ICT use in Mathematics Related Classroom Practices: A case of Bayero University, Kano-Nigeria

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Abstract
The Nigerian National University Commission [NUC] the government agency responsible for registering and regulating universities, has prescribed personal computer (PC) ownership for universities as follows: one to every four students, one PC to every two lecturers below the grade of lecturer I, one PC per senior lecturer, and one notebook per Professor/Reader. This study aims to examine the extent of ICT use in Bayero University, kano-Nigeria with reference to Mathematics related classroom practice. It employs the Data Envelopment Analysis (DEA) as its method of study. The population sample was drawn from the pool of 1127 lecturers in the eight faculties in the University namely, Engineering, Agriculture, Arts and Islamic Studies, Education, Law, Medicine, Sciences and Social and Management Sciences. A total of 280 lecturers were proportionally selected across the faculties. Questionnaire was used to gather data in order to answer the research questions. Frequency count, Mean and Standard deviation were used to answer the research questions. Findings of the study showed that there is less/little utilisation of ICT facilities in Mathematics related classroom practice among the lecturers across thefaculties. The finding also revealed thatfaculties of FAIS, Law and Medicine have the highest utilisation means more than the other faculties. The study recommended that the University should provide reliable wireless service and stable power supply to the departments and CIT centre. This indeed requires supports from donors or cooperate organisations. The University and other interest body should design a portal where staff can reach students very easily as in other western universities.The new technology is already affecting and transforming the whole field of education, there is need for mathematics teachers to be a part of this transformation and provide the best e-learning environment to their students.

Introduction
Indeed, the use of ICT in education and training has been a key priority in most developing and developed countries, although progress has been unequal. ICT has had a major impact on the education sector, on organisation, Information management and on teaching and learning methods. There are considerable differences in ICT expenditure levels within and between countries, as well as between institutions within countries and equally between faculties or departments within institutions. In some Institutions they have embedded ICT into the curriculum, and demonstrate high levels of effective and appropriate ICT use to support teaching and learning across a wide range of subject areas. However, in other Institutions they are in the early or infancy stage of adopting ICT, characterised by emphasis on enhancements of the learning process, some developments of e-learning (ICT-enabled learning), Information management system but without any profound improvements in learning and teaching (Balanskatet al., 2006).
One important question concerns the effective impact of these technologies on mathematics and mathematics related classroom practices in BayeroUniversity, Kano-Nigeria.

As ICTs are being increasingly used in the University, indicators to monitor their impact and demonstrate accountability to funding sources and the public are ever more needed. Indicators are required to show the relationships between ICT useand its impact in Mathematics related classroom practices.It is also important to note that education and mathematics should be seen as using technology not only as an end in

itself, but as a means to promote creativity, empowerment and equality and produce efficient learners and problem solvers in general and mathematics in particular.Accordingly, the purpose of the paper is to discuss ICT utilisation and ICT's impact on mathematics related classroom practices with reference to Bayero university, kano-Nigeria. Moreover, an empirical application of a modified DEA model measuring the utilisation of ICT in Mathematics related classroom practices was considered, with a special focus on ten (10) variables. In this context, the Data Envelopment Analysis (DEA) model is presented and then applied to Eight (8) faculties in Bayero University, Kano.

The paper is structured as follows:Introduction, a brief survey of the literature relating to ICTs and their impact on mathematics education, then the methodology is established and the specifications of the models are defined. Then the results of the ICT utilisation analyses were presented using Mean, Standard deviation and Frequency counts in order to assess the utilisation of ICT on Mathematics teaching and learning processes. Finally, the paper provides concluding remarks and some recommendations.

