An Analytic Perspective on Student Enrolment, Instructional Resources and Student Performance in Institutions of Higher Learning in Kenya

Kwambai Bernadette Jepkoech
School of Education, Moi University, Eldoret, Kenya

Abstract: This paper is based on a study which highlighted on the impacts of high student enrollment levels to existing instructional resources in six selected institutions of higher learning in Kenya. The study was guided by the general system theory and employed a mixed research design. A pragmatic philosophical paradigm was applied in the study. Probability sampling method which included simple random and stratified random sampling procedures was employed. The targeted population was 390 respondents from six selected public universities in Kenya. This consisted of 240 lecturers, six deans of schools of education, 48 examination officers and 24 heads of departments in the School of Education. The data collection instruments were closed and open ended questionnaires, interviews and observation schedules. Data was analyzed by descriptive and inferential statistics. The findings of the study showed that student enrollment and student performance correlated negatively in that student population had affected the quality of learning, achievement and the administration of examination in the six public universities. It identified inadequacy, reluctance and delayed program duration as the negative effects of high student enrolment. The study further revealed that even though some public universities had adequately implemented educational policies, improved laboratories, lecture halls, and library facilities, the quality of student performance and achievement was still compromised. The potential beneficiaries of the discussions in this paper would be the deans of schools, heads of departments, examination officers and lecturers in the schools of education in the provision of better management skills on student enrollment level and teaching and learning of resources.
Keywords: Student Enrolment, Teaching, Learning, Resources, Public Universities, Kenya.

INTRODUCTION
Overview
In institutions of higher learning, student enrolment and student performance basically correlate. There has been a rapid increase in public university students' enrolment as witnessed in both private colleges and universities. For example, in Taiwan, enrollment has become a cause for social concern. The World Bank notes that much of this enrollment had been unbridled, unplanned and often chaotic. These results showed deterioration in average quality of student performance and utilization of instructional resources. It had become continuing interregional, inter-country and intra-country inequalities despite it being an increased profit provision in higher education. Enrollment could still have serious consequences. These showed an increase in student numbers with diminishing government subsidies. Most public universities were characterized by a reduction in per student expenditure with, a general spreading of available resources, more thinly among various key processes like student support services, research, library facilities, laboratory equipment and personnel [1].

Based on a study of 14,000 students in 197 elementary schools in developing countries (Nigeria), it was found out that a collective teacher quality was related to greater school effectiveness, equity outcomes, and student achievement in math and reading, in particular where student subgroups were clustered. This gave a clear link to the study on student enrolment and its impact on teaching and learning facilities in selected public universities in Kenya [2].

Research on the quality of pupil outcome indicated that the lack of large-scale and longitudinal research prevented investigation that might lead to a sound understanding of the connection between enhanced professionalism and the quality of pupil outcomes [3].

Statement of the Problem

Globally, governments are very much concerned with student enrollment in university education. One of the most serious problems facing public universities is a continuous increase in student population which has resulted in limited instructional resources. In order to overcome the problems, governments remit funds to public universities to finance their needs. However, complains exist from users of teaching and learning facilities on existing instructional resources. They argue that these are inadequate and inaccessible to all students. It was, therefore, important to analyze whether or not if the existing instructional resources were actually affected by the student enrollment level. Discussions on quality issues on student enrollment in university education in Kenya identified that the management of public universities in the country had faced serious human resource challenges. These challenges arose from the availability of a rapid enrollment in university education in the country which had not been accompanied with the provision of resources in order to maintain high standards, and quality relevance. A study by Okioga *et al*., [4] served as a guiding link to the current study on the impact of high student enrolment on student performance in six selected public universities in Kenya. This study argued that high student enrollment exercised challenges on the quality of student performance. In turn, these challenges hamper opportunities in higher education globally, regionally and nationally. This research, however, had been undertaken to discern the impact of high student enrolment to student performance in six selected public universities in Kenya hence the study investigated the impact of high student enrolment on learner performance facilities in public universities in Kenya as envisaged.

Theory and Conceptual Framework

The study adopted the systems theory as propagated by Ludwig von Bertalanffy and later adopted by Owen [5]. This was advanced as *allegemeine Systemlehre* (general theory of systems or, more popularly, general system theory). Systems theory has been proposed as a potential overarching framework for dealing with many issues in human behavior. Contributors to systems theory have come from many diverse fields, including physics, biology, anthropology and psychology [6]. The systems theory in its characteristics is regarded as an organization with various functionalities which are partly economic, partly technical, partly political and partly social. It consists of parts, each of which forms a sub-system and an organization itself is a part of a larger system namely the environment, society, government and universities inclusive. A system has interrelationships among the parts of each system so that changes in one part lead to changes in another. A system has the function of management that brings about four aspects namely; integrative activities in the different parts of each sub-system, the different sub-systems within the organization, the different sub-systems themselves and between the system and their environment.

