ICT FOR ACADEMIC RECORDS MANAGEMENTIN COLLEGES OF EDUCATION IN KWARA STATE, NIGERIA

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Abstract

Information and communication technologies have been described as ubiquitous and its application in every aspect of organisational endeavour cannot be underestimated. This prompted the research question of how do tertiary institutions use ICTs in the process of record management of students. Descriptive survey design method was adopted sampling one-quarter of the entire population of study. The questionnaire pre-test result yielded an overall reliability coefficient of α = 0.84 above 60% coefficient of determination. The total population was 695, while total sample was 174 with 134 returned questionnaire copies found useful making 74.7 % of the total sample. Research questions and hypotheses were analysed using descriptive and inferential statistics. Hypotheses were tested at 0.05 level of significant. The findings showed that there was a high level of availability of ICTs resources and a great impact of use of ICT on students' academic records management. Also, ICTs was found to be highly beneficial when used for students' academic records management and there are high challenges identified. The study therefore recommended that ICT infrastructures like cloud storage and other relevant software should be enhanced to improve record management.

Keywords: ICTs, Records, Management, Educational institutions

Introduction

Information and communication technologies (ICTs) can be described as having potential for several purposes within various establishments, of which educational institutions are not an exemption. The use of information and communication technologies in the management of students' academic records is expected to bring about better results in terms of effective academic record management as a result of versatility of information and communication technology. Acceptable international best practices in records management should not be something that is not possible in Nigerian tertiary institutions. The introduction of ICT into higher institutions in Nigeria by now should have permeated every aspect of administration of tertiary institutions. The administration of students' academic records in higher institutions begins with the processes of admission, to keeping their academic records on semester basis, to producing their final results, making available these results to appropriate stakeholders on time, in the right format and the right cost. ICTs usage in records management can rescue the situation.

Students' academic information of various sorts are expected to be provided as reliable, complete, accurate, sufficiently up-to-date and precise, this can only be achieved with the introduction of ICT (Achuonye & Uwiyi, 2014). Various functions and purposes can be achieved on modern day information and communication technology through the various applications that are available on them. Information and communication technology today come with high level of adaptability, usability and convenience. These are properties that can make it to be suitable for academic records management of students in

colleges of education. Appropriate software or packages that can address the issues of academic records management include Microsoft excel, lotus spreadsheet and Microsoft word-processing. This various software comes readily with most ICT devices today. Notwithstanding other data analysis packages that can be used to manage students' academic records can easily be installed on ICT devices. These softwares can be open/free or proprietary/for sale but they must be suitable for records management at different strata.

Introduction of ICT to tertiary institutions should not only be based on teaching-learning process but also on ensuring effective and efficient academic record keeping and management (Osakwe, 2012). In a similar manner, Tusubira and Mulira (2012) argued that integration of ICT at the organizational levels for organizational function is a necessity for increased efficiency, competitiveness and cost reduction in service provision. Information and communication technology today is expected to revolutionise the activities of any organization. Educational institutions like colleges of education being a tertiary institution should not be left behind in timely, correct and complete processing of academic records of their students. The era of sending and typing of results in all the various offices or department where such results are sent should be over by now. Once the record of a student is generated at one point, it is like being available at every other point where it can be needed with little or no effort at all. Yet among the students of colleges of education in Kwara state, there are lots of complaint on academic records reliability, availability, precision and timeliness.

Purpose of the Study

The main purpose of this study is to assess the impact of ICTs for academic records management in Colleges of Education in Kwara State, Nigeria. The specific objectives of the study are to:

1) determine the available of ICT infrastructures in the selected Colleges of Education
2) examine the extent of use of ICT for students' academic records management in selected Colleges of Education in Kwara state;
3) evaluate the impacts of ICT use for academic records management in selected Colleges of Education;
4) identify the benefits of using ICT for academic records management in selected Colleges of Education;
5) identify the challenges of using ICT for academic records management in selected Colleges of Education.

