

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/340645067>

ESTABLISHING THE IMPACT OF DOUBLE-INTAKE PROGRAMMES ON THE PHYSICAL INFRASTRUCTURAL LEARNING ENVIRONMENT AT THE UNIVERSITY OF NAIROBI, KENYA.

Article · April 2020

CITATIONS

0

READS

73

2 authors:



Genevieve Wanjala

University of Nairobi

32 PUBLICATIONS 24 CITATIONS

SEE PROFILE



Ongosi Boni Obutu

University of Nairobi

2 PUBLICATIONS 0 CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:



Internationalization of Teacher Education [View project](#)



Education [View project](#)

**INTERNATIONAL JOURNAL OF
INNOVATIVE RESEARCH AND KNOWLEDGE**

ISSN-2213-1356

www.ijirk.com**ESTABLISHING THE IMPACT OF DOUBLE-INTAKE
PROGRAMMES ON THE PHYSICAL INFRASTRUCTURAL
LEARNING ENVIRONMENT AT THE UNIVERSITY
OF NAIROBI, KENYA****GENEVIEVE WANJALA, PhD**

Professor, Educational Planning

Department of Educational Administration & Planning, University of Nairobi, Kenya

ONGOSI BONI OBUTU, MEd.

Graduate Teacher, St. Peter's Suneka Secondary School, P.O. Box 184-40200 Kisii

ABSTRACT

This research was carried out in order to establish the impact of double-intake programmes on the physical infrastructural learning environment at the University of Nairobi, Kenya. It had one objective and one research question. Using descriptive survey research design the target population consisted of 61,000 regular students enrolled in 43 schools/faculties, 5,900 students in their fourth year of study and 2,000 teaching staff. Calmorin and Calmorin (2007) formula for scientifically determining sample size yielded a total of 489 respondents. Simple random sampling was used to select 251 fourth year students while stratified random sampling was used to select 238 teaching staff as actual respondents. Data were collected using questionnaires, document analysis, observation and interview. Quantitative and qualitative data analysis methods were used with the aid of statistical package for social sciences (SPSS) version 26. The findings show that the double-intake programmes intervention was not well thought out resulting in a physical environment that was most unsupportive of teaching and learning— to say the least. Consequently, the research recommends that any envisaged growth in programmes and enrolments be preceded by government meeting infrastructural needs of the university so as not to compromise the quality of university education.

Keywords: *Physical Learning Environment, Teaching and Learning Spaces, Double-Intake, Quality University Education, University of Nairobi*

1.1 INTRODUCTION

Learning can occur anywhere, but the positive learning outcomes generally sought by educational systems happen in quality learning environments. At higher education level, quality education mostly depends on an adequate physical infrastructural environment. Physical infrastructural environments or the spaces, in which formal learning occurs, range from relatively modern and well-equipped buildings to open-air gathering places. A quick review of the literature seems to suggest that the learning environment is central to quality education and must be designed to support all students in their learning process, and teachers and education support staff in their missions. A quality learning environment contributes to well-being and health, and forms the basis for positive cognitive, affective and psychomotor engagements where everyone can reach their full potential. In addition, a quality learning environment is accessible, inclusive, safe and secure for all and has adequate resources and infrastructure, which allow for reasonable class sizes and workload.

Education was declared a human right in 1948, ipso facto sending a clear indication that education is crucial in the lives of individuals all over the world (Bunyi, 2013), but, as Ofoha and Awe (2011) have noted, not only education but quality education is a key ingredient in the socio-economic development of nations. Since the present world needs to seek for competent human resources as a factor of production, the university education system has become an important component of development of modern economic systems of the post-industrial times (Tyurina & Troyanskaya, 2017). The quality and accessibility of university education is key in development of human resources in the present times. It is apparent that quality education can only take place in quality environments which are safe and supportive.. It includes quality of university facilities, interaction between university infrastructure and other quality dimensions, such as; teachers' perceptions of working conditions and their sense of efficiency.

1.1.1 Physical Infrastructural Determinants of Quality Teaching and Learning

The significance of the physical learning environment to expected learning outcomes has been studied and documented. For instance Brooks (2010) showed that the physical learning environment has a significant impact on learning outcomes. Lei (2010) went further and analysed the factors constituting the physical learning environment and described their significance for learning. The physical learning environment consists of the following factors: 1) room size (large, small), 2) shape (square, oval, semicircle), 3) seating (close to/far from the teacher), 4) furniture (flexibly adaptable/fixed), 5) technology (placement of modern technology, availability), 6) lighting (low/high intensity, diverse lighting opportunities, natural/artificial light), 7) thermal conditions (hot/cool, frequency and duration of variation between extreme temperatures), 8) colours (intensity: light, bright, dark colours, multi-coloured patterns) and 9) noise level (frequency, duration, intensity).