This theory was adopted because it is fairly straight-forward in its suggestions regarding managing change. The techniques offered are a useful demonstration as a willingness to go beyond simple relationships. It was therefore an attempt to fill in some of the more complex details of the effects of enhanced student enrollment, especially on student enrolment and utilization of instructional resources and student performance in selected public universities in Kenya.

Literature Review: Student Enrolment in University Education vs. Student Performance

A study by Cordingley *et al*., [7] explained that in countries such as Brazil, Ecuador, Argentina, Puerto Rico, Colombia and Venezuela, reforms to improve on educational systems have witnessed a systematic review of subjects where specialist improved on scientific concepts, problem solving, mathematical skills, literacy skills, reasoning, and use of ICT. This included an affective development on attitudes to learning, motivation and self-esteem.

Thurston *et al.* [8] observed that the possibility of measuring student impact in terms of an increased pupil attainment related to changes in classroom practice attributes. This could be concluded changes in professional practice of teachers. However it was supported by a well structured opportunity that allowed teachers to draw support and advice from each other which was positively associated with action research partnerships between schools and universities for the improvement of pupil outcomes. Similarly, mentor training and development has been found to lead to improvements in teaching and learning. A small-scale survey (95% response rate) by 20 teachers following a one-year course in previous studies on expert teaching in Northern Ireland concluded that changes to practice was most likely to occur where teachers: had time to reflect and review their practice; participate in collegial discussions and observations with shared practice, encouraged professional development; learning in school context; and the undertaking of longer term professional development [9-12]. The study was a vital guide to the prevailing condition on student performances as determined by the student enrollment in Kenyan public universities.

Day *et al*., [13-16] explained that teacher commitment was very important in professional development and would not be divorced from the wider contextual understanding of enhanced teacher commitment to their profession. In this case, standards-

based approach to professional development served to decrease non commitment. It was suggestive that policymakers and school leaders should consider professional development for the achievement of educational practice positively. In this case the teaching professional values are acknowledged and built on.

METHODOLOGY

The study adopted a mixed research design with a pragmatic philosophical paradigm. The study was conducted in six selected public universities in Kenya - Moi University (MU), Egerton University (EU), Maasai Mara University (MMU), University of Kabianga (UOK), Masinde Muliro University of Science and Technology (MMUST) and the University of Nairobi (UON) - which were selected using purposive sampling due to their uniqueness. Moi University is located in Uasin Gishu County. It is 30 kilometers from Eldoret town, and 293.6 kilometers from Nairobi, the capital city of Kenya while Egerton is located in Nakuru town, which is 153 km from Eldoret town and 158 kilometers from Nairobi. Maasai Mara University is 142 kilometers from Nairobi City. The University of Kabianga is 288 kilometers while the University of Nairobi, being the oldest and largest in terms of resources and departments, is located in Nairobi, Kenya.

The rationale for the selection of the six selected public universities was that most of the "mother universities" had relocated some resources to their satellite campuses. Furthermore, some of these universities were leading among the issues and factors considered among public universities in Kenya, such as instructional resources, student enrollments and student performance. Purposive sampling was used to select the University of Nairobi because of being the largest and oldest university, Egerton university was picked because of its excellence in agriculture-oriented educational programs, Masinde Muliro University of Science and Technology was selected due to its technology-oriented educational programmes, University of Kabianga and Maasai Mara University were selected because of being excellence centers of learning of their former satellite programmes and Moi university was selected because it is the centre for educational programmes and innovation. The study was pilot tested in the University of Eldoret because of logistics.

In the study, open ended questionnaires, semi structured interview schedule, and semi structured observation were used to collect views from 191 respondents. Content validity was performed by expert judgment. The instruments were scrutinized by experts in the school of education in Moi University where judgments were drawn from management oriented specialization. The consistency of the instruments was administered using the test retest reliability coefficient, where two sets of data were obtained from the same group of respondents at varied times. During the piloting, the questionnaires were correlated using the Pearson product moment correlation. The study correlation was guided by how consistent the results were. Table-1 shows the results of the reliability of the research instruments.

