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KNOWLEDGE OF STORAGE AND RETRIEVAL OF STUDENTS'ACADEMIC RECORDS IN COLLEGES OF EDUCATION IN NORTH-WEST GEO-POLITICAL ZONE IN NIGERIA

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Abstract
The systematic process of collecting and cataloging data so that they can be located, displayed and revised on request is very important for academic purpose. Considering computer and technology in today's world, there is a shift from manual to computer based in most aspects of human endeavor, evaluation of students, performance is not an exception. The study examined the opinions of Deans, HODS and Lecturers on application of knowledge storage and retrieval to evaluation of students' performance in colleges of education. One research question was answered and one hypothesis was tested using A NOVA, while scheffes' multiple comparism test was used to determine the level of the differences. The null hypothesis was rejected at 10.841cal and 3.07cri. The population of five thousand six hundred and ninety seven (5697) lecturers and a sample size of one thousand nine hundred and sixteen (1916) (84 Deans, 350 HODs and 1472 lecturers) as respondents were used in the study. Opinions of respondents were analyzed using frequencies count and percentages. The study found that file system storage and digital dashboards were largely used while data bases, email and websites were not found to be used in storing and retrieving students academic records in CA, examinations and teaching practice result. The study recommends the use of data base, email, website, CD, cloud and flash in storing students result for easy retrieval and reuse.

Keywords: Academic Record, Knowledge, Retrieval and Storage

Introduction

Knowledge management is all about knowledge identification, capture, application, sharing, storage, re-use and integration. Knowledge management is geared towards enhancing performance of members, competition, innovation, sharing of ideas, integration and sustainability in organizational performance. It is also aimed at improving the quality of people's contributions to their organization and to make them responsible, cooperative, ready to share what they know and learn, effective in challenging, negotiating and learning from others. This provides avenues for critical issues to be examined for the survival and

competence of the organization. Knowledge management is a process geared towards the achievement of organizational goals, using the data and information processing capacity of information technologies, creative and innovative capacity of human beings. It can be seen as a mixture or combination of information technology and human innovation. This involves a range of strategies and practices used solely in an organization to identify, create, represent and distribute knowledge insights embodied in individuals or embedded in the organization as whole as a process or practice, (Gotchea, 2004).

By implication, this research is inspired by the benefits of application of elements of knowledge management in organizations. Thus, the current study presents the application of information storage and retrieval to evaluation of students' performance in Colleges of Education in North-West geo-political zone in Nigeria. The present study seeks to find out whether the application of knowledge storage and retrieval to evaluation of students' performance in the study area could enable the sustenance of knowledge through knowledge creation and capture, knowledge sharing and enrichment, information storage and retrieval and knowledge destination. This calls for a study to investigate the application of only one out of the four elements of knowledge management to evaluation of students' performance (information storage and retrieval).

In most Colleges of Education in the North-West geo-political zone in Nigeria, lecturers are overloaded such that they cannot properly or adequately evaluate, store and retrieve record of performance of students. This could be as a result of negligence, incompetency, poor knowledge of proper record keeping, poor storage and retrieval system of information for reuse and soon. Embarking on a study such as the current one in applying information storage and retrieval may help enhance knowledge, capture, storage, and retrieval in evaluating their studies.

On the part of students, assessment and results are always tempered with in the area of missing result, alteration of students' scores, wrong scoring, wrong grading, improper students' record keeping and omission of students' names or numbers as well as missing files that give access to students' records constitute problem. Others include disruption of stored information by termites, oil, water flood, fire out break and over population of students which led to shortage of storage facilities and access work load of teachers that makes it highly difficult for them to assess and store students' data effectively. These could bring in-efficiency in entering scores, computation, storage and retrieval of students' performance in Colleges of Education in North-West geo-political zone in Nigeria unless serious action is taken to stop or reduce that. This is why a research on application of information storage and retrieval to evaluation of students' performance is undertaken as a study in providing lasting solutions to problems that relate to students' evaluation.

The study covers both Federal and State Colleges of Education. Thus the study in terms of substance covered only application of information storage and retrieval of students' academic records in terms of continues assessment, final examinations and teaching practice supervision.

Objective of the Study

Knowledge of storage and retrieval of students' academic records in College of Education in North-west Geo-political Zone in Nigeria.

Specifically the study sought to determine the opinion of Deans, HODS' and Lecturers on knowledge of storage and retrieval of students' academic records in Colleges of Education in North-West geo-political zone in Nigeria.

