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Application of Education Information Management Support Tools in the Promotion of Teaching/Learning and Management of Students' Performance in Federal Universities in the South-South Zone of Nigeria

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Abstract
The study investigated the application of education information management support tools in the promotion of teaching/learning and management of students' performance in federal universities in the South-South zone of Nigeria. Two research questions and two null hypotheses guided the study. The study adopted a descriptive survey design. The population of this study comprised all the 6 federal universities in the South-South region of Nigeria with 960 senior ICT academic staff and 210 senior ICT non academic staff. The sample of this study consisted of 234 staff made of 192 academic and 42 non-academic staff that was randomly drawn from the 6 federal universities in the south-south region of Nigeria. The sample constitutes 20% of the total population. Self structured instrument titled Education Management Information Support Tools in the Management of Students Performance Questionnaire (EMISTMSPQ). The instrument was structured after the modified four point rating scales. Face and content validities were ensured by experts in the area of information communication and technology. A reliability coefficient of 0.81 was established using cronbach alpha reliability method. Mean was used to answer the research questions while z-test was used to answer the null hypotheses. It was found out among others that teaching and learning can be enhanced through bulletin board, complementing course contents, posting assignments to studentsonline, posting students' grades, encouraging interaction and collaboration, facilitating researches, using blog postings by teachers to solve problems and arouse thinking skill, providing forum where teachers and students meet to interact on-line and so on. It was recommended that the universities in the south-south region should brace up with the best and current global practices by completely integrating university management into the mainstream of EMI-based scheme of doing things.

1. Introduction

In today's globalized university education system, quality is no longer measured only by a number of staff employed, funds, facilities, equipment, research and instructional materials available or acquired but also by the height of technological exposure and technologies put in place to drive, facilitate and support quality education and the entire system.

Basically, Education Management Information (EMI) for short focuses on generating information (a set of processed data) that the management of universities and other users need to perform their jobs in educational setting. Marriot (2011) defined Education Management Information (EMI) as a system that generates accurate, timely and organizes information so that education managers and other users can make decisions, solve problems, supervise activities, track and evaluate progress in an educational setting. Curtis and Cobham (2009) defined education management information (EMI) as any system that provides information for the management activities carried out within an educational setting. McNurlin and Sprague (2012) perceived EMI as a computerized system designed for generating essential information in order to aid school managers and other users perform their duties for educational development and improvement. Mariott (2011) defined it as a system that generates accurate, timely and organizes information so that education managers and other users can make decisions, solve problems, supervise activities, track and evaluate progress. It is therefore a system for organizing information base in a systematic way for the management of educational development. It is responsible for collection, processing, analyzing, publication, distribution, rendering information services for users of educational information.

Njoku (2006) stressed that the goals of university education will not be achieved if the continuing decline in quality of the university graduates is allowed to persist. Thus, EMI as a system has a clear specified objective of producing information for management of educational activities such as financial computation and record, staff and students' information management, teaching and learning, researches, publication of notice, decision making and so on (Curtis & Cobham, 2009). According to De Jong (2005), education management

information can be facilitated through a support tool called blackboard learning system. It is basically a learning-driven system. It can be used to communicate announcements, chats, discussion, and mails. Basically, EBLS has the following contents:

(i) Course content: This feature allows lecturers to post articles, assignments, videos and so on.
(ii) Calendar: Lectures can use this electronic platform to post due dates for assignments and tests.
(iii) Learning Modules: This feature is often used strictly for online classes. It allows lectures to post different lessons for students to access.
(iv) Assessments: This electronic platform allows lecturers to post quizzes and exams and allows students to access them via the internet.
(v) Assignments: This feature allows for assignments to be posted and for students to submit assignment electronically.
(vi) Grade Book: Lecturers may post grades on the blackboard for students to view.
(vii) Media Library: Videos and media may be posted under this feature (De-Jong, 2005).

Search Engines: Tsetimi (2014) observed that the Internet which started as a military experiment in the cold war era has evolved into a network of networks with a plethora of information in diverse fields or subject areas. There is information on virtually all fields of human endeavours on the Internet. Search engines assist with information retrieval on the World Wide Web. Examples of Search Engines are; goggle.com, mamma.com, bing.com, yahoo.com, ask.com, msn.com, etc. Search engines have the ability to collect information from online libraries, databases and websites on specific subject matter that can be adapted by the teacher. This EMI tool gives the teacher varied information for flexibility in lessons as various examples can be drawn from the Internet that can help the students to grasp the salient points of each lesson. Online libraries have vast store of books and other multimedia courseware which can be accessed by search engines to enhance teachers' performance. The learner or student can also exploit search engines as an EMI tool for projects, home-works and assignments. Hence both teacher and student alike are actively involved in the acquisition of knowledge using search engines on the Internet.