Table-1: Reliability of Research Instruments

Instruments	Reliability coefficients
Deans of schools	0.83
Chairpersons of departments	0.79
Lecturers	0.78
Examination Officers	0.77

Source: Field Data (2014)

The questionnaires were piloted among thirty respondents in the University of Eldoret on the impact of student enrolment on teaching and learning instructional resources in public universities in Kenya. The instruments were piloted tested in two occasions within aduration of one month in the School of Education in its four departments in the University of Eldoret. The study findings revealed that all the instruments used had a reliability of 0.619 which was not reliable but when the unreliable variable was exposed the reliability rose to 0.747. The results signified that the instrument set were reliable for the study.

The data was collected in four phases. First, the researcher visited the area of study to familiarize themselves with the research area while obtaining the relevant data for the research. The researchers conducted a survey on the potential respondents in order to obtain information related to the area of study. The findings of the study enabled the existence of clarity on the expectation of the study as guided by the existing questionnaires. Second, the researcher established a rapport with the potential respondents and authorities in order to obtain clearance to study the problem in the departments of the six selected public universities in Kenya. Third, observation was conducted to identify the major issues in teaching and learning facilities. Fourth, there was the interviewing of the

potential respondents through a face-to-face interview method. Information was collected through the use of checklists and interviews schedules. The questionnaire was self administered with the use of a few research assistants. Several statistical analyses of quantitative and qualitative data were conducted as follows: First, qualitative data was analyzed using descriptive statistics which included frequencies, percentages, mean scores and standard deviation. Second, quantitative data was exposed to inferential statistical tests. The study summarized data into information by factor analysis.

FINDINGS AND DISCUSSION
Impact of High Student Enrolment on Student Performance
The study first conducted a reliability and factor analysis to determine which variables were reliable for the study. The findings of the reliability test and factor analysis are as presented in Table-2.

Table-2: Responses of Deans on Impact of High Student Enrolment on Teaching and Learning

IHSE	Responses (Percentage)				
	SA 5	A 4	UN 3	SD 2	D 1
High student numbers affects general student performance and instructional resources	1(17%) 4(66%)	4(66%) - -	- 1(17%) 1(17%)	1(17%)	- 1(17%)
Student population is affected their grades	4 (66%)	4(66%)	-	-	1(17%)
Student population enhance delayed student program ending	1(17%)	4(66%)	-	1(16.7)	-
High student numbers leads to laxity in learning	1(17%)	-	1(17%)	1(16.7) -	-
Lecturer student contact hour affected summative examination	4(66%)				1(17%)

When asked how high student enrollment affected the learners' performance and instructional resources, the Deans of the Schools of Education in the six selected universities in Kenya stated that it affected the general student supervision, summative evaluation, examination results and the general student activity. These findings indicated that one Dean disagreed that student enrollment had an impact on student performance 1(17%) and that there was inadequacy. Four deans of school of Education responded that they strongly agreed 4 (66%) and accepted that student performance and instructional resource use was adequate.

When asked on how high student enrollment affected the learners' performance, the deans observed that it was on the general student supervision, research work and students' continuous assessment. The findings indicated that one dean disagreed that student enrollment had an impact on examination administration 1(16.%)] and that there was inadequacy. Four deans (66 %) of schools responded that they strongly agreed that there was an impact and that the student performance was satisfactory.

When asked on how high student enrollment affected the learners' performance, the Examination Officers in the schools of education in the six selected public universities said that high student enrollment affected the learners' performance, general student supervision and lecture attendance. The findings indicated that 10 officers disagreed that student enrollment had an impact on examination administration while 2 (8%) lecturers disagreed hence there was inadequacy.

Table-3 shows the responses of the heads of departments when asked on how high student enrollment affected the learners' performance. They stated that it affected general student supervision, lecture hall use, laboratories, libraries and student: lecturer ratio. The findings indicated that one officer disagreed that student enrollment had an impact on examination administration 4 (17%) and that there was inadequacy. Four heads of department from the schools of education responded that they strongly agreed 10 (83%) and that the instructional resources were adequate.

