2	12.50%
Online result checking	3	18.75%
E-Examination	6	37.50%
Total	16	100%

Table 7. Benefits of MIS (Students)

The most popular benefit identified by the respondents (students) was that of the E-examination. 38 Percent of the respondents (students) stated that they have their examination as a result of the MIS. According to the respondents, this has helped them to widen their horizon in ICT. 31 percent of the opined that MIS made their registrations (semester and course registrations). 31% of the responses indicated that, their tasks of registrations were made easier because of the use of MIS. 19% of the responses identified that through MIS, their result are made available online, whilst only 13% of the responses indicated that MIS facilitates E-learning thereby making them learn interactively and in a self paced manner.

C. Summary of Findings

In this section the empirical findings of the study were presented. The percentage response of staff was 95% while hat of the student was 85%. This means that, the staff respondents demonstrated higher response rate than the student respondents.

The respondents rated the impacts of MIS on administrative task functions generally. First of all, The respondents rated the performance of MIS on students' registrations. The result showed that 74% of the respondents (students) agreed that MIS made registrations easy for them and that MIS is very good at students' registrations; 26% of the respondents were of the opinion that MIS is good at students' registrations. 80% of the respondent (staff) agreed that MIS is very good at students' registrations (semester, departmental and course registrations); while 20% of the respondents (staff) also opined that MIS is good at students' registrations.

Moreover, the respondents (staff) were asked about their perception of MIS on result processing. The results obtained showed that 60 percent of the respondent (staff) believed that MIS is very good at result processing while 30% opined that MIS is good at result processing; 10% of the respondents were not sure about the effectiveness of MIS in result processing.

Furthermore, the respondents (Staff) rated the performance of MIS in inventory control. The findings revealed that 70 percent of the respondents believed that inventory control system became much better in MIS while 30 percent also agreed that MIS is fantastic in inventory control.

The respondents (staff) agreed by 25 percent and strongly agreed by 75 percent that, MIS is effective and very efficient in managing staff record. The category two respondents (students) also agreed by 22 percent and strongly agreed by 78 percent that MIS is good and very effective in managing students' record.

The respondents (staff) were also asked to state their opinions on the benefits of employing MIS in their daily activities. The responses obtained showed that, majority of the staff believed that MIS improves access to information and helps in making informed decisions. They pointed out that proper record management is another key benefit of employing MIS. The other benefits identified by the respondents (staff) are time saving and reduction of paper work.

In addition to that, the students (respondents) also identified convenience in registrations, provision of electronic learning platforms, online result checking and electronic examination as the benefits of MIS on school administration.

As a result of the finding of this study, it can be stated that, Nasarawa State Polytechnic Lafia needs management information systems to facilitate every administrative aspects of the institution.

V. CONCLUSIONS AND RECOMMENDATIONS

Academic institutions in Nigeria have, found themselves in a new era, characterized by expanded teaching horizons. Nowadays, there are more and more undergraduate and postgraduate programmes on offer, as well as more lecturers and students and an explosion in knowledge. This means there is a greater demand on MIS to accommodate these larger volumes of people and resultant information (Oliveira et al. 2011).

Most staff expressed that, the use of MIS improves the accessibility of information across the institution. This opinion was also reflected by the students, who determined that the use of management information systems ensures more effective communication between the staff, management and the students. It can be therefore, concluded that MIS improves the accessibility of information, decision making and other administrative task in the school.

This study further identified benefits of MIS as time-saving, improved convenience especially in course and semester registrations, proper record management, portable online admission system, electronic learning platform, automatic time tabling system, human resource management, automated course allocation system, automated inventory system and reduction of paper work.

The respondents (staff) also believed that MIS helps to enhance management control.

It is recommended that Nasarawa State Polytechnic, Lafia should adopt this wonderful utility (management information system) as this will go a long way in correcting all the abnormalities associated with the manual system currently in place. We recommend that, there should be training and retraining of users on the use and the functionality of the utility.

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