

**INSTITUTIONAL FACTORS INFLUENCING STUDENTS'  
PERFORMANCE IN DIPLOMA TECHNICAL  
EXAMINATIONS IN NATIONAL YOUTH SERVICE  
TRAINING INSTITUTIONS IN NAIROBI CITY COUNTY,  
KENYA**

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**A Research Project Submitted in Partial Fulfilment of the  
Requirements for the Award of the Degree of Master in  
Educational Administration**

**University of Nairobi**

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## **DECLARATION**

This research project report is my original work and has not been presented for award of a degree in any other University.

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## **DEDICATION**

The study is dedicated to my late mum Lydia Wandia Wamiti and my late dad Joseph Wamiti, my brothers and sisters.

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I am very grateful to the Almighty God for creating an opportunity for me to study, giving me good health, finances and strength to complete the course. Special thanks go to my supervisors Jeremiah M. Kalai, PhD. and Dr. Reuben Mutegi for giving me expertise, guidance support and encouragement.

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## **ABBREVIATION AND ACRONYMS**

|               |  |
|---------------|--|
| <b>EE</b>     | Electrical Engineering   |
| <b>GOK</b>    | Government of Kenya  |
| <b>HODs</b>   | Head of Departments  |
| <b>HRM</b>    | Human Resource Management                                      |
| <b>ICT</b>    | Information Communications and Technology                      |
| <b>KNEC</b>   | Kenya National Examinations Council                            |
| <b>MDG</b>    | Millennium Development Goals                                   |
| <b>ME</b>     | Mechanical Engineering   |
| <b>MOEST</b>  | Ministry of Education, Science and Technology                  |
| <b>NYS</b>    | National Youth Service   |
| <b>NYSEI</b>  | National Youth Service Engineering Institute                   |
| <b>NYSIBS</b> | National Youth Service Institute of Business Studies           |
| <b>NYSTI</b>  | National Youth Service Training Institute                      |
| <b>OECD</b>   | Organisation for Economic Co-operation and<br>Development      |
| <b>TVET</b>   | Technical Vocation Education Training                          |
| <b>TIVET</b>  | Technical Industrial Vocation and Entrepreneurship<br>Training |
| <b>TVETA</b>  | Technical Vocation Entrepreneurship Training<br>Authority      |
| <b>U.S.A</b>  | United State of America  |

## ABSTRACT

The purpose of this study was to investigate the institutional factors influencing students' performance in diploma technical examinations in National Youth service training institutions in Nairobi, Kenya. The study objectives were to establish the influence of adequacy of teaching and learning resources, teacher-student ratio, and principals' supervision of teaching activities and determine the influence of level of adequacy on performance of service men and women in diploma technical examinations. The study employed ex post facto design which is used when the researcher cannot manipulate independent variable since the manifestation had already occurred. Random sampling was employed to select thirty lecturers across departments involved, stratified sampling to select three hundred service men and women as per course enrolment and purposive sampling to select nine heads of departments from National Youth Service Engineering Institute, National Youth Service Institute of Business Studies and National Youth Service Technical Institute. Both questionnaires and observation list were used in data collection. SPSS was used to generate frequencies, cross-tabulation, chi-square tests and correlation coefficient statistics that were used to answer research questions. All tests were done at 0.05 level of significance for both t-square and Chi-tests. The major findings of the were that:teaching and learning resources, teacher student ratio, supervision of lecturers and adequacy of physical resources influenced performance in diploma technical examinations in National Youth Service institutions. The study recommended increase teaching and learning resources, employment of more lecturers, increased supervision frequency and physical facilities in NYS training institute. Further studies should be replicated in the other fourteen institutions in National Youth Service and in different ministries to establish whether there is a variance in performance in diploma technical examinations, studies on other factors influencing performance other than those done by this study

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background to the study**

Academic performance is important in higher educational institutions and success in national examinations is important to all students globally. Students' achievements in technical education directly influence national productivity and ability to compete in global economy (World Bank,2010). Technical and Vocational Training (TVET) is the study of technologies, practical skills acquisition, and occupations related knowledge on top of general education. Technical education promotes industrial, economic and social progress globally so high failure rates in diploma technical examinations reduce graduates and increase labour force training cost (Reddan & Harrison, 2010).

In the whole world specialists are scarce and no country can develop without an innovative TVET system (Engin,2009).In developed and developing countries like Italy, Brazil, China, Sweden and Japan expose students to TVET, scientific investigations and application at early age. At least 30 percent of upper secondary students pursue TVET in Europe,30-40 percent in China, India and South East and less than 20 percent in Africa (Reddan & Harrison, 2010).Governments enhance TVET in Egypt, Tanzania, Liberia, Zambia, South Africa, Kenya, Jordan and Syria to match shifting workforce demands (Kession, 2014).



According to Haimson (2014), teaching-learning resources, class size, complex course materials and technology (internal) and financial and social (external) factors affected performance in United States of America. Alexander and Lewis (2014) reported that conditions of American educational infrastructure were deteriorating and inadequate leading to reduced learning and poor performance implying there was significant relationship between quality of infrastructure and student's achievement though it is ineffectual without other factors in place (Andrew,2008; Tanner,2009).