Research Question

This question guided the study:

1, What are the opinions of Deans, HOD's and Lecturers on knowledge of storage and retrieval of students' academic records in Colleges of Education in North-West geo-political zone in Nigeria?

Null Hypothesis

H_{01}: There is no significant difference in the opinions of Deans, HOD's and Lecturers on the knowledge of storage and retrieval of students' academic records in Colleges of Education in North-West geo-political zone in Nigeria.

Basic Assumption

The study assumes that: application of knowledge storage and retrieval could enhance record keeping, sharing and dissemination in Colleges of Education in North-West geo-political Zone in Nigeria.

Review of Related Literature on Application of Information Storage and Retrieval in an Organization

The third element of knowledge management is information storage and retrieval. The organization should ensure that acquired or shared knowledge is readily accessible to others. This can be done by storing information in a centralized location with sufficient provision for easy retrieval. For example, the assessment of students' performance in final examinations can be stored in databases in suitable file systems. The documents and information in databases could then be retrieved through the available system in the College of Education. According to Gotchea (2004) and KCO (2004), there are four main options for storing the information that are captured or shared. These are: file system storage, databases, e-mail and websites. In most organizations, the bulk of information is likely to be in relatively unstructured formats. This can be in the form of typical business or office documents such as reports, memos, spreadsheets or e-mails. These documents normally contain valuable information, but they are not easily searched and found. For a knowledge management system to be effective, it must provide for search engines that can deal with the search unstructured information.

In most cases, however, some form of information structuring is necessary in order to facilitate subsequent information retrieval and use (KME (2004), Kushner & Rijpra (2004) and Lesser & Storck (2001)). Some information may require more than a storage format. In order to facilitate retrieval, a two-step process has to be implemented: first, the information should be divided into managerial units; and second, each unit should be categorized, (Por 2004).

Before the information is divided into smaller units, there is the need to determine the size or granularity of each meaningful unit. The finer the subdivision or granularity of each unit, the more tedious the time consuming the cataloging effort could be. Databases

usually work with the fields and records as unit for searching and retrieval. Rasmus & Ward (2001) and Santosus & Surmacz (2004). It is opined in Shein (2002), Skyrme (2004)[1], Skyrme (2004)[2], after the information is divided into smaller units, the units must then be categorized by content type. In order to do this, it is necessary to create a list of all the content type for the organization. These lists may include classifications such as proposals, invoices, white papers and correspondence. Each entry is then tagged with the content attributes including meta-data such as documents, document title, auto, client and approval status. These can also be applicable to students' records of results in Colleges of Education.

Methodology

The study made use of a descriptive survey research design. This is, however, selected to be more appropriate for the study because, the present study sorted out the opinions of individuals on knowledge storage and retrieval of students' academic records in Colleges of Education in the North-west geo-political zone in Nigeria. As the total population cannot be reached out by the present study, Sambo (2005) opined that, a descriptive survey research is appropriate when the total population cannot be accessed. In such instances, information is gathered on a representative sample from which inferences are made on the whole population. This is relevant as the variables and respondents covered are in different parts of the North West geo-political zone in Nigeria and because of the turnover rate, the exact number of academic staff was difficult to ascertain.

A stratified sampling technique was adopted to sample the Deans and Head of Departments, while simple random sampling was used in sampling lecturers from various departments. The total sample size was 1916 subjects, representing 1/3rd of the respondents (subject) or 34%. This number was deemed appropriate as Usuala (2007), affirms that using a sample size that is too large is a waste of resources. However, he maintains that, where the subjects understudy are homogeneous, a small sample is sufficient. Therefore, this number was sufficient for generalization.

The questionnaire titled "Application of information storage and retrieval to Evaluation of Students' Performance in Colleges of Education in North-West Geopolitical Zone in Nigeria" was made of one section. Thirteen items were raised in the section which was designed in a five Likert scale using the fixed response or closed ended responses. The respondents were asked to indicate their level of opinions on each item using Strongly Agree (SA), Agree (A), Undecided (UD), Disagree and Strongly Disagree (SA). It should be noted here that, SA and A are represented by Agree in the table, SD and D represented by Disagree in the table while undecided stands. This is in order to find ease in the analysis. It should be noted that the use of sample size for State and Federal is for more identification and specification, but the treatment was the same because the subjects are homogenous.

Data Presentation and Analysis

The study made use of descriptive statistics to give the generated description of the data collected. Here frequency counts and percentages were considered appropriate. However, to test the hypothesis, One Way Analysis of Variance (ANOVA) was used.

