



Original Research Article

Facilities management and quality of teaching and learning at a multi- campus public university in Uganda

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**Eden Akategeka¹,
Denis Sekiwu¹
and
Fredrick Ssempala^{*3}**

¹Warden at Busitema University,
Uganda.

²Senior Lecturer and Director of
Post Graduate Studies at Kabale
University, Uganda.

³Senior Lecturer and Head of
Science department at Kabale
University, Uganda.

*Corresponding Author:
Emails: fssempal@syr.edu,
fssempala@kab.ac.ug,
fssempala2@gmail.com

Tel.+256772514425
+256753113767

This is an account of a cross-sectional survey of how facilities management relates to the quality of teaching and learning in Busitema University, a multi campus model public University in Uganda. The study employed a mixed methods approach involving semi-structured questionnaires and interviews with a population of 506 and a sample of 223 participants in the categories of University top managers, deans of faculties, heads of department, academic, administrative, support staff and students' leaders. The findings are that the quality of teaching and learning was good ($M = 47.5$ and $SD = 7.45$). Second, facilities management in the University was also good ($M = 40.3$ and $SD = 6.72$). Third, a significant relationship existed between facilities management and the quality of teaching and learning ($r = .577$, $p < 0.05$) with ($R^2 = 0.333$). Fourth, several challenges affected facilities management and these included limited funding, incompetent staff, unaffordable maintenance costs, delayed response to facilities management among other challenges. The argument that facilities management has a significant relationship with the quality of teaching and learning is in consonance with the stage theory of Higher Education development that argues that with massification in higher education, there is stress on facilities hence, affecting the quality of teaching and learning. Recommendations advanced were that Managers of Busitema University should make effort to promote the quality of teaching and learning, improve facilities management and work to solve challenges of facilities management.

Keywords: Facilities management, quality teaching and learning, massification, higher education

INTRODUCTION

Facilities management is a fundamental aspect in developing countries, more so in Higher Education Institutions because it has a great effect on the quality of their core functions of teaching, learning and research. Higher education is perceived as an important form of investment in human capital development. Higher education institutions are charged with formation of human capital through teaching, building knowledge base through research and knowledge development, and dissemination

and use of knowledge by interacting with knowledge users. (Okwakol 2009). In developing countries, higher education, and particularly university education is recognized as a key force for modernization and development. This has caused an increase in demand for its access, accompanied by a number of challenges. (Bunoti, 2011).

Higher Education systems have moved from catering to elite and to mass state of massification and even post-massification in the western countries (Mok and Jiang,

2016). The argument of massification of higher education all over the world has been that it reduces societal inequalities and makes education accessible to all social groups with in society. This was because of the belief that increasing higher education enrolment would improve the quality of the population and enhance national competitiveness in the global world (Hawkins et al. 2014). The massification of higher education has resulted in the evaluation of social, cultural, economic, political and technological outcomes and advances as well as trends in the 21st century. The growth and evolution of these higher education systems however, presents challenges and opportunities especially in the quality of education.

A substantial discussion around the meaning of quality took place around 20 years ago within the field of higher education, and views still differ about what quality is and how it should be obtained (Wittek and Habib, 2013). The notion of quality is widely used in all educational contexts and increasingly so in the field of higher education. It is of paramount importance today because all Education Institutions want to use the most recent pedagogical techniques in their teaching and learning aspects, to train graduates who meet the needs of society. World labour markets expect higher education institutions to provide the students with adequate knowledge, skills and attitude, important for the right job fulfillment (Inter University Council for East Africa, 2010).

Quality is an issue that cannot be avoided in education at present and what institutions do to ascertain quality turns out to be most important and effective of all efforts and initiatives. However, increasing demand for higher education has caused decline in the quality of graduates (Basheka et al., 2009). Quality of higher education is affected by the 4 Cs forces: 1) The changing University customs characteristics, ii) Increasing competition, iii) Rising costs, and iv) The impending crises. To understand these forces, institutions of higher education need to continuously improve and strengthen themselves or else they cease to be centers of academic excellence (Mpaata, 2010).

According to the Stage Theory of Higher Education development, quality refers to a change in the education concept, expansion of the function of education, diversity of teaching purposes and forms of education, change of the curriculum set up, ways of teaching, entry requirements and management (Zhang and An, 2010). Quality teaching refers to the use of pedagogical techniques to produce learning outcomes for students (Cishe, 2014) and quality learning refers to learning experience that causes a deep change in the students' outlook (Quinn, 2015).

In this study, according to Hénard and Roseveare (2012), quality teaching and learning refers to the effective designing of the curriculum and course content, using a variety of learning contexts including guided independent study, project-based learning, collaborative learning and experimentation among others, soliciting and using feedback and effective assessment of learning outcomes. Massification on the other hand refers to a

fundamental change from elite to mass, which does not only mean a sharp increase in the number of people who can receive higher education, but a change in quality, which plays an important role in the transition from elite to mass (Lin, 2010).

Focus on a multi campus public university is because governments today are considering consolidation of small, specialised institutions to create fewer but larger and more comprehensive universities that would achieve greater breadth and depth of course offerings and hence greater diversity of course and subject choice (Scott et al., 2007). In a multi campus model, academic services, resources and support facilities are not concentrated on one site, but are typically dispersed and often replicated across campuses and managed through a centralised administrative system (American Association of University Professional, 2006).

Education remains the only fundamental and sustainable intervention of building Uganda's human resource capacity required to harness the abundant opportunities around the country and achieve the transformational goal of "A Transformed Ugandan Society from a Peasant to a Modern and Prosperous Country within 30 years". Accelerating government reforms in the education system and the curriculum to obtain a globally competitive human resource with skills relevant to the development paradigm is underpinned as one of the key strategies and policy reforms to achieve Uganda's Vision 2030 (Busitema University Strategic Framework, 2020-2025).