Literature Review

There are some number of initiatives assessing and monitoring the efficiency of ICT use and its impact on education. The work of Merseth (1996) on print-based cases opens up the use of videotaped episodes as cases for study and reflection in education. Contrary to text books, the use of video offers teachers and students the opportunity to listen to real student voices and provides pictures of classrooms context. The uses of videotapes usually stimulate discussions and focus on reflection, decision-making, and analysis, consequently facilitate changes in thinking about teaching in general and Mathematics in particular. Videotapespresentation demonstrated student-centred, manipulative-based, problem solving approaches to teaching mathematics Lisa and Susan (2005) that are different from the face-to-face (traditional) teaching method. The International Association for the Evaluation of Educational Achievement (IEA) sponsored a study which identifies and describes the educational use of ICT across 26 countries in the world. The study explores the use of computers in teaching through sampling teachers, principals and ICT responsibility in schools. It does not examine students'achievement;rather it observed the perceived impact of ICT on students from the teacher's perspective (Kozma, 2003). In additionIqbal, and Ahmed (2010) argue that, in order to be successful, a country should improve its education system by implementing effective and robust ICT policies. While Gulbahar (2008) study's in Belgium examined the efficiency of utilising ICT resources for educational outputs and outcomes and the impact of ICT on education.

More ever Gupta and Verhoeven (2001) measure the efficiency of education inAfrica using the Data Envelopment Analysis (DEA) method. Looking at the literature a cross-faculties' analyses have rarely been used for ICT policy analysis particularly in Mathematics subject; the present research attempt addresses this gap in the literature.

Use of ICT in Mathematics

The Federal Government of Nigeria recognize that along with national ICT policies teachers and students need education or training in new ICT skills if they are to function

in the changed global environment. As a result, Ministries of Education and the National University Commission have adopted, or are in the process of adopting, reframed national education, Benchmark for Minimum Academic Standard [BMAS] for Universities in Nigeria and curriculum policies.

The new kind of skills required is driven in large part by the exponential growth of information in stock around the world. As a result of that teachers and students need to develop information literacy and other related skills to search for information from these seemingly unlimited sources on the internet, to evaluate this information and to select accurately from it. There is a phenomenal increase in the use of mobile phones in Nigeria and across the world. The International Telecommunications Union (ITU) estimates there were 4.6 billion mobile cellular subscriptions worldwide at the end of 2009, which was described as "the mobile miracle" (ITU, 2010). Newer mobile or smartphones, as they are called, are now used not only to chat and send text messages including images and video but also to deliver everything from internet searches, to sending and receiving mail, calculation of business divided, Geometric and Algebraic problems and use of digital or binary code.

These advances in ICT facilitate teachers' effectiveness in Mathematics and ease teaching of Mathematics. The quantitative nature of information makes it necessary to device digital or binary code to express its amount in number. The number allows the possibility of passing the information to a communication channel and scoring it in machines with a memory. This illustrates the significance of Mathematical knowledge in ICT.

More so computer makes use of Mathematical signs and symbols for its functional operation such signs and symbols are m=n, R (x, y)=1-$e^{-21(xy)}$as well as exact values of results of measurements of physical quantity in order to minimize or avoid error through approximating or changing the observed number. Kaput (1992) discovered the role of technology in Mathematics education as a newly active volcano as a Mathematics mountain, changing before our eyes, with myriad forces operating on it and within it simultaneously. Computer is used to sort out shapes, numbers, explore simple simulation or game to discover the Mathematical relationship under it. Through ICT learners are also able to obtain diagrams, graphs, tables, charts, pictures, mathematically oriented video chatting, create geometric patterns and devising sequence of instructions with assistant of robot. Generally ICT help to develop in the leaners Mathematical vocabulary, logical thinking , problem solving skills, communication skills, numeracy and literacy skills, self-evaluation skills, social and cooperative skills, physical skills and world of work.

The use of ICT in classrooms, lecture theatres and teaching laboratories bringing about changes in the way teachers teach and how students learn. Resta and Patru (2010)describehow teachers' roles are changing as a result of implementing ICT in their classrooms that equally hold in Mathematics teaching and learning. For instance, there is a shift in the role of Mathematics teachers and learners as illustrated in tables 1 and 2below.