Where significant differences occur in the opinions of respondents, Scheffe's multiple comparism test was employed to determine the extent of the differences.

The issue discussed in this study bordered on the Knowledge Storage and Retrieval of Students' academic records in Colleges of Education. However, items 1-13 were used to analyze this issue and result obtained are presented in Table 1 as shown below.

Table 1: Opinions of Respondents on Knowledge Storage and Retrieval on Students' Academic Records in Colleges of Education in North West Geopolitical Zone, Nigeria.

S/N	Item Statements	Agree		Disagree		Undecide	
		F	%	F	%	F	%
1	Through file system storage, the students' continuous assessment could be stored and retrieved in my college	53 139 856	96.4 86.9 85.9	1 12 81	1.8 7.5 8.1	1 9 61	1.8 5.6 6.1
2	Through file system storage, the students' final assessment could be stored and retrieved in my college.	51 140 839	92.7 87.5 84.1	2 9 73	3.6 5.7 7.3	2 11 86	3.6 6.9 8.6
3	Through file system storage, the students' assessment during teaching practice could be stored and retrieved in my college	52 139 714	94.6 86.9 71.6	2 11 147	3.6 6.9 14.7	1 10 137	1.8 6.3 13.7
4	Through data bases, students' continuous assessment could be stored and retrieved in my college.	50 138 717	91.0 86.3 71.9	5 11 153	9.1 6.9 15.3	- 11 128	- 6.9 12.8
5	Through data bases, students' final assessment could be stored and retrieved in my college.	51 136 665	92.7 85.0 66.7	3 16 174	5.5 10.0 17.4	1 8 159	1.8 5.0 15.9
6	Through data bases, students' evaluation during teaching practice could be stored and retrieved in my college.	5 69 472	9.1 43.2 47.3	26 39 47.3	47.2 24.4 32.1	24 52 205	43.6 32.5 20.5
7	Through could and e-mail, the continuous assessment of students could be stored and retrieved in my college.	6 40 474	11.0 25.0 47.5	25 56 323	45.4 35.0 32.3	24 64 201	43.6 40.0 24.1
8	Through e-mail the final assessment of students could be stored and retrieved in my college.	6 36 462	10.9 22.5 46.3	26 59 332	47.2 36.9 33.2	23 65 204	41.8 40.6 20.4
9	Through could and e-mail, the evaluation of students during teaching practice could be stored and retrieved in my college.	6 47 576	11.0 29.4 57.7	41 84 288	74.5 52.5 28.8	8 29 134	14.5 18.1 13.4
10	Through websites, students' final performance could be stored and retrieved in my college.	9 53 551	16.4 33.1 55.2	39 82 300	70.9 51.3 30.0	7 25 147	12.7 15.6 14.7
11	Through websites, students' evaluation for teaching practice could be stored and retrieved in my college.	7 49 517	12.8 30.7 51.8	41 87 261	74.5 54.4 26.1	7 24 220	12.7 15.0 22.0

12	Through digital dashboards, students' final performance could be stored and retrieved in my college	39 77 500	65.5 48.2 50.1	6 37 272	10.9 23.1 27.2	13 46 226	23.6 28.8 22.6
13	Through digital dashboards, students' performance during teaching practice could be stored and retrieved in my college	34 75 672	61.8 46.9 67.4	7 39 192	12.7 24.4 19.2	14 46 134	25.5 28.8 13.4

In Table 1, it was evident that there were no differences in the opinions of the three categories of respondents. A remarkable percentage of 96.4 for the Deans, 86.9 percent of HODs and 85.8 percent of Lecturers agreed to item 1 of the instrument.

Respondents view to item 2 of the instrument also revealed consensus in agreement by all categories of respondents. This is represented by 92.7 percent of Deans, 87.5 percent of HODs and 84.1 percent of Lecturers who agreed that through file system storage the students final assessment could be stored and retrieved in colleges of education. This is so because, it is said to be the most popular and familiar to most academic staff.

Responses of respondents to item 3 showed that, a large proportion of both respondents being 94.6 percent Deans, 86.9 percent HODs and 71.6 percent of lecturers agreed that, through file system storage, students assessment during teaching practice could be stored and retrieved in colleges of education.

Majority of the respondents being Deans representing 91.0 percent, HODs represented by 86.3 percent and Lecturers representing 71.9 percent agreed with item 4 of the instrument which says that through data bases, students' continuous assessment could be stored in colleges of education. Similarly, all categories of respondent agreed in consensus with item 5 that through data bases, students' final assessment could be stored and retrieval in colleges of education. This is represented by opinions of Deans with 92.7 percent, HODs 85.0 percent and Lecturers 66.7 percent.