In Uganda, university education is experiencing a number of challenges which include among others: the increasing demand for university education, funding challenges, demography and quality of students admitted, competition, shortage of academic staff, ethical challenges, poor facilities and outdated curriculum, teaching and evaluation methods (Kasozi, 2017). These have raised pertinent questions among managers of higher education institutions more than ever before with respect to how they are to meet national, regional and international integration requirement needs (Chaloff and Lemaitre, 2009).

Universities in Uganda are in particular faced with increasing challenges in regard to their core functions of teaching, research and community services. A survey of Universities by National Council for Higher Education (NCHE) in 2004 and the data collected from Higher Education Institutions (HEI) in 2005 indicated that the quality of higher education delivery in Uganda is declining rapidly (NCHE, 2005). There is an increasing number of students which is unmatched by facilities, which has impacted adversely on the quality of higher education

(Kasozi, 2006). Hence, interrogating the quality of teaching and learning in Universities has become very paramount (Looney and Klenowski, 2008). This study therefore aimed at establishing the relationship between facilities management and the quality of teaching and learning at Busitema University.

Busitema University was established as a Public University under the Universities and Other Tertiary Institutions Act 2001 Instrument No. 22 of 2007. This

followed the accreditation of the University and its initial academic programs by National Council for Higher Education in February 2007. The University was established as a multi-campus model with its main campus located at Busitema. Initially, the University started with two (2) Faculties namely, Faculty of Engineering (FOE) at the Busitema campus on 1309 acres along Jinja-Malaba High way-Busia district and Faculty of Science and Education (FSE) at the Nagongera campus on 583 acres located 20 km from Tororo town. The first cohort of students reported on 3rd October 2007. Currently there are six operational Faculties inclusive of Faculty of Natural Resources and Environmental Sciences (FNRE) at Namasagali Campus on 437 acres located 22 km from Kamuli town, Faculty of Agriculture and Animal Sciences (FAAS) at Arapai Campus on 679 acres located 5 Km from Soroti town; Faculty of Health Sciences (FHS) at Mbale Campus on 50 acres located in Mbale town and Faculty of Management Sciences (FMS) on 27.75 acres at Pallisa campus located at the former Kalaki court 3km from Pallisa Town (Busitema University Strategic Framework 2020/2025).

At the time of establishment, it was envisaged that the University would improve equitable access to University Education in the country, since the region did not have a public University. The University opened its doors to the first cohort of students on 3rd October, 2007. Busitema University seeks to promote excellence in teaching and learning through creative and innovative curriculum design and development, pedagogical strategies and assessment practices in accordance with the highest quality management principles (Busitema University Strategic Plan 2014/15 – 2018/19). At its initial start, Busitema University inherited facilities of former tertiary institutions that were Busitema Agricultural College, Nagongera National Teachers College, Arapai Agricultural College and the former Namasagali University. These facilities were Busitema University's niche in practical sciences, relevant technology, productive education and innovation for sustainable development. To date the University has produced 5,528 graduates. The University offers nine (11) Post graduate programmes that include: Master of Science in Irrigation and Drainage Engineering, Master of Computer Forensics, Master of Medicine, Internal Medicine, Master of Public Health, Master of Medicine in Paediatrics and Child Health, Master of Education Leadership and Management, Master of Science in Industrial Mathematics, Master of Science in Physics, Master of Business Administration (Weekend), Master of Science in Climate Change and Disaster Management and a Postgraduate Diploma in Computer Forensics and thirteen (13) diploma programmes that include; Diploma in Ginning and Industrial Engineering, Diploma in Agricultural Engineering, Diploma in Computer Engineering, Diploma in Industrial Electronics and Electrical Engineering, Diploma in Education Primary (by distance learning), Diploma in Animal Production and Management, Diploma in Crop Production and Management, Diploma in Business

Administration, Diploma in Records and Information Management, Diploma in Science Laboratory Technology (Chemistry), Diploma in Science Laboratory Technology (Biology) and six (6) Certificate programs that include a Certificate in General Agriculture, Higher Education Access Certificate in Biology and Agriculture, Higher Education Access Certificate in Biology and Chemistry, Higher Education Access Certificate in English Language and Literature in English, Higher Education Access Certificate in Mathematics and Chemistry and Higher Education Access Certificate in Physics and Mathematics.

The University also offers twenty five (25) Undergraduate programmes that include; Bachelor of Agricultural Mechanization and Irrigation Engineering, Bachelor of Science Agro-processing Engineering, Bachelor of Science in Water Resources Engineering, Bachelor of Science in Computer Engineering, Bachelor of Science in Mining Engineering, Bachelor of Science in Polymer, Textile and Industrial Engineering, Bachelor of Medicine and Bachelor of Surgery, Bachelor of Science in Nursing, Bachelor of Science in Anaesthesia, Bachelor of Science Education, Bachelor of Education Primary, Bachelor of Information Technology, Bachelor of Education Languages, Bachelor of Science in Computer Science, Bachelor of Science Education (Physical Education), Bachelor of Animal Production and Management, Bachelor of Science in Agriculture, Bachelor of Agribusiness, Bachelor of Business Administration (Day), Bachelor of Business Administration (Weekend), Bachelor of Procurement and Supply Chain Management, Bachelor of Entrepreneurship and Development Management, Bachelor of Tourism and Travel Management, Bachelor of Science in Natural Resources Economics, Bachelor of Science in Fisheries and Water Resource Management (Busitema University Fact Book,2020).

