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UNIVERSITY ADMINISTRATORS' USE OF MANAGEMENT INFORMATION SYSTEMS (MIS) FEEDBACK MECHANISMS FOR DECISION- MAKING IN SOUTH EAST NIGERIAN UNIVERSITIES

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Abstract

The design of the study was a survey research using a panel study to determine the Management Information Systems (MIS) feedback Mechanisms for university administrators' decision-making process in South East Nigeria universities. The study was conducted in the ten public universities in South-East, Nigeria.One research question and one hypothesis guided the study. The population of the study was made up of 589 university personnel consisting of Heads of Department, Deputy Registrars and Directors of Management Information Systems (MIS) / Information and Communication Technology (ICT) Units in the universities. The sample of the study was made up of 30 experts selected from the ten public universities in South-East Nigeria. Data were collected using a 9-item questionnaire developed by the researchers and titled: MIS Decision-Making Questionnaire (MISDMQ). Three

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experts from University of Nigeria, Nsukka validated the instrument. The final draft of the instrument had a 4-point scale of Very Appropriate, Appropriate, Inappropriate, and Very Inappropriate. The instrument was pre-tested on 17 respondents from a public university in Kogi State, Nigeria. The reliability of the instrument was determined using Cronbach Alpha Formula. A reliability coefficient of 0.88 was obtained for the entire instrument. The experts' panel was made up of 30 experts consisting of 10 directors of Management Information Systems/Information Communication Technology, 10 academic staff and 10 administrative staff purposively selected from the 10 public universities in South-East Nigeria. During the round one survey, the 9-item questionnaire was administrated to the respondents. 9 items reached the panellists consensus based on a mean cut-off point of 3.00 and standard deviation of less than 1.00. In the round two survey, the 10 items were re-administered to the respondents,9 items that reached the panellist consensus in the round two survey were retained for data analysis. The mean score was used to answer the research question. t-test was used to test the hypotheses. The following were the major results of the study. 9 datafeedback Mechanisms were accepted for university administrators' decision-making process in South East Nigeria universities. There was no significant difference between the mean responses of administrators and MIS experts regarding feedback Mechanisms.

Keywords: *Management Information Systems (MIS), Decision-Making Process, National Universities Management Information Systems (NUMIS), Information.*

Introduction

The growth of information systems services in Nigerian universities began about 1990with the World Bank intervention to improve the institutional capacities of Nigerian universities (National Universities Commission (NUC), 1991). The specific focus of the intervention was on Management Information Systems (MIS), specially designed to meet the information needs of the managerial staff as they make a variety of decisions for the effective administration of the universities. In Nigerian universities, MIS is designed to achieve the following objectives :to standardize the system of obtaining reports and statistical information, ensure that such information are accurate and timely, and organize such information for planning and decision-

making in order to improve utilization of resources (Fadekemi & Ajayi (2007). According to Seidel (2019), MIS is a decision-making instrument used by top management comprising of a set of controls. Effective decisions are decisions based on data and information analysis to eliminate the root cause of problems, so that quality problems can be resolved effectively and efficiently (Roesmininigsih&Winarko,2019). The National Universities Management Information Systems (NUMIS) developed by the National Universities Commission (NUC) focused only on three major areas namely, student records, staff records and financial records (NUC, 1991).NUMIS was originally implemented using Dbase as a single package running on one system. The NUMIS main structure consists of five (5) phases; Data entry, Data update, Query, Reports and File maintenance. These phases are linked up with modules like staff and students' entities, finance, reference tables, students and staff list, student and staff information. Despite the implementation of NUMIS in the universities, it has not been adequately utilized in decision-making process in Nigerian universities (Ajayi, &Omirin,2007). NUMIS has not been adequately utilized in decision- making in universities in South-East, Nigeria. According to Oranu (2008), no MIS unit in the universities that use NUMIS has been able to complete the creation of staff and students' records and produce reports as required due to inadequacies of the NUMIS data management component. The major problem is on the data component of the NUMIS. This shows that the universities do not effectively use the MIS for decision-making. Evidence points to the fact that Management Information Systems (MIS) in some universities in Nigeria are not efficient (Momoh & Abdulsalam, 2014).However, despite the laudable initiative of the NUC, experience has shown that information on students, staff and university programmes are not readily available in most public universities in South-East, Nigeria. It has been observed that most public universities in South-East Nigeria hardly utilize the NUMIS for the provision of accurate, timely and reliable information for decision-making. This is partly due to the inadequacies of the data management component of the NUMIS in the provision of information for decision-making. The NUMIS lacked data management component which should prescribe what data to collect, how these data should be processed, organized, stored and communicated fordecision-making. Information and