There is diversion in opinions to item 6 where Deans representing 47.2 percent are in disagreement while both HODs represented by 43.2 percent and Lecturers represented by 47.3 agreed that through data bases students evaluation during teaching practice could be stored and retrieved in colleges of education.

In item 7, significant difference exists in the opinions of all categories of respondents. Deans being represented by 45.4 percent disagreed, HOD's being represented by 40.0 percent undecide and Lecturers being represented by 47.5 percent agreed that through e-mail, the continuous assessment of student could be stored and retrieved in colleges of education it could be said that Deans and HOD's being members of the management are in better position to know that. So, their views are rather accepted in this submission

In the same vein, a fair proportion of Deans representing 47.2 percent disagreed while HODs representing 40.6 percent undecided to item 8 that, through e-mail the final assessment of students, could be stored and retrieved on the contrary, only Lecturers representing 46.3 percent agreed to the item.

Opinions of Deans and HODs representing 74.5 percent and 52.5 percents are in disagreement to item 9 that through e-mail, the evaluation of students during teaching practice could be stored and retrieved in Colleges of Education. Lecturers on the other hand agreed by 57.7 percent this revealed that no such result could be store or retrieved

through e-mail. This could be because of shortage of some resources coupled with fear of alteration, or other forms of practices.

There is consensus of opinions among Deans and HODs to item 10. They however, disagreed that through websites, students' performance could be stored and retrieved. These opinions are represented by 70.9 percent and 51.3 percent respectively but responses of 55.2 percent of Lecturers agreed to the said item.

In item 11 of the instrument both Deans representing 74.5 and HODs represent 54.4 percent disagreed that through websites, students' evaluation for teaching practice could be stored and retrieved in colleges of education. But surprisingly, 51.8 of Lecturers agreed to the item. An extremely high proportion of Deans represented by 65.5 percent, fair proportion of HODs representing 48.2 percent and average proportion of Lecturer's representing 51.8 percent supported that through digital dash boards student's final performance could be stored and retrieved. Item 12 of the instrument highlighted that. Perhaps, this is because technology has reached each angle of social lives and education is not an exception.

In response to item 13, majority of respondents being 61.8 percent Deans,46.9 percent HODs and 67.4 percent Lecturers agreed that through digital dashboards, students' performance during teaching practice could be stored and retrieved in Colleges of Education. This is a remarkable development in education.

The analysis for items 1-13 revealed that, the responses for agree were larger than responses for disagree. The result was therefore, interpreted to mean that, knowledge storage and retrieval was applied to evaluation of students' performance in Colleges of Education. It is worth noting that, to some extent, the Deans and HODs had the highest percentage of disagreement in some of the items.

Hypothesis Testing

H_{01} There is no significant difference in the opinions of Deans, HODs and Lecturers on of Knowledge storage and Retrieval of Students' academic records.

This hypothesis relates to items 1-13 of the questionnaire. The scores of the three categories of the respondents were subjected to One Way Analysis of variance (ANOVA) and result presented in table 2.

Table 2: Summary of One Way Analysis of Variance on of Knowledge Storage and Retrieval of Students' Academic Records in Colleges of Education in North West Geopolitical Zone, Nigeria.

Sources of Variation	Df	Sum of Square	Mean Square	F. Cal.	Prob.	f-Crit.
Between groups	2	1389.936	694.968			
Within groups	1210	77567.431	64.105	10.841	.000	3.07
Total	1212	78957.367				

As indicated by Table 2, the f-calculated value being 10.841 at 2 df being 1210 and at 0.05 level of significance was found to be greater than the f-critical value of 3.07. This implies that, the probability value P(0.000) was also found to be lesser than 0.05 level of significance. By this computation, there were significant differences in the opinions of all categories of respondents used in the study regarding application of knowledge storing and

retrieved to evaluation of students' performance. Thus, the hypothesis was rejected. To highlight the extent to which means scores of the three categories differed, the Schefee's multiple comparison test was used and presented in table 3.

Table 3: Summary of Scheffe's Multiple Comparison Test on Knowledge Storage and Retrieval of Students' Academic Records in Colleges of Education in North West Geopolitical Zone, Nigeria.

Categories of Respondents	N	Mean Score
Dean	55	79.8182
HODs	160	81.4250
Lecturer	998	83.7084

Table 3 revealed that, the mean score of Deans (79.8182) and HODs (81.4250) were found to be closer. This means that, the difference between the two groups was not significant. However, the means score of Lecturers (83.7084) was found to be higher than those of Deans and HODs. This implies that, the Lecturers differed significantly in their opinions on application of knowledge storage and retrievals to evaluation of students' performance.