Table 1: **The use of ICT in Mathematics Classroom brings about changes in teacher roles**

	Changes in Mathematics teachers' role	
S/N	**A shift from**	**To**
1.	Knowledge transmitter	Learning facilitator, collaborator, guide, helper and mentor
2.	Primary source of information	Knowledge navigator and co-learner.
3.	Teacher controlling and directing all aspects of learning.	Teacher giving students more options, responsibilities and alternatives for their learning.
4.	Mathematics in a classroom context	Mathematics in real life
5.	Teacher-centre assessment	Learner-centre assessment

The role of Mathematics teacher changes as a result of the new technology from knowledge authority to mentor of students' learning. Mathematics teacher can now use ICT to bring out the best performance from his students in guiding them to search from internet, simulates, videoconference topics and many others.Nyirenda (2012) cited Esuvath said that; "I obtain new updated information, comparing to books which are often out-dated. Moreover, through internet I may be able to obtain a three dimensional diagram, picture or videos of the topic I am interested in, which can help me to have an in-depth understanding of the concept. Moreover, interaction with the computer has been very interesting, and helped me to learn more concepts than what is required in class." At the same time as teachers' roles are changing as a result of the use of ICT, so also the roles of students change, as seen in Table 2below.

Table 2: **The use of ICT brings about changes in Mathematics students' roles**

		Mathematics students roles
S/N	A shift from	To
1.	Passive receivers of information	Active participant in the learning process
2.	Reproducing knowledge	Creating and producing knowledge
3.	Learning as a solidarity activity	Learning cooperatively and collaboratively with others.
4.	See Mathematics in a classroom only	Mathematics in a real life activity
5.	Teacher-centre assessment	Self and peer assessment

Studentsduring mathematics learningare likely to participate in virtual navigations and be active researchers, searching the internet for information to write assignments, projects, communicating through email with students and teachers in other schools. Video conferencing sessions usually improved students' academic performance, including gaining confidence in presenting Mathematical arguments, critical thinking, utilization of computers, improved problem solving and language skills, skills on sharing

ideas, and encouraged independence in learning.The use of ICT in Mathematics classroom besides providing active collaboration between students and lecturers through group discussions, chat rooms, exercises

and writing assignments or projects, it also facilitate a way of tracking the history of changes or modifications in lecture materials and synchronization between changes made by different teachers of the same topic.

More ever,examples ofvideo instructional activities are found in web site such as an illustrative video on**Argument A**: It would be much harder to swim to the other side of the river in the fast-moving water as in still water. **Argument B**: It would be just as easy to swim to the other side of the river in the fast-moving water as in still water. However attempt by any studentto answer it result from different assumptions, critical thinking and problem solving efforts, thus creating a real mathematical argument.

Therefore the use of ICT in education and Mathematics education in particular carry with it a lot of merits ranging from improving students' achievement and interest or attitude in Mathematics, develop teaching and learning strategies, improve curriculum relevance and usefulness as well as to making teaching and learning of Mathematics real and practical.

Statement of the Problem

A lot of computer and ICT benefits were enumerated above but still computer literacy is not well acquired so also many schools and people do not have the computers. Fundamentally, "e-Mathematics" was developed by the Media Education Centre. In the project electronic library of mathematical tasks is created, where solutions and algorithms of logical, algebraic, geometric tasks are presented and placed on the Internet. The portal helps students and teachers to develop their logical reasoning and step out to a broader information field. This is an ignition to students' achievement, use of ICT tools and a challenge to the Mathematics curriculum in meeting the demand of new technology especially at University level. However the National University Commission (NUC) and the Management of Bayero University, Kano-Nigeria have been marry the new technology provide fund and computers to all lecturers in the University for their personal and professional development. Again the university with support of a philanthropist's Nura Imam, McArthur's foundation among others establish CIT centre for research and academic development, consultancy services, multimedia and web design. This study examined the use of ICT in Bayero University, Kano-Nigeria with reference to Mathematics Related Classroom Practice. Specifically the study intends to find out the extent to which Mathematics Related ICT facilities are used by the lecturers across the faculties in the University.

Objective of the study

This study is aimed at achieving the following objectives:

[a] To investigates the use of ICT in Bayero University, Kano-Nigeria

[b] To find out the use of ICT in Mathematics Related Classroom by the lecturers.

[c] To determine the way of enhancing the use of ICT gadgets in Mathematics teaching and learning.

Research questions

[a] To what extent ICT gadgets actually been used inBayero University, Kano-Nigeria?