Research Questions

1. What are the available ICT Infrastructures for academic records management in the selected colleges of education?
2. To what extent is ICT being used for academic records management in selected Colleges of Education?
3. How does ICT use impact academic records management in selected College of Education?
4. What are the benefits of using ICT for academic records management in selected Colleges of education?
5. What are the challenges of using ICT for academic records management in selected Colleges of Education?

Hypotheses

The following null hypothesis shall be tested at 95% confidence:

H_{01} There is no significant difference in the mean of availability of ICT infrastructures and mean of extent of use of ICT in both colleges.

H_{02} There is no significant difference in the mean of extent of use of ICT for the management of students' academic records in both colleges

Methodology

This research employs descriptive survey method using questionnaire for collection of data from respondents. The focus of the research was on Colleges of Education in Kwara state, a purposive sample was taken for State-owned Colleges of Education. This was done to ascertain the level of ICTs usage and it impacts on academic record keeping of these institutions cutting across all the major stakeholders in the preparation of the result of students. Two State-owned College: Kwara state College of Education, Ilorin and Kwara state College of Education, Oro were the institutions sampled. The respondents were made up of both academic and non-academic staff. The non-academic staff are those staff that deals directly with the issue of students results and records. One quarter of the total population of the study was sampled.

A self-designed questionnaire was employed with six sections. It captured demographic data of the respondents and five research questions. The questionnaire was pre-tested on 45 academic and non-academic staffers of Federal College of Education, (Special) Oyo. Results yielded an overall reliability coefficient $\alpha = 0.84$ above 60% coefficient of determination. The total population was 695, while total sample was 174 with 134 returned questionnaire copies found useful making 74.7 % of the total sample. Two hypotheses were tested at 0.05 level of significant. Population was 695, while total sample was 174 with 134 returned questionnaire copies found useful making 74.7 % of the total sample. Research questions 1-5 and hypotheses were analysed using descriptive and inferential statistics to examine the availability of ICTs infrastructures for academic records management in the Colleges of education under study.

Results

Research Question One: What are the available ICT Infrastructures for academic records management in the selected colleges of education?

Table 1: Available ICT infrastructures for students' academic record management

Items	Very low	Low	High	Very high	Mean	Standard deviation
Office desktop	12	38	35	45	2.86	0.99
Open software like Access, excel, word	17	32	47	34	2.75	0.99
Office laptop	20	35	39	36	2.70	1.04
Flash drive	14	39	52	25	2.67	0.91
Photocopy machine	20	40	42	28	2.66	0.99
CD-ROM	13	42	52	23	2.65	0.89
Institutions records management software	22	36	43	29	2.61	1.02
External hard disk	19	48	39	24	2.52	0.96
Scanner	23	55	38	14	2.33	0.89
Internet connectivity	38	39	36	27	2.32	1.11
Cloud storage	32	49	32	17	2.26	0.98

The data above represent the responses on the various available ICTs from the two colleges of education. Office desktop had the highest mean of 2.86 followed by open software like access, excel and word with 2.75, then office laptop with 2.70. From the lower end of the mean cloud storage has the least mean of 2.26, followed by internet connectivity with 2.32 and scanner with 2.33.

Research Question Two: To what extent is ICT being used for academic records management in selected colleges of Education?

Table 2: Extent of use of ICT in the management of students' academic records

Items	Rarely	Occasionally	Regular	Very regular	Mean	Standard Deviation
To send scores to students or parents	39(30.0%)	23(17.7%)	40(30.8%)	28(21.5%)	2.44	1.13