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Communication Technology (ICT) consists of electronic systems used for information collection, processing, storage and retrieval. ICT consists of hardware, software, networks and media for collection, transmission and presentation of information (Pulkinen, 2004). Information occurs in different forms such as voice, data, text and images.

ICT is used to communicate, create, manage and distribute information. It includes the newer digital technologies of computers, internet, e-mail, World Wide Web (www), wireless and the older technologies of print, radio and televisions (Pulkinen, 2004). ICT brings about new opportunities as well as new risks for the goal of sustainable development. Over the last years, the use of ICT in all sectors of education has increased dramatically and continues to do so (Farrel and Wachholz, 2003). Digital technologies have fuelled exponential growth in the society's ability to generate exchange and consume information. ICT comprises those technologies that are used for accessing, gathering, processing, and presenting information for decision-making.

Modern university education and administration now depend on robust programmes of Management Information Systems (MIS) to support and facilitate teaching, learning, research and management. MIS involves the collection, processing, analysing and dissemination of educational data and information and making them available to educational administrators on a timely, routine, reliable and predictable basis for decision-making. MIS, according to Lucey (1989), is a system using formalized procedures to provide the management at all levels in all functions with appropriate information, based on data from both internal and external sources to enable them to make timely and effective decisions for planning, directing and controlling the activities for which they are responsible. Similarly, Boorne (2002) defined MIS as a structured, interacting complex of persons, machines and procedures designed to generate an orderly flow of information for use as the basis for decision-making in an organization. MIS, therefore, is a system that collects, processes, analyses, stores and disseminates information for educational planning and decision-making in the universities.

Statement of the problem

Most Nigerian universities, especially those in the South-East, have been observed to be confronted with

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numerous administrative challenges which could be attributed to the absence of appropriate data management component of the MIS to guide the administrators indecision-making in these universities. These administrative problems include clashes in lectures/examination timetables, clashes in lectures/examination Halls, late release of students' results and difficulties in obtaining information relating to students, staff or universities' activities or programmes. These universities may find it difficult to collate and send reports to NUC, Joint Admission and Matriculation Board (JAMB), NYSC and other stakeholders as most information may be contained in files which are always difficult to locate. Decisions in these universities may not usually be based on accurate and reliable data since these data are not readily available in these universities. The NUMIS from lacked appropriate data management component and could not provide the required and timely information to guide the administrators in decision-making in most universities in South-East, Nigeria.

Universities in South-East Nigeria are faced with numerous administrative challenges. These include clashes of Lectures/Examination timetables, clashes of lectures/examination Halls, late release of students' results to meet up NYSC datelines, difficulties in obtaining information relating to students, staff or universities activities or programmes, These universities also find it difficult to collate and send reports to the National Universities Commission (NUC), the Joint Admissions Matriculation Board (JAMB), the National Youth Service Corps (NYSC) and other stakeholder as most information are contained in files which are always difficult to locate. Decisions in these universities are not usually based on accurate and reliable data since these data are not readily available. These administrative lapses may be attributed in part to the inefficiency of the existing NUMIS infrastructure and the absence of an appropriate and effective data management component of NUMIS. However, no remarkable attempt has been made to develop an appropriate MIS Model for data management for decision-making for the universities other than the NUC initiative through NUMIS. The problem of the study was what is the appropriate data management model of the Management Informa

Purpose of the study

The purpose of this study was to determine an appropriate management information systems (MIS) feedback mechanisms for decision-making by administrators of universities in South-East Nigeria.