[b] AreICT gadgets mostly utilised by lecturers for Mathematics Related Classroom Practice?

[c] How can the use of ICT devices be promoted in Mathematics Related Classroom Practice?

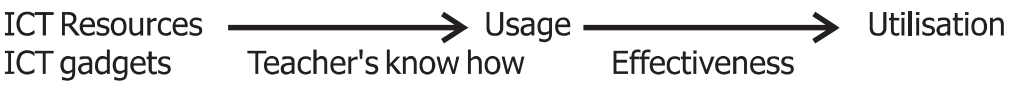
Methodology and Data

The evaluation of utilisation of ICT resources generally requires: (a) an estimation of what is to be used; (b) an estimation of the extent of utilising it; and (c) a comparison between the two. Applying this concept to ICT utilisation, the writer argues that ICT utilisation is effective when, given what is to be utilised, it is uses to the mostpossible benefit of the target

user.At time utilisation is defined in a degree form: the extent to which a particular resource is used in a given situation/context. If a given ICT resource X used by a Teacher Y is above average, then ICT resource X is considered more utilised.

Figure1below shows the relationship between ICT resource, Usage and utilisation, as indicators of effectiveness. The ICT resources and the determination to use the ICT resources lead to utilisation or un-utilisation of the resources. For example using E-mail to send and receive students' assignment determines the teacher usage of ICT resources. The ICT Resource-Utilisation frequency is the criteria of evaluating ICT utilisation.Taking into consideration productivity measurement, the utilisation idea holds that the greater the utilisation of an ICT resource the more effective the utilisation of the resource become. On the other handthe lower the utilisation of an ICT resourcethe more ineffective the utilisation of the ICT resource. Productivity analogy here is trying to illustrate the extent to which an ICT resource is utilised by Teacher Y.In other words Utilisation relates the ICT resource to its uses as illustrated in the figure below.

Figure1.



As has been stated somewhere above Data Envelopment Analysis (DEA) model was used by Gupta and Verhoeven (2001) to measure the efficiency of education in Africa. The model is a non-parametric analysis technique developed by Charnes et al. (1978) that compares similar entities described by a common set of multiple numerical attributes. In this studythe DEA model is modified and appliedto categorised entities into "effective utilisation" and "ineffective utilisation". Effective utilisation is the degree of utilisation above average point scale. Ineffective Utilisation shows the degree to which ICT resourcesuses fall short of averageeffective utilisation practice. If a particular lecturer increase his ineffective uses of ICT resources by effectiveness levelhe can become effective with highest/perfect effective utilisation score of 4 or correlation coefficient of one rather than ineffective utilisation score of one or insignificant

correlation coefficient below 0.5. The criterion for categorisation is determined by assigning value point to the utilisation options. For example 'effectively or mostly utilised' is scored 4, 'Often used or utilised' is scored 3, Less used or utilised' is scored 2 and 'Not used or utilised at all' is scored 1.However subjecting the analysis to Non-parametric method (correlation method) to become effective one must obtain an effectiveness correlation coefficient scoreof one similar to highest mean score of 4 demonstrated in this paper.

In this analysis the data set to evaluate the utilisation of ICT resources includes:(1) Using computer to teach my subject(2) Posting students' assignment via website(3) Using computer for simulation, games, tutorial and demonstration(4) Sending and receiving e-mail messages for personal and professional uses(5) Multimedia projector presentation of assignment, conference, seminar, workshop and classroom lectures (6) Using graphics software to design and produce shapes, charts and classroom materials (7) Using communication Synchronous (charts, video conferencing, Teleconferencing) method for teaching (8) Using face-to-face(traditional) method of teaching (9) Confidence in the method I use, and (10) Using ICT for drill, practice, and tutorial in mathematics and games. All the Eight (8) faculties in Bayero University, Kano-Nigeria are included in the analysis. These are Faculty of Agriculture, Arts and Islamic Studies, Education, Engineering, Law, Medicine, Sciences and Social and Management Sciences.