Discussion of Findings

Knowledge Storage and retrieval of Students' Academics Records being the third element of knowledge management is equally important. This presupposes that, once information is created and formulated, the next step will be to provide various means for users to have access to the information retrieval pass ways. These pass ways are said to be designed with user community in mind and made as user friendly as possible, Newman (2004). This can be done by storing information in a centralized location with sufficient provision for easy retrieval. The finding came up with the four main options observed by Gochea (2004) in relation to storing information that are captured and shared for easy retrieval, these are, file system storage, data bases, e-mail, websites, and dashboards. All were found to be applied to evaluation of students in continuous assessment, final examination and teaching practice. In addition, e-mail and databases were not adequately applied in accessing students' performance in Colleges of Education.

This finding indicates low applicability of information storage and retrieval to students' performance. Student's information that relates to his performance is a vital record that needs to be stored or kept in an appropriate manner. Storing students' performance through file system storage is not just enough because there might be the risk of alteration of result, theft, impersonation, destruction by Rats or Tamytes, fire out-break, oil stain and so on. In the event there are multiple system storage, such risk could be minimize. As the world today is a technology driven, provision of facilities related to the current demand of technology such as data bases, e-mail and websites is a necessity in Colleges of Education such that students' performance in continuous assessment, teaching practice and final examination could be stored in a very safe channel and retrieved whenever the need for that arise.

It is a weakness of this finding that such facilities as data bases, e-mail and website were not availably installed in Colleges of Education which could allow for centralization of results and proper documentation. Another weakness is, most Lecturers in Colleges of

Education are not seen welcoming computer literacy for them to utilize those facilities of storing and retrieving students' results in continuous assessment and final examination. Students on their parts found it hard to access or retrieve the stoned result because of the absence of such facilities mentioned above.

The null hypothesis formulated to test the Knowledge Storage and Retrieval of Students' academic records in Colleges of Education was rejected. The rejection was due to the fact that, f-calculated value being 10.841 was found to be greater than the f-critical value being 3.07 at 2 df 1210 and at 0.05 level of significance as shown in Table 4. The finding implies that, there was significant difference in the opinions of Deans, HOD's and Lecturers. The result presented in table 5 for Scheffe's multiple comparison test was used to examine the extent to which the respondents' opinions differed. This indicated a significant difference of 79.8182 for Deans, 81.4250 for HODs and 83.7084 for Lecturers, implying that, the Deans differed significantly in their opinions on application of knowledge storage and retrieval to evaluation of students' performance in Colleges of Education in the study area. Items 1-13 provided an answer to the research question which asks, "What are the Opinions of Deans, HODs and Lecturers on the Knowledge Storage and Retrieval of Students' academic records in Colleges of Education in North-West geo-political Zone in Nigeria?"

Summary of Major Findings

The finding of this work was summarized as follows:

i. It was found that, file system storage and digital dashboard were found to be largely applied to storing students' continuous assessment, final examination and at teaching practice exercise especially as it relates to knowledge storage and retrieval. On the contrary, students' academic records were not stored and retrieved through data bases, e-mails and websites. This was found high in the Deans and HODs, but low in Lecturers. (ANOVA = 10.841, df=2, P=0.000 (P<0.05) critical value at df=2 and at 0.05=3.07).

Conclusion

Based on the findings of this study, it could be concluded that: Although, students' continuous assessment, final examination and teaching practice results were seen to be stored and retrieved through file system storage, digital dash boards, and data bases, at the same time, data bases is not seen to be applied in storing teaching practice results. No College of Education is seen or recorded to be using cloud, infrastructure, e-mail and website in storage and retrieval of students' academic records as far as the study is concern.

Recommendations

Based on the findings and conclusions drawn from this study, the following recommendations were made:

1. Staff in Federal and State Colleges of Education be encouraged by government and school management to provide internet facilities and equipment such that it will lead to access to databases, e-mail, cloud and websites in storing and retrieving students' academic records. This is seen to be important considering the fact that, the world today is a technology driven world.

2. Computer literacy be enforced among lecturers in Colleges of Education. This will enhance efficient and effective storage and retrieval of students' academic thereby eradicate or limit cases of omission of names, missing results, missing files or alteration of students result, destruction by termites, ants, floods, fire outbreak, wind or torn during strike or riot.

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