Specifically, the study intended to determine;

Feedback mechanisms for Management information systems for decision-making in south East Nigerian universities.

Research Question

The following Research Question guided the study:

What Feedback mechanisms are appropriate for Management information systems (MIS) for decision-making for administrators of South-East Nigerian universities?

Hypothesis

The following null hypotheses were formulated to guide the study and were tested at0.05 level of significance.

There is no significant difference between the mean responses of administrators and MIS experts on the feedback mechanisms for decision-making for administrators of South-East Nigerian universities.

Method

Design of the Study

The design of the study was a survey research. The specific design was a panel study. The Delphi technique was used in data collection. The Delphi technique uses experts' opinions to obtain reliable responses on more than one occasion (Grisham, 2009). The technique is a method for structuring a group/panel communication process to facilitate problem-solving and to structure models. This technique permits experts' opinion to be pooled on a series of questions. A Delphi study is a virtual panel of experts gathered to arrive at an answer to a question, and therefore a form of panel survey.

Area of the Study

This study was conducted in the ten public universities in South-East, Nigeria. The South-East Nigeria is bounded on the East by Cross-River State, on the West by Delta State, on the North by Kogi State and Benue State, and on the South by Rivers and Akwa-Ibom States. South East Nigeria is made up of five (5) states namely, Abia, Anambra, Ebonyi, Enugu and Imo states.

Population of the Study

The population of the study was made up of 589 university personnel consisting of Heads of Department, Deputy Registrars and Directors of

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Management Information Systems (MIS)/Information and Communication Technology (ICT) Units in the universities.

Sample and Sampling Technique

The sample of the study was made up of 30 experts selected from the ten public universities in South-East Nigeria. According to Clayton (1997), sample size in a Delphi study ranges from 15 to 30 people in a homogeneous group. A purposive sampling technique was used to select 10 Heads of Departments out of 499 Heads of Departments and 10 Deputy Registrars out of 80 Deputy Registrars from the ten public universities. Random sampling was used to select one Head of Department and one Deputy Registrar from each of the ten public universities in South-East, Nigeria. The 10 Directors of MIS/ICT Units in the ten public universities in South-East, Nigeria were selected. Heads of Department and the Deputy Registrars selected satisfied the following criteria: selected; have two or more professional years of experience in their present positions; were highly knowledgeable in Management Information Systems and decision-making process in the universities and were willing to participate in the study.

Instrument for Data Collection

The instrument developed by the researcher for the collection of the data is MIS Decision-Making Model Questionnaire (MISDMQ). The instrument was 9-item questionnaire and were attached with a 4-point rating scale of; Very Appropriate = 4,Appropriate = 3, Inappropriate = 2, Very Inappropriate =1 , which was used to elicit responses from the respondents for data analysis.

Validation of the Instrument

The face validation of the instrument (MISDMQ) was achieved through three experts: one each from Educational Administration and Planning, Measurement and Evaluation, and a Director of MIS Unit from a public University in Nigeria. The experts were required to determine their clarity, appropriateness of language and their ability to elicit the required information from the respondents. Their suggestions were used to improve the quality of the instrument.

Reliability of the Instrument

The reliability of the instrument was determined through trial-testing of the questionnaire on 17 respondents, made up of seven senior academic staff including Heads of Department , nine senior administrative staff and the

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Director, Digital Centre at Kogi State University, Anyigba, Kogi State, which is outside South-East, Nigeria. The resulting scores were collated and the data were utilized to compute the reliability estimate using Cronbach alpha method. The result of the analysis showed reliability co-efficient of 0.93for the instrument.