The definition for students performance focused on curricula achievements, skills, competences, attitudes, etc. and their outcome on the labour market because the outcome of education are mainly validated in the labour market (Youssef, 2008). Yusuf (2005) asserted that the average students who use EMI tools learned more in less time and had liked their classes when it was ICT based-instruction. Henderson.

2. Statement of the Problem

Across the globe, concerted effort is now being deployed by management to ensure that the university education is positioned and managed in a most professional, productive and efficient way that reduces cost, costly errors, wastage of time and sudden increase ranking position in the world.

As a result of the explosive growth in university education system, the use of old approach characterized by paper or face–to–face based information collection, storage, processing, retrieval, transmission, tracking, sharing and exchange with a near-zero resource wastage reduction seems not to be fizzling out of the university management. Again the general attitude of record keeping and difficulty in retrieval of data on time, academic related activities and researches seem not to be different as they are equally being organized in the same way with the same old approach, or with little EMI inputs, thereby creating a high deficiency in information capacity assessment in management situation where paper or face–to–face based practices are still domineering and supreme. Consequently, costly damages are done to the members of university community due to unwanted delays associated with paper-based administrative activities such as circulation of memos for authorization, directives, and instructions, among others. Academically, students are still being exposed to undue stress as they struggle to learn in over-crowded classrooms, where lecturers have to shout on top of their voices instead of using EMI support tools such as electronic bulletin boards or at least e-learning platforms, which will result in achieving the educational targets and outcome.

The thrust of this study therefore bothers on ways the application of EMI support tools would promote teaching/learning, how education management information support tools can be applied in the management of students' performance, and how world educational management information can be applied to prevent time wastage in management of universities.

3. Aim and Objectives

The aim of this study is to investigate ways Education Management Information (EMI) can be applied in the management of Federal Universities in the South-South Zone of Nigeria. Specifically, the objectives are to:

1. Find out how the application of EMI supports tools can promote teaching and learning in federal universities in the south-south zone of Nigeria;
2. Determine how EMI support tools can be applied in the management of students' performance;

4. Research Questions

The following research questions guided the conduct of this study:

1. In what ways do the application of Education Management Information support tools promote teaching and learning in federal universities in the south-south zone of Nigeria?
2. Does education management support tools be applied in the management of students' performance in federal universities in the south-south zone of Nigeria?

5. Hypotheses

The following hypotheses tested at 0.05 level of significance will guide the conduct of this study:

Ho_1. There is no significant difference between the mean ratings of university academic and non-academic staff on ways application of education management information support tools can promote teaching and learning in the federal universities in the south-south zone of Nigeria.

Ho_2. There is no significant difference between the mean ratings of university academic and non-academic staff on how education management information support tools can be applied in the management of students' performance in the federal universities in the south-south region of Nigeria.

6. Methodology

The study adopted a descriptive survey design. The population of this study comprised all the 6 federal universities in the South-South region of Nigeria with 960 senior ICT academic staff and 210 senior ICT non academic staff. The sample of this study consisted of 234 staff made of 192 academic and 42 non-academic staff that was randomly drawn from the 6 federal universities in the south-south region of Nigeria. The sample constitutes 20% of the total population. Self structured instrument titled Education Management Information Support Tools in the Management of Students Performance Questionnaire (EMISTMSPQ). The instrument was structured after the modified four point rating scales. Face and content validities were ensured by experts in the area of information communication and technology. A reliability coefficient of 0.81 was established using cronbach alpha reliability method. Mean was used to answer the research questions while z-test was used to answer the null hypotheses.

7. Results

The results of the findings are presented as shown below.

Research Question 1: In what ways does the application of education management information support tools promote teaching and learning in federal universities in the south-south zone of Nigeria?