Population and sample size

The population of this study consists of all the lecturers in Bayero University, Kano-Nigeria. The sample size of 280 lecturers was proportionally selected from the total population, in the eight faculties as can be seen in the table I below.

Table3.

S/N	Faculty	Lecturers	Sample size	Retrieved Questionnaires
1	Arts and Islamic Studies	135	34	30
2	Education	122	30	28
3	Social and Management Sciences	197	49	46
4	Sciences	217	54	51
5	Law	36	9	8
6	Engineering	122	30	27
7	Medicine	223	55	51
8	Agriculture	75	19	19
	Total	1127	280	260

SOURCE: Directorate of Personal Affairs, BUK (2013).

Measuring Instruments

The data collection instruments for this study are questionnaire for lecturers and interview questions for CIT officials. The instruments contained questions on the use of ICT in Bayero University, Kano-Nigeria in Mathematics Related Classroom Practice. There were questions on the uses of ICT resources in Mathematics related classroom teaching and learning processes.

Data Analysis Methods

The data gathered with questionnaire in order to answer the research questions were analysed and answered using frequency count and simple percentage. Mean, Standard deviation and Comparison of Means were used to evaluate the significant correlation in ICT use in Mathematics related classroom practice between the lecturers in the eight faculties.

Data Presentation and Analysis

Table 4: Rank and Gender of the respondents

Rank		Frequency	Per cent
Assistant Lecturers		120	46.2
Lecturer II		72	27.7
Lecturer I		8	3.1
Senior Lecturers		36	13.8
Prof/Readers		24	9.2
Total		260	100.00
Gender:	Male	228	87.69
Female		32	12.31
Total		260	100.00

The table above shows that the majority 120 (46.2%) of the respondents are Assistant lecturers followed by Lecturers II numbered 72 representing 27.7 per cent of the respondents. Again, there are 36 Senior Lecturers representing 13.8% of the respondents. Similarly the gender of the respondents shows that most of them 228 (87.69%}are male.

Research Questions one

To what extent is ICT actually been used inBayero University, Kano-Nigeria?

Table 5: Responses that depicts ICT utilisation in Bayero University, Kano-Nigeria.

S/N	Variables	Yes (%)	No (%)	Total (%)
1.	Does your department have a Website?	48(18.4)	196(75.4)	260(100.00)
2.	Does your University have a Website?	260(100)	---	260(100)
3	Does your University have an ICT policy?	204(78.5)	8(3.1)	212(81.6)
4.	Do you have office Computer?	172(66.2)	80(30.7)	252(96.9)
5.	Do you have Laptop?	260(100)	--	260(100)
6.	Is your Laptop fully connected to the University network?	72(27.7)	184(70.8)	256(98.5)

The table above revealed that 196 (75.4%) of the respondents indicated they do not have departmental website. All of the respondents 260 (100%) mentioned that they

have University web site. But the web site is not usually functional as indicated by majority 184 (70.8%) of the respondents since their laptop is not fully connected to the university network. The respondents 204 (78.5%) also mentioned that the University have ICT policy.

Research question two

Are ICT gadgets mostly utilised by lecturers for Mathematics Related Classroom Practice?

Table 6: Summary of ICT use in Mathematics Related Classroom Practice by lecturers in B. U. Kano

S/N	Variables	Responses				Total	N	Mean	Std.
		Mostly used	Often used	Less used	Not used at all				
1.	I use computer to teach my subject	72 (27.69)	64 (24.60)	48 (18.46)	72 (27.69)	256 (98.46)	260	2.47	1.21
2.	I use website in posting students' assignment	4 (1.54)	16 (6.15)	36 (13.85)	198 (76.15)	254 (97.69)	260	1.28	0.69
3.	Computer is utilised for simulations, games, tutorial and demonstrations	28 (10.77)	52 (20.00)	100 (38.46)	76 (29.23)	256 (98.46)	260	2.09	0.99
4.	I use e-mail for sending and receiving messages for my personal and professional uses.	200 (75.74)	32 (12.31)	20 (7.69)	8 (3.08)	260 (100)	260	3.63	.75
5.	Multimedia is useful for assignment, conference, seminar, workshop and classroom presentation	68 (26.15)	76 (29.23)	64 (24.62)	48 (18.46)	256 (98.46)	260	2.60	1.11
6.	I use graphic software to design and produce beautiful shapes, charts and classroom materials.	20 (7.69)	20 (7.69)	72 (27.69)	140 (53.85)	252 (96.92)	260	1.72	0.94