Let me illustrate this with examples from research. A quick run through available literature reveals a number of issues about the shape, lighting and colour schemes of teaching and learning environments. For instance, that the shape of a room and furniture arrangements in it have an effect on how students experience the teacher-student relationship. The visual environment influences the perception of visual stimuli as well as the learning outcomes and learning attitudes. Dim lighting calms down and relaxes the learner, whereas bright lighting supports an active approach. The message here is that lighting must be adjustable to suit the needs of various teaching methods. Colours too have been found to increase the efficiency of learning by 5–10%, to reduce absences and to support the moral dimension of those using the room. Colours can calm down, increase interest and affect emotions. A positive classroom colour scheme reaches further than the individual classroom: it establishes a positive image of the entire campus as well as the culture and image of the educational institution.

The sonic environment is a very important factor in learning as well. Disturbing sounds make it more difficult to concentrate, and a high noise level prevents communication and impedes interaction. A favourable sonic environment has a positive effect on information processing speed and listening comprehension. In a good acoustic environment, pupils gave a significantly higher number of correct answers to the teacher's questions. According to Lei (2010), the physical learning environment has an influence on how students experience teaching. When no attention has been paid to the quality of the physical learning environment, students are more dissatisfied with the quality of teaching.

In view of the foregoing discussion, it has emerged that more focus should be put on the development of learning environments to make them better support learning. In Europe, the academic interest has shifted focus to the physical environment in which learning takes place (Wood, Warwick and Cox, 2012). This is because emotional and motivational experiences of the learners and the staff are affected by the physical environment. As a basis for university functions, the students and employees are provided with effective infrastructure which plays an important role in achieving the goals of the university (Kärnä, Julin and Nenonen (2013) Campus facilities affect the perception and student satisfaction. Sandberg and Solvoll (2015), attribute student satisfaction to higher performance, which high performance increases the perception of the quality of an institution translating to more attraction for new admissions.

In Ethiopia, there has been a rapid expansion of higher education system entailing increased access to higher education and widening of participants (Tadesse, 2014), but, rapid expansion of postgraduate programmes has not been accompanied by provision of improved physical facilities (Berhanu, 2014). The enrolment rate is huge for the country compared to the institutional capabilities. Consequently, Ethiopia needs to expand its facilities within the country in tandem with improving the quality of higher education system.

The government's involvement in expansion and management of universities is a widespread phenomenon in Kenya. According to Sifuna (1998), most decisions made have been politicized hence affecting the effectiveness of the Commission for University Education (CUE). The government makes decisions on budgetary matters making it difficult for CUE to play an active role in its functions hence engaging in political struggles with the universities management as well as the politicians who make pronouncements regarding development of universities. Nonetheless, CUE has been strict in abolishing teaching and learning of university education from areas without requisite infrastructure as a check on quality and standards. Universities have vacated the rented buildings in various towns and there is no more learning from secondary schools during the school holidays. This move has equally opened up to greater challenges where the number of students is not matched with the facilities (Kagondi & Marwa, 2017). A report on the status of reforms in public universities 2018 by CUE identifies inadequate physical facilities to accommodate the large numbers of students as well as to offer the ideal learning environment and inadequate academic staff as major challenges in public universities (Ouma, 2018).

1.1.2 University Education Space Standards

Kolb & Kolb (2005) note that the concept of learning space builds on Kurt Lewin's field of theory and his concept of life space. Life space includes all facts which have existence for the person and excludes those which do not. Life space embraces needs, goals, unconscious influences, memories, beliefs, events of a political, economic, and social nature, and anything else that might have direct effect on behavior. The learning space is not necessarily physical place but constructs of the person's experience in the social environment. According to Ellison (2016), a learning space should ideally have four attributes; easily accessed, able to be used for a range of activities, allow learners to socialize and lastly make learners comfortable with a sense of belonging. Keen attention on the physical environment in which learning takes place has become a growing area of academic interest over the past decade.