For taking decision during meetings	13(10.0%)	45(34.6%)	49(37.7%)	23(17.7%)	2.63	0.89
For comparing students' performance	26(20%)	23(17.7%)	45(34.6%)	36(27.7%)	2.70	1.08
For onward submission to ministry of education or other bodies	15(11.5%)	24(18.5%)	57(43.8%)	34(26,2%)	2.85	0.94
For course scheduling or timetable	13(10.0%)	28(21,5%)	49(37.7%)	40(30.8%)	2.89	0.96
Safe Keeping students records	15(11.5%)	17(13.1%)	55(42.3%)	43(33.1%)	2.97	0.96
To generate result for institution's use	13(10.0%)	19(14.6%)	56(43.1%)	42(32.3%)	2.98	0.94
For students course of study/discipline	14(10.8%)	21(16.2%)	49(37.7%)	46(35.4%)	2.98	0.98
Student's examination records	9(6.9%)	16(12.3%)	69(53.1%)	36(27.7%)	3.02	0.83
For analyzing students grade or CGPA	13(10.0%)	15(11.5%)	57(43.8%)	45(34.6%)	3.03	0.93
For archival purpose	7(5.4%)	28(21.5%)	49(37.7%)	46(35.4%)	3.03	0.88
For students continuous assessment records	10(7.7%)	15(11.5%)	64(49.2%)	41(31.5%)	3.05	0.86
Ease of access when the records are needed	7(5.4%)	19(14.6%)	60(46.2%)	44(33.1%)	3.08	0.84
To generate records for personal use	5(3.8%)	20(15.4%)	54(41.5%)	51(39.2%)	3.16	0.82
For students' admission records	7(5.4%)	15(11.5%)	57(43.8%)	51(39.2%)	3.17	0.84
Students final records or transcripts	8(6.2%)	20(15.4%)	41(31.5%)`	61(46.9%)	3.19	0.92
To generate records for submission to the department	6(4.6%)	7(5.4%)	67(51.5%)	47(36.2)5	3.22	0.76

Looking at the table and the value of the mean for each item on the extent of use of ICT for managing students' academic records, it shows that: to generate records for submission to the department was 3.22, followed by processing of students' final records or transcript as 3.19 and for students' admission records as 3.17. Taking the mean value from the lower ends: to send scores to students or parents was 2.44 as the least was followed by for taking decision during meetings with 2.63.and for comparing students' performance with 2.70.

Research Question Three: How does ICT use impact academic records management in College of Education?

Table 3: Impact of use of ICT in the management of students' academic records

Items	Very low	Low	High	Very high	Mean	Standard Deviation

Generation of students records easily	3(2.3%)	8(6.2%)	28(21.5%)	91(70.0%)	3.59	0..71
Generation of students records quickly	6(4.6%)	5(3.8%)	46(35.4%)	73(56.2%)	3.43	0.78
Ease retrieval of students' records	3(2.3%)	17(13.1%)	34(26.2%)	76(58.5)	3.41	0.80
Ease quick access of students' records	3(2.3%)	14(10.8%)	44(33.8%)	69(53.1%)	3.38	0.77
Increases efficiency of students' records management	9(6.9%)	9()6.9%	35()26.9%	75()57.7%	3.38	0.90
Gather students score quickly	8(6.2%)	11(8.5%)	36(27.7%)	75(57.7%)	3.37	0.88
Gather students score easily	6(4.6%)	8(6.2%)	50(38.5%)	66(50.8%)	3.35	0.79
Increases Institution brand image	8(6.2%)	14(10.8%)	33(25.4%)	73(56.2%)	3.34	0.91
Saves spaces for Storage of students' records	11(8.5%)	11(8.5%)	40(30.8%)	68(52.3%)	3.27	0.94
Helps in quick dissemination of results to students and stakeholders	4()3.1%	28(21.5%)	28(21.5%)	70(53.8%)	3.26	0.90
Helps in frequent use of students' results	7(5.4%)	13(10.0%)	49(37.7%)	61(53.8%)	3.26	0.85
Organize and sort students score easily	4(3.1%)	19(14.6%)	49(37.7%)	58(44.6%)	3.24	0.88
Organize and sort students score quickly	11(8.5%)	11(8.5%)	45(34.6%)	63(48.5%)	3.23	0.93
Storage of students records securely	9(6.9%)	14(10.8%)	45(34.65)	62(47.7%)	3.23	0.90
Increases effectiveness of students record management	9(6.9%)	17()13.1%	43(33.1%)	60(46.2%)	3.19	0.92
It saves costs	15(11.5%)	10(7.7%)	40(30.8%)	63(48.5%)	3.18	1.01
Helps in interpretation of results	9(6.9%)	30(23.1%)	35(26.9%)	56(43.1%)	3.06	0.97
Helps in manipulation of students' records	9(6.9%)	27(20.9%)	44(33.8%)	50(38.5%)	3.04	0.94