7	I use communication synchronous (chat, videoconferenc ing, Teleconferenci ng) method for my teaching.	-- (00)	4 (1.54)	44 (16.92)	184 (70.77)	232 (89.23)	260	1.09	0.58
8	I use face -to face (traditional method for my teaching.	184 (70.77)	28 (10.77)	-- (00)	16 (6.15)	228 (87.69)	260	3.23	1.42
9.	I am confident the methods I use in my teaching are satisfactory	132 (50.77)	64 (24.67)	28 (10.77)	4 (1.54)	228 (87.69)	260	3.00	1.34
10	I use ICT for drill, practice and tutorial in mathematics and games	8 (3.08)	28 (10.77)	48 (18.46)	132 (50.77)	216 (83.08)	260	1.32	0.98

From the table 6 above one can vividly see that the first variable on use of computer for teaching majority 72(27.69%) of the respondents respectively mentioned they mostly used and Not used at all computer in their teaching, this show from the table an average utilisation mean score of 2.47. On using e-mail to send and receive messages for personal and professional uses majority 200(75.74%) of the respondents indicated they mostly used this ICT resource, revealing from the table an effective utilisation mean score of 3.63. However on the use of computer for design and producing shapes, charts and classroom material majority140 (53.85%) of the sample subjects indicated that they are not utilising it at all, see the table for utilisation mean score is 1.72 and Standard deviation of 0.94. Similarly other variable that deal with use of computer for drill, practice and tutorial in mathematics and games majority 132(50.72%) of the subjects said they are not using it at all, the mean score (1.32) and Standard deviation (0.98) from the table emphasis that. It is pertinent to note the table that majority 184(70.77%) of the respondents held the view that they preferred their face-to-face (traditional) method of teaching than using the ICT devices in their teaching. This is further confirming from the table seeing the utilisation mean score of 3.21 and Standard deviation score of 1.42. When the respondents were asked if they are confident in the methods they used during their teaching majority 132 (50.77%) of them said they are satisfied with the methods they mostly used. See further emphasis from the table where the utilisation mean score is 3.00 and Standard deviation is 1.34. Most of the respondents 184 (70.77%) when they were asked about use of communication synchronous such as chats, videoconferencing and teleconferencing in their teaching

they donot utilise it at all. This was also supported by the Utilisation mean score of 1.09 and Standard deviation of 0.57.

Table 7: Comparison of Means on ICT use in Mathematics Related Classroom Practice by Lecturers across- facultiesin Bayero University, Kano.

S/N	Variables	Agric. N=56		Edu. N=76		Eng. N=12		FAIS N=4		Law N=16		Med N=8		Sci. N=32		SMS N=56	
		Mean	Std.	Mn	Std.	Mn	Std	Mn	Std	Mn	Std.			Mn	Std	Mn	Std
1	I use computer to teach my subject	2.54	1.17	2.54	1.96	2.17	1.53	3.25	0.95	2.38	1.26	2.75	1.16	2.28	1.25	2.52	1.90
2.	I use website in posting students' assignment	1.25	0.64	1.27	0.69	1.25	0.62	2.00	0.82	1.18	0.75	1.25	0.89	1.25	0.67	1.30	0.74
3.	Computer is utilised for simulations, games, tutorial and demonstrations	2.02	0.68	2.04	0.99	2.17	1.34	1.75	0.96	2.38	0.96	2.25	0.89	2.16	1.05	2.11	0.95
4.	I use e -mail for sending and receiving messages for my personal and professional uses.	3.63	0.78	3.55	0.85	3.83	0.58	3.75	.50	3.81	0.54	3.63	0.74	3.69	0.64	3.61	0.78
5.	Multimedia is useful for assignment, conference, seminar, workshop and classroom presentation	2.63	1.10	2.58	1.09	2.33	1.07	2.50	0.58	2.38	1.31	2.75	1.28	2.69	1.12	2.66	1.13
6.	I use graphic software to design and produce beautiful shapes, charts and classroom materials.	1.66	0.88	1.66	0.90	1.75	1.07	2.75	1.26	1.81	0.98	2.00	1.07	1.72	0.96	1.73	0.98
7	I use communication synchronous (chat, videoconferencing, Teleconferencing) method for my teaching.	1.07	0.60	1.05	0.59	1.25	0.45	0.50	0.58	1.31	0.60	1.50	0.53	1.09	0.47	1.05	0.59
8	I use face -to-face (traditional method for my teaching.	3.18	1.49	3.13	1.51	3.33	1.37	2.00	2.31	3,81	0.40	3.38	1.06	3.22	1.39	3.23	1.43
9.	I am confident the methods I use in my teaching are satisfactory	2.90	1.40	2.96	1.41	3.50	0.90	1.25	1.50	3.43	1.09	3.50	0.76	3.06	1.16	2.93	1.39
10	I use ICT for drill, practice and tutorial in mathematics and games	1.25	0.98	1.30	1.02	1.25	0.62	0.75	0.96	1.31	1.01	2.25	0.89	1.38	0.87	1.32	1.03