Table-3: Head of Department's Responses on Impact of High Student Enrolment on Learner Performance

IHSE	Responses (percentage)				
	SA	A	UN	SD	D
	5	4	3	2	1
1. HSE affects Examination process	10(83%)	4(17%)	-	--	-
2 . HSE affects examination setting	4(17%)	-	-	10(83%)	-
3 HSE Examination moderation-	4(16.7%)	-		10(83%)	-
4 HSE affects confidentiality encourages Cheating	10(83%)	4(17%)	-	--	-
5. HSE affects examination grading	4 (17%)	-	-	10(83%)	-

Table-4 shows the responds of the lecturers' when asked on how high student enrollment affected the learners' performance. They explained that it affected the general student supervision, lecture hall use, laboratories, libraries and student: lecturer ratio. The findings indicated that forty lecturers disagreed that student enrollment had an impact on examination administration, 40 (60%), and that there was inadequacy. Ten lecturers from the schools of education responded that they strongly agreed 10 (20%) and that here was no impact hence the instructional resources were adequate.

Table-4: Lecturers Responses on Impact of High Student Enrolment on Learner Performance

IHSE	Responses (percentage)				
	SA	A	UN	SD	D
	5	4	3	2	1
1. HSE Examination process	10(20%)	40(60%)	-	10(20%)	-
2. HSE affected exanimation setting	40(60%)	10(20%)	-	10(20%)	-
3. HSE affects examination moderation	40 (60%)	10(20%)	-	10(20%)	
4. HSE Examination confidentiality and cheating	40(60%)	10(20%)	10(20%)		
5. HSE affects student grading	40(60%)	10(20%)	-	10(20%)	-

Table-5 shows the responses of the Examination officers' in the schools of education in the selected six public universities when asked on how high student enrollment affected the learners' performance such as the general student supervision, examination setting, confidentiality, cheating, grading and delayed report generation. The findings indicated that 5 officer disagreed that student enrollment had an impact on examination administration and formed 36% of the total population of respondents. 2 Officers disagreed at 8% and 25% respectively and accepted that there was no inadequacy. Four examination officers from the schools responded that they strongly agreed 4(50 %) that it affected the examination confidentiality for it allowed cheating in examinations and four officers (29%) supported them that it encouraged student grading congestion during report generation and that instructional resources were inadequate.

Table-5: Examination Officer's Responses on Impact of High Student Enrolment on Learner Performance

IHSE	Responses (percentage)				
	SA	A	UN	SD	D
	5	4	3	2	1
1. HSE affected examination process	4(29%)	-	5(36%%)	-	5(36%)
2. HSE affected examination setting	4 (50%)	2 (8%)	-	2 (8%)	-
3. HSE affected confidentiality Encourages cheating	4 (29%)	-	5 (36%)	5 (36%)	-
4. HSE Affects student grading room congestion	4 (50%)	-	2(8%)	2 (25%)	-
5. Affects exanimation policy is a problem	4 (50%)	2(25%)	-	-	2(25.%)

Table-6: Summary on Student Enrollment on Learners Performance

HSE		Mean	%	Std Deviation
1.	High students numbers affects student behaviour	4.3094	86.19%	0.89967
2.	High students number enhances peer influence	4.3214	86.43%	0.74204
3.	High student enrollment affects class attendance encouraging skipping of lessons	4.3286	86.57%	0.84345
4.	Student transcription preparation is adequate	3.9568	79.145%	0.96961
5.	High student enrollment minimize lecture: student hour contact	3.8786	77.57%	1.15968
6.	High student number affects class attendance	4.5000	90%	0.51887

N = 142
Source: Survey Data (2014)

The findings on the impact of student enrolment on student performance indicated that a majority of the respondents that is 90% were of the opinion that high student enrolment affected the learner's performance as per their class attendance. One can therefore conclude that the high number of students affect the attendance of students, since it is not easy for the lecturer to keep track on who has attended the lecture and who hasn't; therefore it is easy for students to keep skipping lectures without being noticed.

These findings were in agreement with information released by Moi University Bulletin Press, VILIR [17], which asserted that when the ratio of students: lecturer was too high, it led to lecturers being overworked. Furthermore courses could be in adequately covered and that students adopted the culture of missing lectures since they were too many for a lecturer to control. These statistics were also supported by the government of Kenya release which also asserted that the lecture: student ratio was 1 lecturer to 705 students [18]. This made it hard for the lecturers and easier for the students to miss classes and only make an appearance on the examination day.

CONCLUSION

Based on the research findings, a majority of the respondents had a positive attitude towards student enrolment level and student performance in public universities in Kenya. The Deans of school in education stated that various challenges prevailed when there were increasing student enrollment levels. The heads of department stated that student enrolment level and learning correlated negatively in public universities in Kenya. The respondents appreciated that student enrollment and the quality of education in public universities contributed to incomplete end of semester output processing time. The effects of student enrollments on academic performance of students were reflected as having a negative impact. Furthermore, the influence of student enrolment level on the administration of examination in public universities was seen to have contributed to cheating in examination.