The impact of ICT use on the management of students' academic records showed that the highest means are: generation of student records easily 3.59 followed by generation of students' records quickly 3.43; then ease retrieval of students records 3.41 and ease quick access of students records 3.38. From the lower end, helps in manipulation of students' records was the least with 3.04, followed by helps in interpretation of results which is 3.06, then it saves cost 3.18 and increases effectiveness of student's records management 3.19.

Research Question Four: What are the benefits of using ICT for academic records management in selected colleges of education?

The various benefits of using ICT in managing of students' academic records were explored to understand whether it is beneficial or not. The various degree of the benefits were computed into a mean for ease of comparing the benefits.

Table 4: benefits of use of ICT in the management of students' academic records

Item	Strongly	Disagree	Agree	Strongly	Mean	Standard

	disagree			agree		Deviation
ICT reduces time spent in retrieving students' academic records	2	00	41	85	3.63	0.57
ICTs allow for quick presentation of results to various quarters.	2	10	42	74	3.47	0.71
ICTs reduces human errors in calculation of student's result	3	9	44	72	3.44	0.73
ICT saves space hitherto use for keeping hard copy files	5	6	51	66	3.39	0.76
ICT increases effective communication with stakeholders on students' records	4	10	47	67	3.38	0.76
ICT eases/reduces the effort expended In compiling students result	6	12	41	69	3.35	0.84
ICTs allows for proper recording and monitoring of students' records	10	4	46	68	3.34	0.87
ICT prevents loss of students' records	1	21	46	60	3.29	0.76
ICT facilitates quick provision of students' transcripts	12	10	45	61	3.21	0.94
ICT reduces manipulation/changing of results	5	20	53	50	3.16	0.83

From the table 5on benefits of ICT in students' academic records management, it showed that ICT reduces time spent in retrieving students' academic records had the highest mean of 3.63 on a scale of 4. This was followed by ICTs allow for quick presentation of result to various quarters with a mean of 3.47 followed by ICTs saves space hitherto use for keeping hard copy files. On the lower end, the least recorded mean was 3.16 which is ICT reduces manipulation/changing of results, then ICT facilitates quick provision of students' transcripts with a mean of 3.21 and ICT prevents loss of students records with 3.29 as the mean.

Research Question 5: what are the challenges of using ICT for academic records management in selected colleges of education?

Table 5: challenges of use of ICT in the management of students' academic records

Challenges	Strongly disagree	Disagree	Agree	Strongly agree	Mean	Standard Deviation
Erratic power supply	4	13	28	83	3.48	0.80
Inadequate ICT facilities	4	10	49	65	3.37	0.76
Lack of institutional wide accepted software for managing academic records	2	30	41	55	3.16	0.84
Short lifespan of ICT devices or softwares	12	37	43	35	3.11	3.68

Non-availability or poor implementation of institutional policy on use of ICT for managing students' records	4	24	60	40	3.06	0.79
Poor maintenance culture	13	18	46	51	3.05	0.97
Poor internet	17	16	45	50	3.00	1.03
Lack of training on how to use ICT	10	22	55	41	2.99	0.90
Identified poor installation of ICT related facilities	12	26	46	44	2.95	0.96
Lack of ICT skills on the part of record keeping managers	8	33	46	41	2.94	0.91
Apathy on the part of staff	4	34	56	34	2.94	0.81
Lack of support from vendor/technicians/institution	14	29	50	35	2.83	0.96
Students do not register online for their programmes/admission	20	36	41	31	2.65	1.02
Students do not register their courses online	22	41	31	34	2.60	1.06

Looking at the table on challenges faced in using ICT for managing students' academic records, it showed that erratic power followed by inadequate ICT facilities and lack of institutional wide accepted software for managing academic records had the highest mean of 3.48, 3.37 and 3.16 respectively. From the downward sides, students do not register their courses online, was followed by students do not register online their programmes/admission and lack of support from vendor/technicians/institution as the least mean with values of 2.60, 2.65 and 2.83 respectively.