The table above revealed that Faculty of arts and Islamic studies lecturers utilised computer in their teaching often than lecturers in other faculties with mean score of 3.25 and standard deviation of 0.95. Follow by lecturers in faculties of Agriculture and Education with mean scores of 2.54 and 2.54 as well as standard deviation scores of 1.17 and 1.76 respectively. On the question about posting students' assignment in website there was little or not at all use of website to post students' assignment by the lecturers across the faculties. Since the highest mean score is 2.00 and standard deviation score of 0.82 belong to faculty of arts and Islamic studies indicating less utilisation of website for that purpose. There were less utilisation of computers for simulations, games, tutorial and demonstrations by the lecturers as indicated by the highest mean scores of 2.38 and 2.25 as well as standard deviation scores of 0.98 and 0.89 of faculties of Law and Medicine respectively. There was significant utilisation of e-mail by the lecturers for personal and professional purposes as can be seen from the highest mean scores of 3.83 (std=0.54) and 3.81 (std=0.54) of faculties of Engineering and Law respectively.Multimedia projectors were less utilised by the lecturers as indicated by the highest mean score of 2.75 and standard deviation score of 1.21 of the faculty of arts and Islamic studies. Similarly there were less use of computers for designing and producing shapes, charts and classroom materials by the lecturers deducible from the highest mean score of 2.75 and standard deviation of 1.26 of faculty of Law. Communication synchronous (chat, videoconferencing & teleconferencing) method of teaching was less or not utilised by the lecturers see the table above. More ever majority of the lecturers use face-to-face (traditional) method of teaching more often than the ICT based methods see the table for faculties mean scores particularly that of Law which is 3.81 and standard deviation of 0.40. Therefore the lecturers equivocally mentioned they are confident with the face-to-face method they are using see table for the mean scores particularly the faculty of Law as 3.43 and standard deviation of 1.09. Finally there were little or not at all use of ICT for drill, practice and tutorial for Mathematics and games among the lecturers across the faculties see the table for the highest mean scores of 2.25 (std=0.89) from the faculty of Medicine.

Discussion of Results

The study was aimed at investigating the use of ICT in Bayero University, Kano-Nigeria with particular referenceto Mathematics related classroom practice. The research question one focused on the extent of ICT utilisation in BUK it was established from the respondents 260 (100%) of them that the University have website and they have laptop. The respondents 66.2% mentioned that they have desk top computer in their offices. Also, 78.5% 0f the respondents stated the University has ICT policy. These are in line with Nigeria policy frameworks and NUC provision for the integration of ICT into education. So also adopting the 2000 Millennium Development Goals, where the UN ensured that the benefits of new technologies, especially ICT, are made available to all.