RECOMMENDATION

Based on the objectives of the study on the effects of student enrolment on teaching and learning resources, effects of student enrolment on quality of teaching, effects of student enrolment on instructional methods, effects of student enrolment on academic performance of students, effects of student enrolment on examination administration and the effects of student enrolment on instructional methods, this paper formulates the following five recommendations:

- Universities need to improve on existing teaching and learning, facilities such as e-evaluation tools, e-library searches, e-laboratory sciences and methodologies as a means of improving the quality of learning and teaching in public universities in Kenya.
- Universities need to improve on the quality of teaching and learning by recruiting more lectures and non-teaching staff to match the increase in student enrolment as well as the lecturer incentive system. This will improve on student performance and achievement.
- Public universities need to encourage the use of desirable instructional methods that will improve on the quality of teaching and learning methods.
- Universities need to improve on the quality of evaluation, monitoring and assessments of student progress work and instructional facilities in ration to student enrolment levels.
- Public universities need to improve on existing spacing and capacities of existing instructional facilities such as libraries, laboratories and lecture halls. The aspect of the students' access to adequate learning resources should not be ignored.

REFERENCES

1. Mok KH. Reflecting globalization effects on local policy: Higher education reform in Taiwan. Journal of education policy. 2000 Nov 1;15(6):637-60.
2. Heck RH. Examining the relationship between

teacher quality as an organizational property of schools and students' achievement and growth rates. Educational Administration Quarterly. 2007 Oct;43(4):399-432.

3. Totterdell B. The practice development accreditation programme at the University of Leeds. Practice Development in Health Care. 2004 Sep 1;3(3):130-42.

4. Okioga CK, Onsongo EN, Nyaboga YB. Quality Issues in the Expansion of University Education in Kenya, the Human Resource Challenges and Opportunities. Chinese Business Review. 2012 Jun 1;11(6).

5. Craddock N, O'donovan MC, Owen MJ. Genes for schizophrenia and bipolar disorder? Implications for psychiatric nosology. Schizophrenia bulletin. 2006 Jan 1;32(1):9-16.

6. Hardy. Effects of Instructional Resources and Motivational Self Task. USA: University of Chesally. 2008.

7. Cordingley P, Bell M, Isham C, Evans D, Firth A. What do specialists do in CPD programmes for which there is evidence of positive outcomes for pupils and teachers. Research Evidence in Education Library. 2007.

8. Thurston, A., & Topping, K. J. (2007). Peer Tutoring in Schools: Cognitive Models and Organizational Typography. Journal of Cognitive Education and Psychology, 6(3), 356-372.

9. Angold A, Costello EJ. The child and adolescent psychiatric assessment (CAPA). Journal of the American Academy of Child & Adolescent Psychiatry. 2000 Jan 31;39(1):39-48.

10. Lees L, Wyly EK, Slater T, editors. The gentrification reader. London: Routledge; 2010.

11. Dallat J, Moran A, Abbott L. A collegial approach to learning and teaching as the essence of school improvement. Teacher Development. 2000 Jul 1;4(2):177-98.

12. Sandgren A, Strong M, Muthukrishnan P, Weiner BK, Church GM, Murray MB. Tuberculosis drug resistance mutation database. PLoS medicine. 2009 Feb 10;6(2):e1000002.

13. Kahle JA, Day MN, Hofstee HP, Johns CR, Maeurer TR, Shippy D. Introduction to the cell multiprocessor. IBM journal of Research and Development. 2005 Jul;49(4.5):589-604.

14. Day C, Kington A, Stobart G, Sammons P. The personal and professional selves of teachers: Stable and unstable identities. British educational research journal. 2006a Aug 1;32(4):601-16.

15. Flores MA, Day C. Contexts which shape and reshape new teachers' identities: A multi-perspective study. Teaching and teacher education. 2006b Feb 28;22(2):219-32.

16. Day DV, Harrison MM. A multilevel, identity-based approach to leadership development. Human Resource Management Review. 2007 Dec 31;17(4):360-73.

17. Bolles RN. The 2009 what color is your parachute?: a practical manual for job-hunters and career-changers. Random House Digital, Inc.; 2009.

18. Kenya AI. Indicator Survey 2007. Collaborating Institutions-Kenya AIDS Indicator Survey. Republic of Kenya. 2009 Sep.