The United Nations Educational Scientific and Cultural Organization (UNESCO) in its educational facilities programme published a guide for architects and university administrators involved in planning new institutions or remodeling and expanding existing facilities. The planner has to discover the space requirements for the myriad of activities which will take place in a higher education institution (UNESCO, 1979). Planners tend to make comparisons with already existing infrastructure but it is important to note that higher education institutions tend to be unique. The planners have to consider the Full-time Student Equivalent (FTSE) when they are developing the infrastructure of an institution. FTSE is also used when doing student enrolment. Class hours are used to track enrolment of full and part-time students, with full-time students being those with a full credit load and part-time students being those taking fewer credit loads per week. Some recommendations by the UNESCO educational facilities programme publication are:

- The central administrative facilities for 3000 FTSE students should provide 0.55m² per student.
- Close seated lecture theatres should ensure a 0.5m² per FTSE student occupancy.
- Tutorial teaching space for 1 lecturer to 10 students requires an area of 1.4m² per FTSE.

The physical environment can have an impact on the emotional and motivational experiences of students and staff (Wanjala, 2014; Wood, Warwick and Cox, 2012). This knowledge is very crucial for the institutional planners when setting up universities and their campuses. According to Ndirangu & Udoto (2011), overcrowded facilities, poorly maintained lecture theatres and library buildings, and inadequate teaching and learning resources, are likely to impact negatively on student achievement and academic staff motivation.

1.1.3 Access to the Lecture Halls in University Education

Lectures in the university are primarily conducted in auditoriums and lecture theatres which need to consider factors such as thermal comfort, indoor air quality and audio and visual comforts for effective learning. Effective learning spaces are influenced by location, temperature, light, ICT facilities, comfort, noise cleanliness and security. Comfort in this case entails among other things; seating arrangement, comfortable chairs, desk space, food and drinks and washrooms (Ellison, 2016). Since the learning environment can affect the behaviour of the students while doing their studies, educational buildings need to have learning spaces that support the learning process; they have to be secure, comfortable and provide an inspirational setting for learning (Ndirangu & Udoto, 2011; Wanjala., 2014). Gurzynski-Weiss, Long and Solon (2015), say that aesthetic quality appears to play a role, with more participation observed among students in classrooms designed to be more aesthetically pleasing.

Surveys carried out by (Ogeto, 2015; Norrie and Lennon, 2013) indicate that there has been an increase in enrollment of students for university education over the recent years. They note that this increase has an impact on the existing infrastructure. However, they did not seek to find out the impact of huge enrolment on the quality of university education. It is a fact that a backlog of students to join university may occur from time to time which may lead to double intake programmes. However, there is a gap on how best this scenario can be handled without affecting the quality of university education. This study was carried out as a way of providing feedback from which the government and other stakeholders who fund university education get an insight on the need to set up student placement policies that are in line with the existing infrastructure for quality university education.

2.1 THEORETICAL FRAMEWORK OF RESEARCH

This research is anchored on two broad categories of theory about human behaviour and the physical environment, that is: stimulation theories and control theories. *Stimulation Theories* focus on the physical environment as a source of sensory information essential for human well-being. The stimulation may be light, colour, heat, texture, or scent or it may be buildings, streets, and parks. Stimulation theorists propose that

patterns of stimulation influence thinking, feelings, social interaction, and health. Stimulation varies by amount- intensity, frequency, duration, number of sources—and by type. Stimulation theories based on theories of psycho-physiological arousal assume that moderate levels of stimulation are optimal for human behaviour (Gifford, 2007). Thus, both stimulus overload (too much stimulation) and restricted environmental stimulation (once called stimulus deprivation) have a negative effect on human behaviour. Some stimulation theories focus on the direct, concrete effect of stimulation on behaviour; others focus on the meanings people construct regarding particular stimuli. In fact, people respond to both the concrete and the symbolic aspects of their physical environments. **Control Theories** on the other hand focus on the issue of how much control we have over our physical environment, the attempts we make to gain control (Gifford, 2007). Four concepts are central to the work of control theorists: privacy, personal space, territoriality, and crowding. Privacy involves control over information about oneself as well as control over interactions with others. Personal space and territoriality are boundary setting mechanisms that we use to gain greater control over our physical environments. Personal space is a concept about individual behaviour and the use of space to control the interpersonal environment. Territoriality refers primarily to the behaviour of individuals and small groups as they seek control over physical space. Crowding is not always correlated with density; the feeling of being crowded seems to be influenced by an interaction of personal, social and cultural as well as physical factors.