The National Council for Higher Education (NCHE) requirements set out in Statutory Instruments 2005 Nos. 80 and 85 emphasize special attention to be paid to ; access to relevant and up-to-date texts and other books as well as articles in journals; access to computer networks and the internet; access to general educational equipment, including power point projectors, slide projectors, overhead projectors, video, video cameras, access to sports and recreation facilities; and student exchange programmes to enhance student experiences (NCHE,2014).

The University has through its Strategic Plan 2020-2025 Objective1: Strengthening Excellence in Education and Student Life endeavoured to meet the requirement of NCHE in Statutory Instrument 2005 No.s 80 and 85. The University has envisaged to Expand capacity by investing in new infrastructure, facilities and technologies by : Providing flexible high-quality teaching, research and innovation spaces to support changing learning needs, and methods of delivering this learning , Rehabilitate, expand, improve and equip existing infrastructure both lecture facilities and office space ,Complete the master planning exercises for all the campuses, Pursue green strategies in

order to enhance environmental sustainability.

However, not much has been added in terms of facilities especially physical infrastructure development due to the multi campus nature of the University that needs an adequate resource envelope yet the University's envelop is still very small (Busitema University Fact book, 2017). There is lack of empirical evidence about facilities management and quality of teaching and learning in Busitema University. This leads to the unanswered empirical question as to whether there is a relationship between facilities management and quality of teaching and learning in Busitema University.

The general objective of the study was to find out the relationship between facilities management and the quality of teaching and learning at Busitema University.

The specific objectives of the study included the following:

1. To assess the quality of teaching and learning at Busitema University
2. To examine the effectiveness of facilities management at Busitema University.
3. To examine the association of facilities management and the quality of teaching and learning at Busitema University.
4. To examine the challenges faced in facilities management at Busitema University.

Theoretical Framework

The Stage theory of Higher Education Development by Trow (1973) underpinned this study. The theory describes the transition in higher education from elite to mass to universal student access (Zhang and An, 2010). The theory propounds that any huge or massive transition that is associated with growth in higher education will always have ripple effect on the quality of teaching and learning (Liu and Mutinda, 2016). This is because of increased resource requirements such as, sufficient and appropriate teaching facilities that allow a variety of teaching methods, a flexible approach to seating and improved technological resources (Machika et al., 2014).

Accordingly, with massification there is a fundamental change from elite to mass, which does not only mean a sharp increase in the number of people who can receive higher education, but a change in quality, which plays an important role in the transition from elite to mass (Lin, 2010). Elite higher education institutions are relatively small in size preparing the elite for polity and the learned professions. Their emphases are on the transmission of a general culture and lifestyle (Marginson, 2010). However, massification, as a process challenges the traditional form of universities as centres of elite education where only a select few gain access affecting quality of teaching and learning (Hornsby and Osman, 2014).

The Stage Theory of Higher Education Development explains that quality teaching and learning requires not only adequate human resource but also sufficient and functional physical facilities and equipment. Insufficient

physical facilities compounded by lack of maintenance, result in degradation of physical infrastructure because of massification. The progressive deterioration in lecture rooms and theatres, laboratories, library and administrative buildings affect the quality of learning (Mohamedbhai, 2008). The growth of numbers without a parallel increase in state support threatens the quality. Trow (1973) observed that in China, it was the quantity of graduation that had been given more attention than the quality of graduation itself which was harmful to the development of graduate education. He therefore argued that in the process of inspecting postgraduate education, it was necessary to pay more attention to the aspect of quality (Lin, 2010).

MATERIALS AND METHODS

Busitema University is a multi-campus model public University located in the eastern region of Uganda, established by Statutory Instrument no. 22 in May, 2007. The University operates six campuses at the time of establishment, it was envisaged that the University would improve equitable access to University Education in the country, since the region did not have a public University. The University opened its doors to the first cohort of students on 3rd October, 2007.

The University offers eleven (11) Postgraduate programmes, Diploma, ten (10) diploma programmes and twenty four (24) Undergraduate programmes and six (6) certificate programmes and it has 38 departments with six (6) departments at the Faculty of Engineering at Busitema, ten (10) departments at the Faculty of Science Education, three (3) departments at the Faculty of Natural Resources and Environmental Economics, three (3) departments at the Faculty of Agriculture and Animal Sciences, fourteen (14) departments at the Faculty of Health Sciences and two (2) departments at the Faculty of Management Sciences. (Busitema University Fact Book, 2020).

Statistics in Table 1 show that in the last ten years at Busitema University, admission of students has increased by from 326 students to 2,386, an increment of 2,060 which is a 632 percentage increase in students' admission in the last ten years.

Statistics in Table 2 show that the number of academic staff in the last four academic years at Busitema University has almost remained static compared to the number of students admitted. This has reduced the teacher-student ratio hence an effect of the quality of teaching and learning.