Table 1 Mean (x), Standard Deviation and Rank Order Statistics on ways EMI Support Tools can Promote Teaching and Learning in Federal Universities

		Academic Staff: N = 192		Non-Academic Staff: N = 42		Mean set	Rank Order	Decision
S/N	Items	$\bar{X}^1$	SD	$\bar{X}^2$	SD	$\frac{\bar{x} + \bar{x}}{2}$		
1	Electronic bulletin board can support teaching	2.98	0.84	3.26	1.01	3.12	10th	Agreed
2	Electronic blackboard learning system can complement course content	3.19	1.10	3.00	0.62	3.10	11th	Agreed
3	Assignment posted to students on-line can promote teaching and learning	3.23	0.86	3.48	0.83	3.36	5th	Agreed
4	Posting student's grades on-line for them to view can promote their interest in learning	2.97	1.07	3.69	0.60	3.33	6th	Agreed
5	Search engine can encourage interaction and collaboration	3.21	1.05	3.33	0.98	3.27	9th	Agreed
6	Search engine can facilitate researches that allow interactions	3.30	1.06	3.55	0.71	3.43	3rd	Agreed
7	Search engine can help to enhance teaching and learning	3.26	0.74	3.38	0.76	3.32	7th	Agreed
8	Blog postings can facilitate learning in Universities	3.21	1.06	3.74	0.63	3.48	2nd	Agreed
9	Teachers and students can use blog postings to solve problems and arouse thinking skill	2.96	1.25	3.24	1.07	3.10	11th	Agreed
10	E-learning application can provide forum where teachers and students meet to interact on-line	3.44	0.78	3.52	0.74	3.48	2nd	Agreed
11	Power point can be a useful tool that quickly supports digital presentation for effective teaching	3.46	0.84	3.67	0.90	3.57	1st	Agreed
12	E-mail platform can enable teachers to reach their students anytime	3.23	0.93	3.36	0.90	3.30	8th	Agreed
13	Microsoft access/database soft-ware can be useful tools to promote configurations	3.39	0.86	3.26	0.91	3.33	6th	Agreed
14	Computers and the internet can highly be necessary in the university teaching and learning process	3.26	0.75	3.59	0.70	3.43	3rd	Agreed
15	On-line library facilities can facilitate students' researchers	3.17	1.05	3.67	0.65	3.42	4th	Agreed
	Grand mean	**3.22**	**0.95**	**3.45**	**0.81**			

Table 1 reveals that all the items had their calculated grand means values above the criterion of 2.50. This result therefore indicates that EMI support tools can promote teaching and learning in the following ways: promoting bulletinboard support teaching and learning, compliment course contents, po sting assignments to the students, posting students' grades; encouraging interaction and collaboration, facilitating researches, enhancing search-engines assisted teaching and learning, facilitating blog-postings-based learning, using blog postings by teachers to solve problems and arouse thinking skill and providing forum where teachers and students meet to interact online.

Research Question 2

How does education management information support tools be applied in the management of students' performance in federal universities in the south-south region of Nigeria?

Table 2: Mean ($\bar{x}$), standard deviation and rank order statistics on how EMI support tools can be applied in the management of students' performance in federal universities.

		Academic Staff: N = 192		Non-Academic Staff: N = 42		Mean set	Rank Order	Decision
S/N	Items	$\bar{X}$	SD	$\bar{X}$	SD	$\frac{\bar{x} + \bar{x}}{2}$		
1	Electronic platforms can improve self-paced learning capacity	3.39	1.00	3.05	1.01	3.22	11th	Agreed
2	EMI can improve communication skills for better performance	3.15	0.82	3.12	0.86	3.14	12th	Agreed
3	EMI can support increased hands on activities for good performance	2.99	1.09	3.48	1.77	3.24	9th	Agreed
4	Virtual mode representation can aid performance	3.06	0.97	3.57	0.80	3.32	8th	Agreed
5	E-learning platform can impact heavily on resource – based learning	3.07	1.09	3.38	0.99	3.23	10th	Agreed
6	Electronic platform can motivate students' learning capacities	2.97	1.12	3.69	0.71	3.33	7th	Agreed
7	EMI support tools can give students more control over their academic performance	3.07	0.91	3.40	0.91	3.24	9th	Agreed
8	Electronic platform can give opportunity to multi-media experiences that shape outcomes	3.20	0.94	3.48	0.71	3.34	6th	Agreed
9	EMI support tools can enable students' participation in learning activities that improve performance	2.99	0.95	3.02	0.98	3.01	13th	Agreed
10	EMI can allow students to learn independently	3.50	0.77	3.69	0.64	3.60	3rd	Agreed
11	Spreadsheet application can enable students' statistics analysis with ease	3.57	0.74	3.64	0.79	3.61	2nd	Agreed
12	Social media like face book or twitter handle can facilitate performance	2.83	1.96	3.17	0.85	3.00	14th	Agreed
13	Facebook can be used by teachers to reach their students	3.43	0.74	3.64	0.66	3.54	4th	Agreed
14	The use of student bar-code readers in the library can aid management of students' performance	3.22	0.02	3.62	0.70	3.42	5th	Agreed
15	Microphone can enhance classroom teaching and learning activities	3.56	0.72	3.74	0.63	3.65	1st	Agreed
	Grand mean	**3.20**	**0.86**	**3.45**	**0.80**			