When thinking about human interactions with the physical environment, it is important to consider both the natural and the built environments. The **natural environment** is that part of the environment made up of all living and nonliving things naturally occurring. Most of the research on the relationship between human behavior and the natural environment has been in the stimulation theory tradition—looking for ways in which aspects of the natural environment affect our thinking, feeling, social interaction, and health. There are consistent findings from research using a variety of methods that interaction with natural environments can restore depleted emotional and cognitive resources (White, Alcock, Wheeler and Depledge (2013).

Our interaction with nature can help to recharge our attentional capacities (Felsten, 2009), reduce psycho-physiological stress (Kjellgren & Buhrkall, 2010), and enhance emotional states (Bowler, Buyung, Knight and Pullin (2010).

Although the natural environment can be a positive force, it also has the potential to damage cognitive, emotional, social, and physical well-being. It is the uncontrollable quality of the natural environment that humans try to overcome in constructing the **built environment**, which refers to the portion of the physical environment attributable to human effort. For several decades, environmental psychologists have been studying the impact of the built environment on such factors as mood, problem solving, productivity, and violent behaviour. They have examined physical designs that encourage social interaction, (sociopetal spaces) and designs that discourage social interaction (socio-fugal spaces) Teaching and learning spaces are a good example of the effort that humans have made to design a built environment in which should make learners and their teachers comfortable with a sense of belonging (Ellison, 2016). Apart from teaching and research universities become the centre of the lives of thousands of students. Many a times the institutions become their actual homes. This research based its interest on the University of Nairobi as it is in the heart of the capital city of Kenya with a diverse enrolment from all regions of the country and beyond.

2.2 Statement of the Problem

Tilak (2015), notes that expansion of university education in Kenya has been unplanned. Whereas the student numbers have experienced tremendous growth, the investments in infrastructural provision has been left behind (Berhanu, 2014; Gichohi, 2016). For instance, the Ministry of Education and the Joint Admissions Board made a move to admit to university two groups of candidates in the year 2011, popularly known as the double intake programme. Most universities protested this move but they had to bow to political pressure which was in favour of mass enrolment. New students were joining university while the old students were still

on session. This led to serious problems of inadequate infrastructure to support the huge number of students enrolled in the programme and finally the overcrowding in lecture theatres. As a result, commercial buildings were acquired for the purpose of teaching (Ogachi & Jowi, 2012) leading to mushrooming of university colleges and campuses. Since then, a report on the status of reforms in public universities 2018 by CUE identified inadequate physical facilities to accommodate the large numbers of students as well as to offer the ideal learning environment and inadequate academic staff as major challenges in public universities (Ouma, 2018). Thus the purpose of this research was to establish the impact of the double-intake programmes on the physical infrastructural determinants of a quality learning environment at the University of Nairobi.

3.1 RESEARCH METHODOLOGY

3.1.1 Research Design

The research design adopted for this study was descriptive survey with a focus on establishing the impact of double intake programmes on the quality of education in the University of Nairobi, Kenya. Descriptive survey design was considered the most suitable since it made it easy for us to collect data from the respondents by the way of administration of questionnaires, observation, document study and interviews and use it to analyse the phenomenon that was of interest without manipulating any variables.

3.1.2 Target Population

The research was conducted in the University of Nairobi, Kenya between January and June 2019. . At the time of the study, the university had about 61,000 regular or government sponsored students who were enrolled in 43 schools/faculties. Out of these, there were 5,900 students who were in their final year of study. In addition, there were about 2,000 teaching staff in the university who also formed part of the population studied.

3.1.3 Sample Size and Sampling Techniques

For the purpose of getting a representative sample, the target population was grouped into two. Simple random sampling technique for teaching staff and stratified random sampling of the students was done. Calmorin and Calmorin (2007) provide the following formula for use in order to have a scientific determination of sample size.

$$S_s = \frac{NV + [Se^2(1 - P)]}{NSe + [V^2P(1 - P)]}$$

Where: Ss= Sample size

N= Total number of population

V= Standard value (2.58)

Se= Sampling error (0.01)

P= Largest possible proportion (0.50)

Since the target population in this study was 5,900 fourth year students and 2,000 members of the teaching staff the sample size in this study was as shown in Table 1.