The second research question geared toward establishing the effective utilisation of ICT gadgets in Mathematics related classroom practice, the first variable on use of computer for teaching majority 72(27.69%) of the respondents respectively mentioned they mostly used and Not used at all computer in their teaching, this show from the tablea less utilisation mean score of 2.47. This shows that there is little utilisation of computer by the lecturers with all the efficiency of ICTin education (Iqbal and Ahmed, 2010). On

using e-mail to send and receive messages for personal and professional uses majority 200(75.74%) of the respondents indicated they mostly used this ICT resource, revealing from the table an effective utilisation mean score of 3.63. However on the use of computer for design and producing shapes, charts and classroom material majority140 (53.85%) of the sample subjects indicated that they are not utilising it at all, see the table for utilisation mean score is 1.72 and Standard deviation of 0.94. This is contrary to the Kaput(1992) view on the role of ICT in education and Mathematics in particular as a volcanic mountain where tremendous transformations are taking such as drawing symbols, charts, diagrams, games, drills, practices, etc. Similarly other variable that deal with use of computer for drill, practice and tutorial in mathematics and games majority 132(50.72%) of the subjects said they are not using it at all, the mean score of 1.32 and Standard deviation of 0.98 from the table emphasis that. It is pertinent to note from the table that majority 184(70.77%) of the respondents held the view that they preferred their face-to-face (traditional) method of teaching than using the ICT devices in their teaching. This is further confirmed from the table seeing the utilisation mean score of 3.21 and Standard deviation score of 1.42. When the respondents were asked if they are confident in the methods they used during their teaching majority 132 (50.77%) of them said they are satisfied with the methods they mostly used. See further emphasis from the table where the utilisation mean score is 3.00 and Standard deviation is 1.34. Most of the respondents 184 (70.77%) when they were asked about use of communication synchronous such as chats, videoconferencing and teleconferencing in their teaching they are not utilising it at all. This was also supported by the Utilisation mean score of 1.09 and Standard deviation of 0.57. Generally the result of this study shows less utilisation of ICT in such areas that are very related to Mathematics teaching and learning like computer games, graphics, drills, e-mail messages, videoconferencing, chat and multimedia projector presentations. That is contrary to theMerseth (1996)) opinion on the uses of videotapes in education, Lisa and Susan (2005 study on the use of videotapes in Mathematics classroom and the study of International Association for the Evaluation of Educational Achievement (IEA) which identifies and describes the educational use of ICT across 26 countries in the world (Kozma, 2003).

Conclusion

The study established little or lack of ICT utilisation across the faculties within the university with exception of faculty of Agriculture, FAIS, Law and Medicine on few variables namely multimedia projector presentations and sending and receiving e-mail messages for personal and professional purposes. This would definitely deter the effective use of ICT in Mathematics teaching and learning in particular and ICT across school curricular in general.The issue of ICT utilisation is not an individual issue but a collective one which required all teachers and students to put more efforts in employing the idea in their classroom.

Recommendations

Based on the findings and discussion of the study the following recommendations are hereby made in order to improve the use of ICT in Mathematics related teaching and learning.

1. There is a need to examine and incorporate the strategy of improving and extending the e-learning method to all lecturers. The effort will improve the lecturers' usability of the ICT in their teaching in striving to provide a web-enhanced Mathematics classes.
2. The new technology is already affecting and transforming the whole field of education, there is need for mathematics teachers to be a part of this transformation and provide the best e-learning environment to their students.
3. It is also pertinent for the University to upgrade the speed of the network and increase strength of the signal to cover all the departments and faculties of the University. This too, need not only supports of cooperate bodies but also commitment of the users of ICT facilities.
4. Provision of projectors, computers and active board should be made in each classroom to enhance the use of ICT resources in both Mathematics teaching and research.
5. Implementation of good ICT policy need adequate fund to develop viable ICT initiative in the University, hence full implementation of BUK ICT policy required heavy capital investment in order to yield excellent result.
6. There is a need for School managers and ICT users to provide forum for effective training programme and enlightenment to the ICT target users.
7. The University and other interest body should design a portal where staff can reach students very easily as in other western universities.
8. Both male, Female and other categories of lecturers across the faculties should effectively utilise ICT facilities in their teaching and research in order to maximally benefit from the role of IT in education.

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