Table 2 shows that all the items had their weighted grand mean values above the criterion mean of 2.50. This result therefore indicates that the following are ways EMI support tools can be applied in the management of students' performance: improving self-paced learning capacity, communication skills, supporting increased hands-on activity, enabling visual mode representation, impacting heavily on resource -based learning for better performance, motivating students' learning capacities, giving students more control, opportunity to multi-media experiences that shape outcomes and allowing students to learn independently.

Hypotheses 1

There is no significant difference between the mean ratings of university academic and non-academic staff on ways application" of education management information support tools can promote teaching and learning in the federal universities in the south-south region of Nigeria.

Table 3: z-test Analysis of University Academic and Non-Academic Staff on Ways Application of EMI Support Tools can Promote Teaching and Learning in Federal Universities.

Variables	N	$\bar{X}$	SD	Z-cal.	Z-cri.	DF	Level of significance	Decision
Academic staff	192	3.22	0.95	1.61	1.96	232	0.05	HO_1 Accept
Non-academic staff	42	3.45	0.81					

Table 3 show that the z-calculated value is 1.61 while z-critical is 1.96 at 0.05 level of significance. The degree of freedom is 232. Since z-calculated volume is less than z-critical, the null hypothesis is accepted. Therefore, there is no significant difference between the mean ratings of university academic and non-academic staff on ways application of education management information supports tools can promote teaching and learning in federal universities in the south-south region of Nigeria.

Hypothesis 2

There is no significant difference between the mean ratings of university academic and non-academic staff on how education management information support tools can be applied in the management of students' performance in federal universities in the south-south region of Nigeria.

Table 4: z-test Analysis of University Academic and Non-Academic Staff on how EMI Support Tools can be Applied in the Management of Students' Performance in Federal Universities.

Variables	N	$\bar{X}$	SD	Z-cal.	Z-cri.	DF	Level of significance	Decision
Academic staff	192	3.20	0.86	1.81	1.96	232	0.05	$H0_2$ Accept
Non-academic staff	42	3.45	0.80					

Table 4 reveals that the z-calculated value is 1.81 while z-critical is 1.96 at 0.05 level of significance. The degree of difference is 232. Since z-calculated is less than z-critical (that is, 1.81< 1.96), the null hypothesis is accepted. Thus, there is no significant difference between the mean ratings of university academic and non-academic staff on how education management information support tools can be applied in the management of students' performance in federal universities in the south-south region of Nigeria.

8. EMI Support Tools and the Promotion of Teaching and Learning

The result of findings on research question revealed that EMI support tools can actually promote teaching and learning in federal universities in south-south region of Nigeria in a number of ways. These include promoting bulletin-board-support teaching and learning, an electronic platform where academic interactions between the lecturers and the students are highly encouraged anytime anywhere and in which giving, submitting, grading of assignments, awarding of their scores for students to access on-line and so on are possible and very easy. Similarly Tsetimi (2014), Moore, Dickson-Dean & Galgen (2011) and Curtis and Cobham (2009) found that EMI tools such as search engines blogs, e-learning applications, PowerPoint, e-mail, computers, their software as well as communication networks can generate vital information for organizing and implementing academic activities.

9. EMI Support Tools and the Management of Students' Performance

The result of findings on research question two showed that EMI support tools have the capacity to support and facilitate the management of students' performance in a variety of ways. As revealed by the result, EMI support tools can improve self-paced learning capacity, which means encouraging student-centered learning as opposed to teacher-centered one that may not allow the evolving of full students' learning capacity that permits better academic performance. The result is also buttressed by the study of Gilbert, Simon & Lois (2011) which discovered that there exist a significant relationship between the application of EMI-based scheme and academic and administrative centered quality assurance.

10. Conclusion

It is appropriate to conclude in line with the result of findings that the application of EMI support tools cannot only promote effective teaching and learning in our universities but also have the capacity to manage students' performance effectively.

11. Recommendations

Based on the conclusion of the study, the following recommendations were made:

1. The universities in the south-south region should brace up with the best and current global practices by completely integrating university management into the mainstream of EMI-based scheme of doing things.
2. Federal government should prioritize the full integration of EMI-based scheme into teaching and learning as well researches so as to give our universities competitive advantages over other universities.

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