Table 1: Sample size

Target Population	Population	Sample size
Fourth year students	5,900	251
Members of the teaching staff	2,000	238
Total	7,900	489

3.1.4 Research Instruments

Four instruments were used for the data collection exercise. These are questionnaires, document study guide, observation and interview protocol. The questionnaires had both closed and open ended questions. Document study guide provided the required data on infrastructure, enrollment, staff employment and graduation status. We were able to directly observe and record the condition of the lecture halls while the interview protocol enabled us to have a smooth flow of questions and therefore save on time set aside for the interview. All in all, the four research instruments which were developed by us enabled collection of both qualitative and quantitative data.

3.1.4.1 Validity and Reliability of Research Instruments

The questionnaire and the interview protocol were tested for face and content validity by way of employing the pre-testing method. The instruments were administered on five respondents before the main research to check for unclear wordings and ambiguity of the questions. Adequate preparation of the instruments was also done through guidance of the supervisor which helped to establish the content validity. In addition, a Pearson's moment correlation coefficient (r) formula test yielded a reliability co-efficient of about 0.8 which was sufficient enough to judge an instrument as reliable for use in conducting a study.

3.1.5 Research Objectives and Research Questions

The objective of this research study was, to:

1. To establish the impact of double intake programmes on equitable access to the lecture halls at the University of Nairobi.

In order to achieve the said objective, the following research question was formulated:

1. To what extent did the double intake programmes affect equitable access to teaching and learning spaces at the University of Nairobi?

4.1 RESEARCH RESULTS AND DISCUSSION

Out of the 251 questionnaires administered to the students, 216 of them were duly completed and returned giving a questionnaire return rate of 86%. In addition, 238 questionnaires were presented to teachers and 172 of them were duly completed and returned demonstrating a 72% response rate. Furthermore, the interview sessions had a near 90% attendance; while all the documents containing data on the numbers of students enrolled in year 4 of study as well as employment records of staff were easily produced from the student management and human resource management information systems respectively. Finally we were able to carry out a thorough observation of the infrastructural arrangements put in place to create a conducive teaching and learning environment. However, this return rate was considered representative enough and adequate for analyzing and reporting results.

4.1.1 Research Question 1: To what extent did double intake programmes affect equitable access to teaching and learning spaces at the University of Nairobi?

The study sought to answer the question, 'To what extent did the double intake programmes affect equitable access to teaching and learning spaces at the University of Nairobi?' The question was answered using the items that were in the questionnaires and other instruments of data collection. The data on this question was analyzed using descriptive statistics, frequencies, percentages, Chi-square test and the Pearson's coefficient correlation and the results were shown in the following subheadings.

4.1.1.1 Adequacy of facilities to support double intake programmes

Data on the adequacy of facilities to support the double intake programmes in the university was as shown in Figure 1.



Figure 1: Adequacy of facilities to support double intake programmes

Responses in Figure 1 indicate that most of the respondents 70.9% (n=275) did not consider the university as having adequate facilities that could support the double intake programmes while 29.2% (n=113) thought otherwise. Apparently, the growth in student numbers had a direct effect on the access of the facilities in the various campuses of the university. The rising population required more infrastructures to accommodate the needs of various education programmes. This indicated that the infrastructural demands affected the quality of university education in that the population could not be accommodated comfortably by the available facilities agreeing with studies by Ouma (2018). Therefore, it can be interpreted that despite the need to have the double intake programmes to solve the backlog of the students who had completed their form four and needed to join university, the move could compromise the quality of university education just as indicated in the studies by Ndirangu & Udoto (2011). However, the double intake programmes are periodical events that may not warrant infrastructural expansion for short term.

4.1.1.2 Direct or Indirect Effect on Access to Facilities

Responses on how respondents were affected with regard to accessing the facilities in the university was as shown in Table 2.

Table 2: Direct or Indirect Effect on Access to Facilities

Responses	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Total
Frequency	25	56	58	125	124	388
Percentage	6.4	14.4	14.9	32.2	32	100

The responses in Table 2 show that most of the respondents 32.2 percent (n=125) and 32 percent (n=124) agree and strongly agree respectively that they were affected either directly or indirectly by the double intake programmes when it came to access of the facilities for comfortable learning at the university while 6.4 percent (n=25) and 14.4 percent (n=56) strongly disagree and disagree that they were affected. The responses confirmed that the periodic enrollment that was unplanned did not foresee the challenges that would arise. The findings were in line with studies by Gurzynski-Weiss, Long and Solon (2015) who argued that students could not be comfortable in an environment without appropriate infrastructure. It could be interpreted to mean that the university needed more facilities to accommodate the high student population at the time. Findings confirmed results of a study by Kagondou and Marwa (2017) who also concluded that universities did not have the necessary physical facilities to effectively offer teaching and learning to their students.