The study employed a cross-sectional survey design and a mixed methods approach involving semi-structured questionnaires and interviews. Quantitative data was the basis for drawing statistical inferences by relating the independent and dependent variables. Qualitative data supplemented the quantitative data by providing detailed information in form of statements from interviews for in-depth analysis. Documentary review was also used to gain access to information that was difficult to get through the

Table 1. Busitema University Students Admission for the period 2009/10-2019/20

Admission Year	Government	Private	Total
2009/10	190	136	326
2020/11	294	136	430
2011/12	399	988	1,387
2012/13	736	1,078	1,814
2013/14	253	1,439	1,692
2014/15	274	1,788	2,062
2015/16	285	1,863	2,148
2016/17	276	1,632	1,908
2017/18	257	1,841	2,098
2018/19	286	2,156	2,442
2019/20	238	2,148	2,386

Table 2. Busitema University Academic Staff Students for the period 2009/10-2019/20

	2016/17	2017/18	2018/19	2019/20
Faculties	Staff	Staff	Staff	Staff
FOE	55	53	55	55
FSE	51	51	51	47
FNRE	10	10	11	11
FAAS	18	18	18	18
FHS	24	24	24	24
FMS	5	5	5	5
TOTAL	163	161	164	160

Busitema University Fact Book 2020

Table 3. Population and Sample

Category	Population	Sample size	Sampling Method
Top Management	04	04	Purposive sampling
Deans of Faculties	06	06	Purposive sampling
Heads of Department	38	08	Simple random sampling
Academic Staff	160	51	Simple random sampling
Administrative Staff	58	21	Simple random sampling
Support staff	136	50	Simple random sampling
Students leaders	104	83	Simple random sampling
	506	223	

questionnaire and interviews. Such documents included minutes of the University planning committees, procurement and maintenance records, Busitema University Strategic Framework 2020-2025 and the Busitema University Facts Book, 2020.

The population of 506 staff were targeted to participate in the study including top managers of the University (N = 4), deans of the six faculties (N = 6), heads of department (N= 38), academic staff (N= 160), administrative staff (N=58), support staff (N=136) and students' leaders (N = 104). These people were selected because they were involved in the teaching and learning as well as management of facilities and thus understood the management of facilities at the university and how they affected learning. Purposive sampling, and simple random sampling techniques were employed with the aid of Krejcie

and Morgan's (1970) table for sample size determination and Israel (1992) simplified formula adopted from Yamane (1967) to select a sample size of participants of 223, distributed as follows: Top management (N = 4), deans (N = 6), heads of department (N = 8), academic staff (N=51), administrative staff (N=21), support staff (N=50) and students' leaders (N = 83) as seen from the Table 3 above.

The study procedure involved department approval of the proposal, clearance by the ethics committee of the faculty and presentation of an introductory letter from the Director of Graduate studies to respondents. A self-administered questionnaire having three sections ABC was used. Section A consisted of 4 items on participants' biodata details including: age, level of education, position in the university and how long one has worked in the University. Section B consisted of 11 items on Quality of

Table 4. Categorization of quality of teaching and learning and facilities management

	Poor	Fair	Good	Very good
Facilities management	11-22	23-33	34-44	45-55
Quality of teaching and learning	13-26	27-39	40-52	53-65

Table 5. The Results on the Bio-data Information of the Respondents

Instruments	Targeted Respondents	Actual Respondents	Response Rate
Interview	10	6	60.0%
Questionnaires	213	184	86.4%
Total	223	190	85.2%

teaching and learning and 14 items on Facilities management and Section C consisted of 12 items on Facilities management challenges. The questionnaires were administered and collected after one, two or three days as agreed by respondents. The filled-in questionnaires were screened for any unanswered items. Data in the complete questionnaires were coded and entered in Statistical Package for Social Scientists (SPSS) software version 20 for further analysis and management to achieve the study objectives. Each of the items on the questionnaire was scored on a 5- point Likert scale, 1 (Strongly disagree) to 5 (Strongly agree) as explained in the study instrument.

An interview guide with 8 items was used to collect qualitative data. This data was collected, coded and grouped according to the study objectives and emerging themes. Analysis was done out through discursive and thematic methods (Javadi and Zarea, 2016). The discursive method considered detail of the text, interpreting the analysed text and attributing meaning. On the other hand, thematic analysis ensured that clusters of text with similar meaning were presented together (Gale 2013). Qualitative data supplemented quantitative data and helped in providing explanations.

The scores on the quality of teaching and learning and facilities management were categorized as shown in Table 4 above. The levels of poor, fair, good and very good were used basing on performance rating. The score range for quality teaching and learning was 13-65. The score range for facilities management was 11-55.

Simple descriptive statistics such as frequencies and percentages were used to achieve objectives 1 and 2. This involved determining the number of respondents in various demographics having different scores on the quality of teaching and learning and facilities management. Hypothesis (H₁) test and a linear regression were done to achieve objective 3. Percentages and ranking were used to achieve objective 4.

Qualitative analysis from interviews added to the interpretation of data collected by the self-administered questionnaire. Interviewing helped in providing very complete responses that provided in depth information necessary for deep exploration and clarity (Harrell and

Bradley, 2009). The interview guide was a semi-structured interview guide which was used in face to face interview sessions (Oltmann, 2016). Using an interview guide, qualitative data was collected from University top managers and Deans of Faculties.

RESULTS

Demographic information

Results for sample distribution by demographic statistics are presented in Table 5. Interview data were collected from 6(60%) of the selected respondents and questionnaire survey data from 184(86.4%) participants out of the originally determined 213. The overall response rate for both interview and survey data respondents was 190 (85.2%).

The bio data characteristics of the respondents are given in Table 6.

The results in Table 6 on age groups of the respondents in years showed that the larger percentage was of the respondents who were those below 30 years followed by those who were 31-40 years, then those who were between 41-50 years and lastly those who were above 50 years. The results show that people of different age categories participated in the study. This means that the views about that study problem are balanced therefore reflecting diverse perceptions according to the various age groups.

The results on levels of education show that the largest percentage of respondents was of those who had a Bachelors, followed by those who had Diploma, then those who had Masters and lastly those who had PhDs. These results suggested all the respondents had high academic qualifications that could enable them to provide reliable responses because of their proficiency in the English language used in the questionnaire.