Test of Hypotheses

Hypothesis One: There is no significant difference in the mean of ICT availability in both colleges.

The t-test for significance in the mean of ICT availability of the two colleges of education is computed below:

Table 6: T-test (Independent Samples Test) statistical analysis of mean of ICT availability in the two colleges of education

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Difference	
									Lower	Upper
ICT availabi	Equal variances assumed	1.735	.190	-2.043	127	.043	-2.73501	1.33860	-5.38386	-.08617
	Equal variances not assumed			-2.004	102.119	.048	-2.73501	1.36469	-5.44183	-.02820

From the table above, the Levene test of equality variance significance is 0.190 which is greater than 0.05, therefore we read from the top row. The result showed that degree of freedom is 127 and the 2-tailed significance value for T-test is 0.043 which is less than 0.05 showing that there is a significance difference in the mean value of ICT availability of the two colleges of education. This implies that ICTs infrastructures are not available in the same way in the two colleges of education. The mean level of

availability of ICTs in the two institutions differs to one another. We therefore accept the alternate hypothesis that there is a statistical difference in the mean value of ICT availability in the two colleges of education and reject the null hypothesis.

Hypothesis Two: There is no significant difference in the mean of extent of use of ICT in the management of students' academic records in both colleges. The t-test for significance in the mean of extent of use of ICT in the management of students' academic records in both colleges are computed for below:

Table 7: T-test statistical analysis of mean of extent of use of ICT: Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Difference	
									Lower	Upper
Extent of use of ICT	Equal variances assumed	.139	.710	-1.946	124	.054	-3.33789	1.71506	-6.73247	.05668
	Equal variances not assumed			-1.933	102.484	.056	-3.33789	1.72710	-6.76339	.08760

From the Table 8 above, the Levene test of equality variance significance is 0.710 which is greater than 0.05, therefore we read from the top row. The result showed that degree of freedom is 127 and the 2-tailed significance value for T-test is 0.054 which is greater than 0.05 showing that there is no significance difference in the mean value of extent of use of ICT or managing students' academic records in the two colleges of education. This implies that the extent of use of ICTs for academic records management in the two colleges of education does not differ from each other. We therefore accept the null hypothesis that there is no significance difference in the extent of use of ICTs for managing students' academic records in the two colleges of education. The alternate hypothesis is thereby rejected.

Discussion of Findings

The overall response rate for the questionnaire was 74.7% for the two set of staff that were involved. On the basis of their categorization as academics and non-academic staff, the ration rate showed 67.6% to 79.2%. This could be attributed to the fact that academic lecturers are very busy in Nigeria tertiary institutions. On the extent of use of ICT for academics' records management, using a Likert scale of four levels and the mean value being two. The mean responses gathered from the analysis of the questionnaire showed that all the items score above mean of two which can be regarded as use to a considerable extent. Ten out of the 17 items tested for, score mean values that is above three and this showed that ICT was used to a great extent in managing student's academics records. This is agreement with the assertion of Abdulrahman (2015) that technology can be used for students' administration including admission records, academic performance/records. The greatest use as indicated by the mean value to generate records for submission to the department and followed by students' final records or transcripts. This showed that colleges of education in Kwara state are using ICT infrastructures very well for managing of their student's records. The two highest mean items showed that students' records are generated and kept till when the transcript will be needed. The least mean score was to send scores to parents or students with a mean that is well above two; this implied some level of usage. The high use of ICT for academics' records management contradict the result of Choji (2012) that students management system is not yet being greatly used amidst higher institutions in the third world country like Nigeria .