4.1.1.3 Inability to access lecture halls at times

Data on the inability to access the lecture halls at times when required for use in the university was as shown in Figure 2.

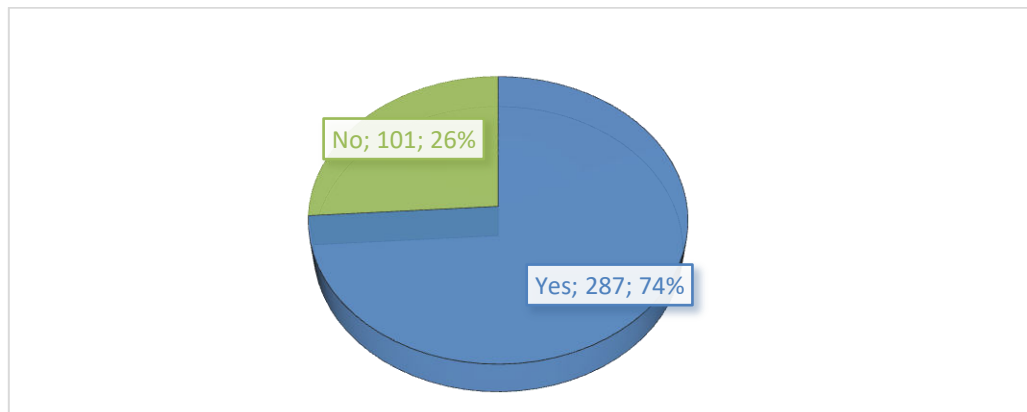


Figure 2: Inability to access lecture halls at times

The findings in the Figure 2 indicate that majority of the respondents 74% (n=287) sometimes would be unable to access the lecture halls when they needed to access them. Only 24% (n=101) of the respondents said that they did not have challenges in accessing the lecture halls whenever they needed to use them. These findings corroborate the studies by Kagondou & Marwa (2017) who also established challenges of access to university facilities where the number of students is not matched with the facilities; which situation, then forced the affected parties to make local arrangements to have their classes at different times to make up for the lost time.

A Chi-Square test was used to test the influence of inadequacy of lecture halls on the inability to access the lecture halls whenever they were needed by students and lecturers for teaching and learning. The findings are as shown in Table 3.

Table 3: Chi-Square test on the inadequacy of lecture halls on the inability to access the lecture halls

	Value	df	Asymptotic significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	56.107 ^a	1	.000		
Continuity Correction ^b	54.216	1	.000		
Likelihood Ratio	83.324	1	.000		
Fisher’s Exact Test				.000	.000
Linear by Linear Association	55.962	1	.000		
N of Valid Cases	388				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 29.41.

b. Computed only for a 2x2 table

Table 3 shows a Chi-Square value of $\chi^2 = 56.107$ at significance level 0.000. The Chi-Square test indicates that the P-value .000 is less than the $\alpha = .01$. It can be interpreted to mean that there was a statistically significant relationship between the inadequacy of lecture halls and the inability to access the lecture halls at

the university. Finally, the Pearson's correlation coefficient was also used to test the relationship between the inadequacy of lecture halls and the inability to access the lecture halls whenever they were needed by students and lecturers for teaching and learning. The findings are as shown in Table 4.

Table 4: Correlation between the adequacy of lecture halls and inability to access the lecture halls

		Adequacy of Facilities	Inability to Access Lecture halls
Adequacy of Facilities	Pearson Correlation	1	.380**
	Sig. (2-tailed)		.000
	N	388	388
Inability to Access Lecture halls	Pearson Correlation	.380**	1
	Sig. (2-tailed)	.000	
	N	388	388

** . Correlation is significant at the 0.01 level (2-tailed).

Table 4 shows the Spearman's Rank Order correlation run to determine the relationship between the adequacy of lecture halls and inability to access the lecture halls as $r_s=0.38$, and $p=0.000$) which can be interpreted to mean that there is a moderate positive correlation between the adequacy of facilities and the inability to access the facilities.