Method of Data Collection

The researchers trained the two research assistants on questionnaire administration using the Delphi technique. The researchers made use of the two research assistants in the distribution and collection of the questionnaire from the respondents. The copies of the questionnaires were administered directly to the respondents by the trained research assistants and the researcher.

Method of Data Analysis

During the round one survey, 30 copies of the questionnaire were distributed to the respondents. All the 30 copies of the questionnaire were returned completed. During the second round survey, 30 copies of the questionnaire were distributed to the respondents. All the 30 copies of the questionnaire were returned completed by the respondents. The returned copies of the questionnaire from the second round survey were cross-checked for completeness of responses. The responses were transformed into scale values. The data were analysed using Statistical Package for Social Sciences (SPPS).The mean and standard deviation s scores of the items were used to answer the seven research questions. Panellists' consensuses were achieved through the mean and standard deviation of the questionnaire items. A mean score of greater than or equal to 3.00 (Appropriate) with standard deviation of less than 1.00 indicated agreement among the panelists in the study. According to Eighmy(1995), this is a high standard for consensus of panelists in a Delphi Study. t-test was used to verify the null hypotheses at 0.05 level of significance.

RESULTS

Research Question

What feedback mechanisms are appropriate for MIS for decision makingfor administrators of South-East Nigerian universities?

To answer the question, mean (X) and standard deviation scores (SD) are computed andpresented on Table 1.

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Table 1: Mean responses on the feedback mechanisms of the MIS (N=30).

S/N	Feedback mechanisms	X	SD	Decision	Rank
1.	Feedback from users through e-mails	4.00	.00	AP	1
2.	Reactions/returns from university authority	3.67	.55	AP	2
3.	Feedback from users through phones	3.60	.50	AP	3
4.	Feedback from users through workshops, meetings and Seminars	3.60	.50	AP	3
5.	Feedback from users through university mass media	3.60	.56	AP	3
6.	Reactions/returns from faculties and Centres	3.47	.78	AP	6
7.	Reactions/returns from Departments	.3.43	.63	AP	7
8.	Reactions/returns from administrative Units	3.40	.68	AP	8
9.	Reactions/Returns from Colleges	3.30	.75	AP	9
	Cluster	3.56	.20	AP	

AP = Appropriate

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Tables 1 indicates that all the 9 items on feedback mechanisms reached the experts' consensus. Each of these mean scores is greater than the criterion mean of 3.00. These show that the items reached the experts consensus and are appropriate for inclusion in the MIS Model for decision-making for administrators of South-East Nigerian universities. The cluster mean score of 3.56 for the feedback mechanisms is above the criterion mean of 3.00,thus indicating respondents' consensus on the items of the feedback mechanisms. All the items and the cluster with mean scores above 3.50 have standard deviation ranging from .00to .56 which show that the opinions of the respondents on the items and the cluster are close to one another in relation to the mean. The standard deviation of item 61 ranked the most appropriate is .00, indicating that all the respondents agreed that 'e-mail' is the most appropriate feedback mechanism for the MIS Model. The items ranked according to the degree of consensus of the experts using their mean scores indicate that the most appropriate feedback mechanism is through e-mails (X = 4.00, SD = .00, Rank =1), followed by reactions/returns from university authority (X = 3.67, SD = .55, Rank =2), through phones (X= 3.60, SD = .50,Rank =3), through workshops, meetings and seminars (X=3.60, SD =.50,Rank =3) and through university mass media (X = 3.60, SD = .56,Rank =5) .

Hypothesis

There is no significant difference between the mean responses of administrators and MIS experts on the appropriate feedback mechanisms for MIS Data Model for decision-making for administrators of South-East Nigerian universities

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Table 2: Result of t-test of the mean responses of administrators and MIS experts regarding the feedback mechanisms for the MIS.