With respect to the position in the university, the larger percentage of respondents was of Students' leaders, followed by Support Staff, followed by Academic Staff, Administrative Staff and lastly Heads of Department. The results show that people of different positions in the

Table 6. Respondents Background Characteristics

Item	Categories	Frequency (n)	Percent (%)
Age Groups	Below 30	99	53.8
	31-40	52	28.3
	41-50	27	14.7
	50 and above	6	3.3
	Total	184	100.0
Highest levels of education attained	Diploma	46	25.0
	Bachelors' students	101	54.9
	Masters	30	16.3
	PhD	7	3.8
	Total	184	100.0
Position in University	Head of Department	8	4.3
	Academic staff	22	12.0
	Administrative staff	21	11.4
	Support staff	50	27.2
	Students leader	83	45.1
	Total	184	100.0
Number of years in the University	Less than 1year	43	23.4
	1-2 years	45	24.5
	2-4 years	40	21.7
	5years and above	56	30.4
	Total	184	100.0

Table 7.Quality of Teaching and Learning at Busitema University

	N	Minimum	Maximum	Mean	Std. Deviation	Level
Quality of teaching and learning	184	26.00	63.00	47.5000	7.44965	Good

Note. *M* –mean and *SD*- standard deviation

University participated in the study. This means that the views about that study problem are balanced therefore reflecting diverse perceptions according to the various positions in the University.

With respect to the number of years the respondents had been in the university, the larger percentage of respondents had been in the university for more than 5 years, followed by those who had been in the university for 1-2 years, followed by those who had been in the university for less than 1 year and lastly those who had been in the university for 2-4 years. The results suggest that most of the respondents had been in the university for more than a year. Therefore, they competently provided appropriate data on the study problem.

The Quality of Teaching and Learning in Busitema University

The results in Table 7 show that the overall quality of teaching and learning at Busitema University was good ($M=47.5, SD=7.45$).

The results in Table 8 regarding an assessment of the quality of teaching and learning at Busitema University show that the greatest percentage 75 (74.8%) of the respondents of the age of 30 years and below rated it as good. These were mostly students meaning that they

appreciated the teaching techniques used by lecturers, the use various teaching and learning facilities, the conducive teaching and learning environment, the flexibility during teaching and learning sessions and the promotion of students' participation in learning activities.

Heads of Department (100%) Academic staff (91%), Administrative staff (90.5%), support staff (92%) and students' leaders (73.5%) all rated it as good. These results mean that staff and students in their various positions rated the quality of teaching and learning as good. Respondents who had stayed in the university for over two years: that is 2-4yrs rated it at (95%)and those of 5 years and above rated it at (89.3%) while those of less than a year rated it at (60.5%) rated it as fair. This means that respondents who have stayed in the University longer rate the quality of teaching as good perhaps after seeing some improvement than those who have stayed for less than a year who may have seen the quality of teaching and learning deteriorating given the increasing students enrolment over the years.

In the interviews, the respondents were asked to give their assessment of the quality of teaching and learning in the university.

P1 said;

"The quality of teaching and learning in this university is good considering the fact that many employers of the graduates of the University appreciate that they are

Table 8.Quality of Teaching and Learning at Busitema University according to the Bio-Data

BIODATA	CATEGORIES	QUALITY OF TEACHING FACILITIES				TOTAL
		POOR	FAIR	GOOD	VERY GOOD	
		<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	
Age of Participants	Below 30	0(0.0)	24(24.2)	65(65.7)	10(10.1)	99(100.0)
	31-40	1(1.9)	3(5.8)	35(67.3)	13(25.0)	52(100.0)
	41-50	0(0.0)	1(3.7)	22(81.5)	4(14.8)	27(100.0)
	50 and above	0(0.0)	1(16.7)	4(66.7)	1(16.7)	6(100.0)
	Total	1(0.5)	29(15.8)	126(68.5)	28(15.2)	184(100.0%)
Level of education	Diploma	0(0.0)	3(6.5)	31(67.4)	12(26.1)	46(100.0)
	Bachelors	0(0.0)	24(23.8)	69(68.3)	8(7.9)	101(100.0)
	Masters	1(3.3)	2(6.7)	20(66.7)	7(23.3)	30(100.0)
	PHD	0(0.0)	0(0.0)	6(85.7)	1(14.3)	7(100.0)
	Total	1(0.5)	29(15.8)	126(68.5)	28(15.2)	184(100.0)
Position in University	Head of Department	0(0.0)	0(0.0)	6(75.0)	2(25.0)	8(100.0)
	Academic staff	1(4.5)	1(4.5)	15(68.2)	5(22.7)	22(100.0)
	Administrative staff	0(0.0)	2(9.5)	16(76.2)	3(14.3)	21(100.0)
	Support staff	0(0.0)	4(8.0)	33(66.0)	13(26.0)	50(100.0)
	Students leader	0(0.0)	22(26.5)	56(67.5)	5(6.0)	83(100.0)
	Total	1(0.5)	29(15.8)	126(68.5)	28(15.2)	184(100.0)
Years in the University	Less than 1year	0(0.0)	17(39.5)	22(51.2)	4(9.3)	43(100.0)
	1-2 years	0(0.0)	5(11.1)	35(77.8)	5(11.1)	45(100.0)
	2-4 years	0(0.0)	2(5.0)	26(65.0)	12(30.0)	40(100.0)
	5years and above	1(1.8)	5(8.9)	43(76.8)	7(12.5)	56(100.0)
	Total	1(0.5)	29(15.8)	126(68.5)	28(15.2)	184(100.0)

knowledgeable and skilful especially the student teachers from the faculty of Science Education and student engineers from the faculty of engineering. The employers say that the student teachers have been well trained in teaching and handling students, the student engineers in the IT section outpaced students from other Institutions and the medical students have also been appreciated when they go out for internship and community outreaches. However, the challenge is shortage of students in some academic programs and the not very good quality of the students who are admitted."