Looking at the impact of ICTs on the management of students' academic records, 18 items were computed for to determine their mean. The highest mean recorded was generation of students records easily with a mean of 3.59 this showed a great impact of use of ICT on management of students' records. For an item to be 3.50 out of a mean of 4, it is highly impactful. All the items tested for under impact of ICTs use for managing students records score above 3.0 with the least being 3.04. Generation of students' records easily was also followed closely by generation of students' records quickly showing that ICTs have had good impact in-terms of speed and ease of generating records of students. Looking at the 18 items tested for, one can then say that ICTs usage in management of students' records has brought a high level of efficiency and effectiveness to the administration of students' academic records.

Considering the various benefits that could accrue from the use of ICT for managing students' records, ten items were considered as benefits and rated on a Likert scale of 4. The various itemized benefits showed a mean value that is above 3 ranging from 3.16 the least to 3.63 which is the highest mean value. This collectively showed that respondents are having a high level of benefits from use of ICTs for managing students' academic records. The greatest benefit recorded was ICTs reduces time spent in retrieving student's academic records. The lower the time required to retrieve students' academic records the better for the students, staff and the institution at large. Quick presentation of the results was also rated very high as 3.47, this confirms the highest rated benefit that speed is a great benefit in the use of ICT for managing students' records.

Challenges to the use of ICTs in academic records management in selected colleges of education was computed for. The range of mean value for all the 14 items tested as challenges is 2.60 as the least to 3.48 as the highest. This showed that despite the various benefits derived there are lots of challenges being faced by the respondents in the use of ICT for managing students records in the two selected institutions.

Conclusion

The following are the conclusions drawn from this study based on the findings of the study. The era of non-availability to low-level of availability of ICT infrastructures in Nigerian tertiary institution is becoming a thing of the past. There is relatively a high level of availability of these infrastructures in sampled tertiary institution. ICT has become so popular in awareness and usage in the colleges of education in Nigeria. The extent of use of ICT for managing students' academic result showed a great level of usage. The impact of ICT in managing students' academic records can be described to be very high among the staff of colleges of education. All the management effect was found to be very high. ICT was found to bring about improved speed, ease of retrieval of students' academic records, increasing efficiency, saves spaces and cost, organizing and manipulating student records comes easily with use of ICT. Other benefits identified are: increased efficiency on the management of student's records, reduces efforts expended, gives room for proper monitoring of students' records, reduces loss of students' records, reduces manipulation of results and make provision of transcript ready on time. Tertiary institutions in Nigeria are still facing a lot of challenges today in the use of ICT for managing students' academic records. Major challenges include erratic power supply, inadequate ICT facilities, lack of institutional wide accepted software for managing academic records and short lifespan of ICT devices and software. Other challenges include poor installation and lack of training, poor maintenance culture, apathy on the part of staff, lack of support from vendor, technician or institution and absence of online means of registering of students and their programmes.

Recommendations

Based on the conclusion of this study, the following are some recommendations.

1) ICT infrastructures like cloud storage and internet connectivity should be enhanced for availability. This will enable staff of colleges of education to have better platforms to work with. Internet in this age is a basic requirement in educational settings and so it must be improved upon.

2) Open software like access, excel and word are the major available ICT infrastructures, there is the need to include and purchase institutional wide software for managing students' academic records. The availability of this institutional wide software will allow for one platform of results presentation and sharing while at the same time storage will be more central and can easily be coordinated.
3) Colleges of educations should work more on the aspect of sending results to parents and students as this will enable the students to know their academic performance on time and prepare better for future semester. Sending the results to parents will at the same time give information to parents on the status of their wards, academic performance and know where to assist their children for better success.
4) Colleges of education should keep up with the extent of use of ICT for managing students' academic records while they improve on those areas that are a little bit low.
5) Colleges of education should look at some other benefits that can be derived from use of ICT for managing students' academic records while they maintained the present level of impact. There are some of the areas that need improvement; this should also be looked into to get maximum benefit from the use of ICT for managing students' academic records.

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