Administrators MIS Experts

S/N	Item	X1	SD1	X2	SD2	t	P
10.	Feedback from users through emails	4.00	.00	4.00	.00	-	-
11.	Reactions/returns from university Authority	3.75	.44	3.40	.52	1.928	0.64NS
12.	Feedback from users through phones.	3.50	.61	3.80	.42	-1.577	.128NS
13	Feedback from users through university media	3.55	.51	3.60	.52	-.252	.803NS
14.	Feedback from users through workshops, meetings and seminars.	3.30	.663.	60	.52	-1.259	.218NS
15.	Reactions /returns from faculties and centres.	3.30	.87	3.80	-.42	-2.129	0.042S
16.	Reactions/returns from Department	3.65	.59	3.70	.48	-.232	.818NS
17.	Reactions/returns from administrative Units	3.35	.81	3.20	.63	510	.614NS
18.	Reactions/Returns from Colleges	3.30	.66	3.60	.70	-1.155	.258NS
	Cluster	3.52	.21	3.63	.14	-1.725	.097NS

NS =Not significant
N1 = administrators = 20,
N2 = MIS Experts = 10

Table 2 shows the result of independent t-test conducted to compare administrators and MIS experts' responses on the feedback mechanisms of the MIS data Model for decision-making.

Items 2,3, 4, 5,7, 8 and 9 have 't' values of ; 1.928 ,-1.577, -.252,-1.259, -.232, .510, -1.155 respectively. The Cluster has 't' value of -1.725. These values are not significant at $p < 0.05$. There is no significant difference in the mean scores of administrators and MIS experts on each of these items and the cluster. The hypothesis of no significant difference between the mean scores of administrators and MIS experts regarding the feedback mechanisms of the MIS However, on item 6, the t-value of -2.129 is significant at p<.o5 in favour of MIS experts. The null hypothesis is not rejected for this item. Therefore, the opinions of the administrators and the MIS experts regarding the feedback mechanisms of the MIS data Model are not different on these items and the cluster.

Discussion

Feedback Mechanisms

Nine items of feedback mechanisms of the MIS for decision-making for administrators of South-East Nigerian universities were identified. The identified major items were; through phone, through workshops, meetings and seminars, through university mass media, reactions/returns from faculties and centres, reactions/returns from departments, reactions/returns from administrative units and reactions/returns from colleges. The ISD Methodology (Kalermo&Rissanen,2002) stipulates that information systems (IS) like MIS achieve monitoring and evaluation through various feedback activities. Such feedback activities include, MIS coverage, extent of MIS reach to target users, channels of feedback activities, and the degree of MIS output utilization by the target users. Feedback is a learning process which allows others to realize and appreciate MIS activities and show other better ways of doing things that would support efforts to produce timely and accurate information for overall educational development. Monitoring is continuous internal management activity whose purpose is to ensure that the MIS activities achieve its defined objectives within a prescribed timeframe and budget (Norton, 1995). Feedback involves the provision of regular returns/reactions on the progress of the MIS programme implementation, and problems faced during MIS implementations in the universities. The feedback demands a regular and systematic gathering and analysis of information on the implementation of MIS operations in the universities.

The findings of the study agreed with the findings of Al-Dhmour (2010) that MIS provide access to information about the previous stages where desirable adjustments can be made in any one of the stages or phases. Feedback from users assists university administrators to assess decisions already taken and provides alternative actions for effective university management.

There is no significant difference between the mean opinions of administrators and MIS experts on the feedback mechanisms for the MIS for decision-making for administrators of South-East Nigerian universities. Both the administrators and MIS experts were from the same public universities in Nigeria.

Educational Implications of the findings

The findings on feedback mechanisms identified among others; feedback from users through phones, workshops,

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meetings and seminars and university mass. These mechanisms have implications for the university administration in the evaluation and monitoring of MIS activities to ensure the provision of adequate data at all times.

Recommendations of the Study

Based on the major findings of this study, Feedback mechanisms should be adopted by administration and MIS personnel to evaluate and monitor the MIS activities in the universities to provide opportunities for updating data and information.

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