P2 stated that;

"The quality of teaching and learning was not good in some faculties in the past years but has now improved in all campuses or faculties due to the quality assurance measures that have been put in place that include; establishing departmental boards, faculty boards and higher degree committees to evaluate students' academic results. The other quality assurance measures that have been put in place include; the use of external examiners to authenticate students' results and the use of class assessments for lessons taught. P2 also stated that the University lacks academic staff especially senior academic staff because a number of these staff are pursuing their masters and PhD studies. The university therefore largely depends on part-time lecturers who only teach whenever they are available which affects the teaching and learning quality. There is therefore need for the government to increase funding to the Universities such that they

recruit more teaching staff."

P3 Remarked;

"The quality of teaching and learning is good in terms of programs and curriculum and the university has qualified academic staff in some faculties but unfortunately not in others due to the ceiling on the wage bill government. Some lecturers teach using notes that are not updated while some other lecturers teach for a small duration of time compared to what they are allocated. Others dodge lectures because they are moonlighting in other sister academic Institutions of learning. This therefore affects the quality of teaching and learning which means that the university needs to recruit more fulltime lecturers who can give sufficient time to students."

In relation to the above, p4 remarked;

"The University lacks sufficient facilities that would create a good teaching environment such as spacious libraries and classrooms, class and office furniture, up to date textbooks, e-resources and internet, projectors, computers, clear boards and markers among others for academic staff to use while teaching. Some academic staff have no willingness to learn and others have a poor attitude towards work that affects their level of commitment towards completing the syllabus. This has affected the level of the quality of teaching and learning at the University to the level that it is average and not very good."

The views mentioned above from the interviews show that the quality of teaching and learning would have been better than it was today if some of the issues mentioned

Table 9. Facilities management at Busitema University

	N	Minimum	Maximum	Mean	Std. Deviation	Level
Facilities Management score	184	17.00	55.00	40.3207	6.71597	Good

Note. *M* –mean and *SD*- standard deviation

Table 10. Effectiveness of facilities management

BIODATA	CATEGORIES	EFFECTIVENESS OF FACILITIES MANAGEMENT				TOTAL
		POOR	FAIR	GOOD	VERY GOOD	
		<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	
Age of Participants	Below 30	3(3.0)	19(19.2)	59(59.6)	18(18.2)	99(100.0)
	31-40	0(0.0)	6(1.5)	37(71.2)	9(17.3)	52(100.0)
	41-50	0(0.0)	2(7.4)	22(81.5)	3(11.1)	27(100.0)
	50 and above	0(0.0)	1(16.7)	4(66.7)	1(16.7)	6(100.0)
Total		3(1.6)	28(15.2)	122(66.3)	31(16.8)	184(100.0%)
Level of education	Diploma	0(0.0)	2(4.3)	34(73.9)	10(26.1)	46(100.0)
	Bachelors	3(3.0)	20(19.8)	60(59.4)	18(17.8)	101(100.0)
	Masters	0(0.0)	5(16.7)	23(76.7)	2(6.7)	30(100.0)
	PhD	0(0.0)	1(14.3)	5(71.4)	1(14.3)	7(100.0)
Total		3(1.6)	28(15.2)	122(66.3)	31(16.8)	184(100.0)
Position in University	Head of Department	0(0.0)	0(0.0)	8(100.0)	0(0.0)	8(100.0)
	Academic staff	0(0.0)	5(22.7)	12(54.5)	5(22.7)	22(100.0)
	Administrative staff	0(0.0)	2(9.5)	18(85.7)	1(4.8)	21(100.0)
	Support staff	1(2.0)	4(8.0)	35(70.0)	10(20.0)	50(100.0)
	Students leader	2(2.4)	17(20.5)	49(59.0)	15(18.1)	83(100.0)
Total		3(1.6)	28(15.2)	122(66.3)	31(16.8)	184(100.0)
Years in the University	Less than 1year	1(2.3)	10(23.3)	25(58.1)	7(16.3)	43(100.0)
	1-2 years	1(2.2)	6(13.3)	33(73.3)	5(11.1)	45(100.0)
	2-4 years	1(2.5)	6(15.0)	21(52.5)	12(30.0)	40(100.0)
	5years and above	0(0.0)	6(10.7)	43(76.8)	7(12.5)	56(100.0)
Total		3(1.6)	28(15.2)	122(66.3)	31(16.8)	184(100.0)

above had been addressed. These views were consistent with the results of descriptive statistics which showed that the quality of teaching and learning was good. This means that the interpretation of the quality of teaching and learning between the interviewees who were university top managers and deans of faculties and respondents for the questionnaire survey who were academic, administrative, support staff and students' leaders was in agreement. Overall, it can therefore be stated that the quality of teaching and learning was good.

Effectiveness of Facilities Management at Busitema University

The results in Table 9 show that the overall management of facilities at Busitema University was good ($M= 40.3$, $SD=6.72$). It was affected by low funding, increasing number of students without proportionate increment in the facilities, inadequate supervision and low staffing.

The results in Table 10 regarding an assessment of facilities management at Busitema University show that the biggest percentage that rated facilities management as good was respondents of the ages of 41-50 (92.6%) although all

other age categories also rated it as good. Respondents with PhD rated highest facilities management although still respondents with other education levels also rated it as good. Heads of Department rated FM as good (100%) while other positions also rated it as good. Respondents who had spent in the University more than five years rated FM highest (89.3%) although other respondents in the other categories also rated it as good.

In the interviews, the respondents were asked to give their comment on the level of facilities management.