TVET programs in Africa have been restructured to be responsive to industry demands but its expensive nature requires necessary, and adequate facilities and equipment for the system to be effective (Reddan & Haarison, 2008). According to Bamiro and Adedeji (2010), African governments were increasingly reshaping TVET to be more attractive, efficient and effective as it oriented to world of work. African Union Commission (2013) report stressed that African countries revitalized TVET for skill acquisition through skill-based training.

Poor performance was linked to inadequate teachers, teaching-learning and infrastructural facilities like workshop, and unequipped libraries in Nigeria (Amadi, 2011). Three different forms of TVET in Ghana evolved: Formal system offered in National Vocational Training Institute (NVTI) and Ghana Education Service (GES) Technical, Non-Formal with no certification and Informal flexible programs and processes offered in designated venues

(Boateng,2009).Malawi emphasized need to promote self employment through TVET (Afeti, 2014).

Two studies, done at Tennessee and California on class size reduction programme found that reduced student-teacher ratio increased student performance (Haimson, 2014). Students with close interaction with teachers and their peers in New York gained more than those that lacked such opportunities (Fullan, 2007). Learning in Nigeria occurred in conducive, non-stressful environment with good teacher-student ratio (Asiabaka,2008).West Indies Heineesen (2010) noted that class size impacted upon technical examinations performance.

According to Kession (2014) supervision was the responsibility of school administrators in New York. There were external and internal supervisors in most African countries (Heineesen, 2010). Supervisory activities in Kenya were delegated to inspectorate professional arm of Accreditation which planned, organised, co-ordinated, influenced, communicated and evaluated to maximize students' performance(MOEST,2008).Training branch officers at headquarters supervised principals who supervised lecturers(NYS,2008).

In Kenya, previous studies revealed that poor performance in diploma technical examinations was hampered by inadequate funding and teaching-learning resources, obsolete tools and equipment, lack of structured supervision by ministry, and infrastructure (MOEST,2008;GOK,2012). TVET refers to a range of learning experiences relevant to world of work and

occurred in educational, training institutions and work places contexts. Technical institutions were arranged in levels and in various ministries including NYS in Public Service and Gender Ministry (TVET Bill,2012).

The Kenya National Youth Service (KNYS) was established by an act of parliament (The National Youth Service Act, cap 208, laws of Kenya) on 1<sup>st</sup> of October, 1964 with the objective of creating a pool of technical, disciplined and organized youth to undertake national development programmes. The main purpose was to alleviate youth unemployment in both formal and non-formal sectors by imparting employable skills. Recruits were enrolled from all counties, undergo paramilitary training for six months, did three months nation building and joined Diploma courses (NYS Act, 1964).

Different units with similar equipment offered inter-related diploma courses for three years. Students were examined in July and December by Kenya National Examinations Council (KNEC) the national body that sets, conducts and marks all examinations below a degree countrywide. Grading was in terms of Distinctions;1&2, Credits;3&4, Pass;5&6, Referred;7&8, and Fail. A candidate had to pass each module before continuing to the consecutive module. Therefore failure in even one subject extended completion time (KNEC, 2016). Table 1.1 shows 2013-2017 diploma technical examinations performance;