In light of these findings a question was posed as to how the university was able to cope with the large number of students versus the seemingly inadequate facilities. Some respondents alluded to the fact that the university has come up with a scheduling strategy which allowed for some students to go home for long holidays while other cohorts remain in session to continue with their studies and this somehow eased the pressure exerted on the facilities. Other respondents said that the university was forced to introduce evening programmes or timetables that enable learners to access the facilities in shifts. It was noted that some learners have to make local arrangements with their lecturers, so that they could have their classes during the weekends in order to cover their courses in time to avoid the backlogs. There were respondents who noted that the university was trying to come up with more infrastructural developments that would increase the number of teaching and learning spaces. At times some lectures were done in makeshift classrooms such as tents and under tree shades. Students were also urged to pay their fees on time as a way that would enable the university get funds to meet its infrastructural obligations.

5.1 CONCLUSIONS AND RECOMMENDATIONS

5.1.1 Conclusion

In conclusion, although the double-intake programme was deemed to be a temporary intervention and could not warrant expansion of the infrastructure at the university because it was a short-time goal, it was not a well thought out move. Consequently, the intervention resulted in the physical environment that was most unsupportive of teaching and learning— to say the least. Inequitable access to lecture halls demoralized students from attending their classes due to the inconveniences caused. There was a great deal of loss of the learners' time due to the fact that they had to move around looking for rooms and some students eventually ended up postponing their classes. In large teaching and learning spaces like the lecture theatres there was a lot of congestion and, learners could not get comfortable areas in which to take their lecture notes. Writing on

their laps was a struggle that impacted negatively on the learners' attitude. The makeshift arrangements like the tents, were unable to withstand the effects of the rainy season. In addition, lack of appropriate furniture made the teaching and learning exercise extremely stressful. The double intake programmes consequently compromised the quality of university education.

5.1.2 Recommendations

Students who went through the double intake programmes suffered a risk of failure to undertake their academic programmes in an ideal environment because of the shortage of infrastructural provisions at the university. Thus, this study recommends that:

- The university should ensure provision of requisite infrastructure as a pre-condition for allowing new academic programmes.
- Government policies should ensure that the needs of the universities infrastructural demands are documented annually and therefore lay plans based on the envisaged growth.

REFERENCES

- Ajzen, I. (1991). The theory of planned behaviour. *Organisational Behaviour and Human Decision Processes*, 50, 179–211.
- Berhanu, A. (2014). The Social Sciences at the Crossroads: Challenges and Opportunities at Addis Ababa University. *Journal of Higher Education in Africa* Vol. 12, No. 1, Higher Education Leadership and Management pp. 93-110. CODESRIA
- Bowler, D.E., Buyung-Ali, L. Knight, T.M. and Pullin A.S (2010). A systematic review of evidence for the added benefits to health of exposure to natural environments. *BMC Public Health* 10, 456 doi:10.1186/1471-2458-10-456
- Brooks, D Christopher (2011) Space matters: The impact of formal learning environments on student learning *British Journal of Educational Technology* Vol. 42 No 5 Pp. 719 - 726
- Bunyi, G. (2013). "The quest for quality education: the case of curriculum innovations in Kenya", *European Journal of Training and Development*, Vol. 37 Issue: 7, pp.678-691.
- Calmorin, L. P., & Calmorin, M. A. (2007). *Research methods and thesis writing* (2nd ed.). Manila, Philippines: Rex Book Store, INC.
- Ellison, W. (2016). "Designing the learning spaces of a university library", *New Library World*, Vol.117 Issue: 5/6, pp.294-307.
- Felsten G. (2009) Where to take a study break on the college campus: An attention restoration theory perspective *Journal of Environmental Psychology* Vol. 29 Issue 1 Pp. 160-167
- Gichohi, T. W. (2016). *Governance practices by University Management influencing infrastructure development in public universities in Central Kenya*. M.Ed. Project Report, University of Nairobi.