For instance, P1 said; "University management gives facilities management the priority that it deserves. Planning and budgeting for the facilities is always well done and on time and the facilities procured are to the required standard but there are financial setbacks which hinder the fulfilment of these plans although the African Development Bank (ADB) has provided funds to put in place some facilities to enhance the quality of teaching and learning."

P3 however remarked,

"The planning of facilities in this university is poor because whereas the number of students keeps on increasing the teaching facilities remain static. Quite a number of facilities like study rooms are not adequate and

Table 11. Effect of Facilities Management on the Quality of Teaching

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.577 ^a	.333	.329	6.10022
a. Predictors: (Constant), Facilities Management				

Table 12. Facilities management prediction on quality of teaching and learning

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3383.289	1	3383.289	90.918	.000 ^b
	Residual	6772.711	182	37.213		
	Total	10156.000	183			
a. Dependent Variable: Quality of teaching						
b. Predictors: (Constant), Facilities Management						

conducive hence hindering flexibility in teaching. Storage and servicing of these teaching facilities was a very big challenge and these majorly include projectors, computers and their accessories and motor vehicles among others.”

P4 stated that;

“The poor attitude of some facilities’ managers has led to minimum supervision of facilities usage, which has caused destruction and loss through theft of some facilities that include desktop computers and their accessories, projectors and markers. There is therefore need for increased supervision of the available facilities and construction of more space to create a conducive learning environment for students. This will improve the quality of teaching and learning in the university.”

P5 said;

“Effective teaching and learning needs a wide range of facilities because these play a very big role in attracting students to the University. The Office of the University Secretary which is charged with the management of facilities lacks adequate staff to ensure regular maintenance of these teaching facilities. Those charged with supervision of facilities need to do more for the safety of the facilities.”

The views above from the interviewees suggest that facilities management was inadequate because of low funding, increasing number of students without proportionate increment in the facilities, inadequate supervision and low staffing. This means that facilities management was not very good which was in agreement with descriptive statistics which suggested that facilities management was good.

Association of Facilities Management and Quality of Teaching and Learning

Hypothesis (H₁) test results revealed that facilities management had a significant predictive effect on the quality of teaching and learning. There was a statistically significant positive relationship between facilities management and quality of teaching and learning ($r = 0.577$,

$p < 0.05$). A linear regression was run to predict the quality of teaching and learning based on the effectiveness of facilities management. The results in Table 11 show that there was a significant prediction model ($F = 90.918$, $P < 0.05$) with ($R^2 = 0.333$). This implies that there was a 33.3% effect of facilities management on the quality teaching and learning. This means that 67.7% of the variation was accounted for by other factors not considered under this model. The results in Table 12 showed that facilities management significantly predicted quality of teaching and learning where ($t = 9.535$, $p = 0.000 < 0.05$). This means that for every unit increase of facilities management, the quality of teaching and learning increased by 9.535 units. This means that Hypothesis H1 that facilities management has a significant relationship on the quality of teaching and learning at Busitema University was accepted.

Challenges faced in Facilities Management

The results in Table 13 show that there are a number of challenges of effective management of facilities at Busitema University. The challenges were organised according to the magnitude of the agreed positions. The most significant challenge from the responds was that of limited funding 136(73.9%) followed by the competence of staff being questionable 135(73.3%) followed by the cost of maintaining the facilities being un-affordable 128(69.5%). The least recorded challenges were facilities management not being well integrated in the university’s administrative structure 57(31%) and Lack of existence of standards that could be used to measure the quality level 50(27.1%).

To obtain a clear picture of the challenges of facilities management at Busitema University, the respondents in the interview guide were asked to tell the challenges that affected facilities management in the university. Several responses were given by the interviewees and they are presented here under.

P1 said;

“In this university there is delayed response to facilities

Table 13.Showing Challenges of Facilities Management by Magnitude

S/n	Challenge	N	%	Ranking
C9	Facilities management suffers from limited funding	136	73.9	1
C4	The competence of staff in facilities management is questionable	135	73.3	2
C8	The cost of maintaining a facilities management department is unaffordable	128	69.5	3
C5	There is delayed response to facilities management	126	68.5	4
C6	Facilities management is not done as a routine activity	126	68.5	4
C3	There is lack of sufficient management staff	123	66.9	6
C7	Technology has not been integrated in facilities management	122	66.3	7
C2	Facilities management is not well integrated in the university's administrative structure	57	31	8
C1	Lack of existence of standards that can be used to measure the quality level is a challenge	50	27.1	9

repair, maintenance, replacement and acquisition of new facilities. This problem is exacerbated by lack of sufficient management staff. Further still, the competence of staff charged with facilities management is questionable." In relation with the above,

P4 stated;

"Facility management faces numerous challenges including limited space for teaching and learning, late delivery of the necessary teaching and learning facilities and limited financial facilitation. Overall, there is poor planning, shortage of personnel and shortage of finances to make facilities management efficient."

In relation to the above, P5 remarked that;

"Most teaching facilities especially the classrooms are old and not conducive for effective teaching and learning and yet the funding to construct new ones is inadequate."

Lastly, P6 stated;

"The major challenges of facilities management are inadequate funding and poor attitude from the university management towards facilities management. Therefore, the condition of facilities remains in a sorry state."

The views above show that there were a number of challenges affecting facilities management in the university. These qualitative findings agree with the descriptive statistics results which revealed that there were several challenges that affected facilities management. These challenges include lack of sufficient management staff, low competence of staff in facilities management, delayed handling of facilities that need to be taken care of, lack of integration of technology in facilities management and limited funding. These affect greatly the quality of teaching and learning at the University.