- Gifford, R. (2007). *Environmental Psychology: Principles and Practice* (4th ed.). Colville, WA: Optimal Books.
- Gifford, R. (2007) *Environmental Psychology and Sustainable Development: Expansion, Maturation, and Challenges* *Journal of Social Issues*, Vol. 63, No. 1, 2007, pp. 199—212
- Gurzynski-Weiss, L. Long, A. & Solon, M. (2015). Comparing Interaction and Use of Space in Traditional and Innovative Classrooms. *Hispania*, Vol. 98, No. 1 (March 2015), pp. 61-78. American Association of Teachers of Spanish and Portuguese.
- Kagondi, R. and Marwa, S. M. (2017). Quality Issues in Kenya's Higher Education Institutions. *Journal of Higher Education in Africa*, Vol. 15, No. 1, Special Issue on Trends in Higher Education and Quality Assurance in East Africa, pp. 23-42. CODESRIA
- Kärnä, S., Julin, P. and Nenonen, S. (2013). "User satisfaction on a university campus by students and staff", *Intelligent Buildings International*, Vol. 5 No. 1, pp. 69-82.
- Kjellgren A. & Buhrkall, H.(2010) A comparison of the restorative effect of a natural environment with that of a simulated natural environment *Journal of Environmental Psychology* Vol. 30 Issue 4 Pp. 464-472
- Kolb, Y. & Kolb, D. (2005). *Learning Styles and Learning Spaces: Enhancing Experiential Learning in Higher Education*. *Academy of Management Learning & Education*. Vol. 4, No. 2 (June 2005), pp. 193-212. Academy of Management.
- Lei S.A. (2010) Classroom Physical Design Influencing Student Learning and Evaluation of College Instructors : A Review of Literature in *Education* **Vol. 131 Issue 1 Pp.** 128-135
- Ndirangu, M. & Udoto, M. (2011). "Quality of learning facilities and learning environment: Challenges for teaching and learning in Kenya's public universities", *Quality Assurance in Education*, Vol. 19 Issue: 3, pp.208-223.
- Norrie, K. & Lennon, M. (2013). Introduction and Overview. In NORRIE K. & LENNON M. (Eds.), *Measuring the Value of Post-secondary Education* (pp. 1-16). McGill-Queen's University Press. Retrieved from <http://www.jstor.org/stable/j.ctt1bpm9j1.5>
- Ofoha, D. and Awe B. (2011). Perception of Academics on Quality Assurance of Academic Programmes at the National Open University of Nigeria. *Journal of Continuing, Open and Distance Education* Volume 1, Issue 2, June 2011 ISSN 2074-4722. A Publication of the School of Continuing and Distance Education UNIVERSITY OF NAIROBI
- Ogachi I. and Jowi J. (2012). University Expansion and the Challenges to Social Development in Kenya: Dilemmas and Pitfalls. *Journal of Higher Education in Africa*. Vol. 10, No. 1 (2012), pp. 49-71. CODESRIA
- Ogeto A. (2015). High student enrolment has led to shortage of facilities and services. <http://www.nation.co.ke/lifestyle/dn2/STRAINED-Higher-education-in-crisis/957860-2898380-kbcetsz/index.html>
- Ouma W. (2018). *CUE ponders drastic proposals to transform higher education*. <https://www.nation.co.ke/news/education/CUE-ponders-radical-proposals-to-transform-higher-education/2643604-4545468-10ika8uz/index.html>
- Sandberg, T. H. & Solvoll, G. (2015). "The importance of university facilities for student satisfaction at a Norwegian University", *Facilities*, Vol. 33 Issue: 13/14, pp.744-759.

- Sifuna, D. N. (1998). The governance of Kenyan public universities, *Research in Post-Compulsory Education*, 3:2, 175-212.
- Tadesse T. (2014). Quality Assurance in Ethiopian Higher Education: Boon or Bandwagon in Light of Quality Improvement? *Journal of Higher Education in Africa*, Vol. 12, No. 2, Academic Freedom in Africa pp. 131-157. CODESRIA
- Tilak, B. G. J. (2015). Higher Education in South Asia: Crisis and Challenges. *Social Scientist*, Vol. 43, No. 1/2 (January–February 2015), pp. 43-59. Published by: Social Scientist
- Tyurina, Y. & Troyanskaya, M. (2017). "Perspectives of increase of university education effectiveness: Use of private educational resources", *International Journal of Educational Management*, Vol. 31 Issue: 3, pp.396-403.
- UNESCO. (1979). Planning standards for higher-education facilities: examples from national practice. UNESCO, France.
- Wanjala, G. (2014). *Interactive Teaching Materials for University Lecturers and Professors in Pedagogy*. Training Manual in Pedagogy – Volume One, pp 114-125 and 165-181. University of Nairobi, Centre for Open & Distance Learning, Nairobi, Kenya.
- White M.P. Alcock I. Wheeler B.W. and Depledge M.H 2013, Would You Be Happier Living in a Greener Urban Area? A Fixed-Effects Analysis of Panel Data **Psychological Science** Vol. 24 Issue 6 pp. 920–928
- Wood P. Warwick P. and Cox D. (2012). Developing learning spaces in higher education: *An evaluation of experimental spaces at the University of Leicester*. *Learning and Teaching: The International Journal of Higher Education in the Social Sciences*. Vol. 5, No. 2 (Summer 2012), pp. 49-72.