DISCUSSIONS

Overall, the findings revealed that the quality of teaching and learning was good though there were factors that hindered it from being excellent. There was use of explorative techniques, teaching and learning enabled acquisition of job market skills, there was use various facilities, the teaching and learning environment was conducive enabling effective learning, classrooms enabled

flexibility during teaching and learning, effective teaching and learning of practicals and the facilities available promoted students participation in learning activities. However, it was noted that there were still some challenges which included: shortage of students in some academic programs and the not very good quality of the students who are admitted at the university. The university also lacked academic staff especially senior academic staff because a number of these staff were pursuing their masters and PhD studies. The university therefore largely depended on part-time lecturers who only taught whenever they were available which affects the teaching and learning quality. It was also reported that the university lacked sufficient facilities that would create a good teaching environment such as spacious libraries and classrooms, class and office furniture, up to date textbooks, e-resources and internet, projectors, computers, clear boards and markers among others for academic staff to use while teaching.

These findings that the quality of teaching and learning was good was consistent with Suarman (2015) who revealed that teaching and learning quality in a university in Indonesia in terms of the amount of knowledge, learning experience and satisfaction gained from the lecturers was moderate. Similarly, Suarman et al. (2013) revealed that students' in a university in Indonesia perceived the quality of teaching and learning at the university as being at the moderate level.

Further still, Szymenderski et al. (2015) revealed that in Russia, universities did not carry out quality teaching because lecturers were not interested in the quality of teaching and learning; they needed external control and were subsequently managed by making their remuneration dependent on the results achieved. The findings however were inconsistent with Abba and Mugizi (2018) who revealed that in polytechnics in North West geo-political zones of Nigeria teaching was effectively carried out. The findings of the study are consistent with what the stage theory of higher education development proposes and hence a valid theory.

The findings also revealed that facilities management in the university was good but not excellent, meaning that there were still gaps to be addressed. Facilities management was good because University management

prioritized it when planning and budgeting and teaching and learning facilities were procured to the required standard. The African Development Bank (ADB) had also provided funds to put in place some teaching and learning facilities to enhance the quality of teaching and learning. However there were factors that hindered facilities management and these included poor planning by University managers, low funding from government, the increasing number of students without proportionate increment in the facilities, inadequate supervision, low staffing, inadequate and uncondusive study facilities, poor attitude of some facilities' managers has led to minimum supervision and loss through theft of some facilities.

These findings agreed with Nik-Mat et al. (2011) who revealed that facilities management in Malaysia in terms of functional, technical and image was good because of effectiveness of facilities management service delivery to the end users. Similarly, Pitt et al. (2016) revealed that overall facilities management in Bangkok was good with clients satisfied with facilities quality. The findings however were in consistent with the findings of previous scholars like Asiyai (2012) who revealed that school facilities in the schools in Nigeria were generally in a state of disrepair. Xaba (2012) reported that facilities maintenance in the schools in South Africa was poor because schools generally did not have organisational structures for planned facilities maintenance, nor did they have policies on facilities maintenance.

Overall, the discussion shows that the findings of the current study agreed with Trow (1970) argument about massification affecting quality of teaching and learning due to inadequate facilities in institutions and also agreed with findings of studies carried out in the African context such as Nigeria and South Africa where facilities management was still ineffective. However, the findings disagreed with those of studies carried out in the USA which is a developed country and Malaysia and Thailand which belong to Asian Tigers that have highly developed their social services. This means that in the African context, management of public facilities was still inadequate may be due to inadequate funding and incompetent staff.

Hypothesis (H_1) test results revealed that facilities management had a significant predictive effect on the quality of teaching and learning. This finding agreed with the stage theory of higher development and also concurred with the findings of previous scholars. For example, Akpabio (2015) revealed that school facilities give meaning to the teaching and learning process. Similarly, Afework and Asfaw (2014) showed that unavailability of school facilities and instructional materials affected the quality of teaching and learning activities hence a negative impact on the improvement of the quality of education. Leung and Fung (2005) revealed that all of the facilities management improved learning behaviour with most of the improved facilities management correlating to enhanced learning behaviour. McGowen (2007) reported that facilities management affected the quality of teaching and learning influencing student achievement, attendance and

completion rate. Similarly, Ndirangu and Udoto (2011) revealed that the quality of the lecture facilities provided by Kenyan public universities did not meet quality measures of adequacy hence facilities management did not support quality teaching and learning. Likewise, Odeh et al. (2015) found out that physical facilities had significant influence on quality learning of students.

With the findings of the study concurring with the findings of previous studies, this means that facilities management associates with the quality of teaching and learning. Therefore, the managers of institutions and in particular universities should consider effective management of facilities if they are to achieve their goals and objectives. Overall, the discussion shows that the findings of the study agreed with Trow (1970) argument about massification affecting quality of teaching and learning due the challenges addressed.

Recommendations

Busitema University management should make effort to promote the quality of teaching and learning. This should be through promoting explorative techniques, offering courses that enable acquisition of job market skills, promoting teaching and learning that involves use various facilities and providing a teaching and learning environment is conducive.

Busitema University management should improve facilities management. This should be through increasing funding of facilities, ensuring that the number of students increase proportionately with the facilities, providing adequate supervision and increasing the number of staff.

Busitema University management should improve facilities management to promote the quality of teaching and learning. This is because facilities management has a significant effect on the quality of teaching and learning in a university.

Busitema University management should work to solve challenges of facilities management. This should involve increasing the number of staff, training the staff in facilities management, ensuring fast handling of facilities that need to be taken care of, integrating technology in facilities management and increasing funding for facilities.

Conflict of interests

The authors declare that they have no conflict of interests

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