**Table 1.1 Performance in Diploma Technical Examinations 2013-2017**

| Year | Quality of pass   | NYSTI |     |    | NYSEI |     |    | NYSIBS |     |     |
|------|-------------------|-------|-----|----|-------|-----|----|--------|-----|-----|
|      |                   | EE    | ICT | ME | EE    | ICT | ME | ICT    | HRM | BMT |
| 2013 | Distinction (1&2) | 2     | 5   | 5  | 10    | 14  | 8  | 13     | 15  | 16  |
|      | Credit (3&4)      | 10    | 8   | 7  | 11    | 13  | 18 | 15     | 14  | 13  |
|      | Pass (5&6)        | 16    | 17  | 17 | 22    | 14  | 12 | 9      | 8   | 12  |
|      | Referrals (7&8)   | 7     | 10  | 6  | 0     | 1   | 0  | 0      | 0   | 1   |
|      | Fail (9)          | 6     | 8   | 7  | 0     | 0   | 0  | 0      | 0   | 0   |
| 2014 | Distinction (1&2) | 0     | 1   | 3  | 9     | 11  | 11 | 8      | 11  | 12  |
|      | Credit (3&4)      | 10    | 5   | 17 | 16    | 17  | 18 | 10     | 9   | 18  |
|      | Pass (5&6)        | 20    | 23  | 10 | 17    | 21  | 11 | 15     | 13  | 18  |
|      | Referrals (7&8)   | 15    | 9   | 10 | 0     | 1   | 1  | 0      | 0   | 1   |
|      | Fail (9)          | 11    | 5   | 16 | 0     | 0   | 0  | 0      | 1   | 1   |
| 2015 | Distinction (1&2) | 0     | 2   | 4  | 9     | 13  | 10 | 9      | 6   | 12  |
|      | Credit (3&4)      | 9     | 5   | 8  | 18    | 18  | 17 | 8      | 8   | 15  |
|      | Pass (5&6)        | 10    | 13  | 7  | 13    | 25  | 20 | 13     | 14  | 21  |
|      | Referrals (7&8)   | 7     | 10  | 11 | 1     | 0   | 1  | 0      | 0   | 2   |
|      | Fail (9)          | 16    | 17  | 12 | 0     | 0   | 1  | 0      | 0   | 0   |
| 2016 | Distinction (1&2) | 1     | 3   | 2  | 7     | 12  | 9  | 6      | 8   | 15  |
|      | Credit (3&4)      | 8     | 9   | 6  | 9     | 12  | 12 | 11     | 13  | 20  |
|      | Pass (5&6)        | 14    | 12  | 15 | 20    | 18  | 20 | 17     | 13  | 25  |
|      | Referrals (7&8)   | 6     | 13  | 6  | 0     | 1   | 0  | 1      | 1   | 0   |
|      | Fail (9)          | 9     | 13  | 9  | 1     | 1   | 0  | 0      | 0   | 0   |
| 2017 | Distinction (1&2) | 1     | 0   | 1  | 5     | 8   | 10 | 9      | 8   | 9   |
|      | Credit (3&4)      | 10    | 9   | 5  | 12    | 15  | 15 | 8      | 11  | 14  |
|      | Pass (5&6)        | 11    | 10  | 16 | 16    | 21  | 27 | 21     | 19  | 22  |
|      | Referrals (7&8)   | 7     | 12  | 6  | 1     | 1   | 1  | 0      | 0   | 0   |
|      | Fail (9)          | 5     | 9   | 6  | 1     | 1   | 0  | 0      | 0   | 0   |

**Source: Kenya National Examination Council**

## 1.2 Statement of the problem

In Kenya, national examinations are used for judgement of student ability, selection of education advancement and employment. Kenya vision 2030 objective is to industrialize Kenya to a middle-income country and provide high quality life for citizens. The economy essentially relied upon TVET as

the leading engine that produced adequate middle level professionals who drove the economy towards attainment of the vision. The constitution recognizes role of science and technology in national development and promotion of intellectual property rights of Kenyan people. The sub-sector was yet to meet the requirement of producing skilled and adequate middle level human resource demanded for national development (Republic of Kenya, 2012). Little had been done to improve performance to meet vision 2030 and the 2010 constitution demands. National Youth Service had high, average and low performing institutions as shown in table 1.1. This was attributed to inadequate physical and teaching-learning facilities, and lack supervision of instructors among others. This study therefore sought to establish institutional factors that influenced performance of students at NYS Engineering Institute (NYSEI), NYS Institute of Business Studies (NYS IBS) where students performed better than NYS Technical Institute (NYSTI) and how performance could be enhanced.

### **1.3 The purpose of the study**

The study investigated institutional factors influencing students' performance in diploma technical examinations in National Youth Service Training Institutions in Nairobi City County.

#### **1.4 Objectives of the study**

The study addressed the following objectives:

- i.) To establish the influence of adequacy of teaching and learning resources on performance of service men and women in diploma technical examinations.
- ii.) To determine the influence of teacher-student ratio on performance of servicemen and women in diploma technical examinations.
- iii.) To determine the influence of principals' supervision of teaching activities on performance of service men and women on diploma technical examinations.
- iv.) To establish the influence of adequacy of physical facilities on performance of service men and women in diploma technical examinations.

#### **1.5 Research questions**

The following research questions were developed to guide the study:

- i.) What is the effect of availability of teaching-learning resources on performance of service men and women in diploma technical examinations?
- ii.) How does the teacher-student ratio influence performance of service men and women in diploma technical examinations?
- iii.) What is the influence of Principal's supervision of teaching activities on performance of service men and women in technical examinations?
- iv.) To what extent do physical facilities influence performance of service men and women in diploma technical examinations?

### **1.6 Significance of the study**

The study may help principals in identifying important variables that directly and indirectly affected achievement. The study would also furnish educators and policy makers in the Ministry of Education, Science and Technology in improving policy formulation and implementation to streamline and gain better insight to transform technical education. Generated information from the current study can be used by lecturers, scholars, universities and other technical institutions as well as research institutions. The findings will add to existing knowledge and act as a stepping stone for future researchers who quest to improve performance in diploma technical examinations.

### **1.7 Limitations of the study**

The respondent's feared confidentiality of information they gave therefore might have given socially acceptable answers to please the researcher. Factors like concept of intelligence, discipline and others which could not be quantified were left out in the study.

### **1.8 Delimitations of the study**

The study was conducted at Kenya National Youth Service and confined to NYS Engineering Institute, NYS Institute of Business Studies and NYS Training Institute 2013 to 2017 performance in national technical examinations. The study was further confined to diploma courses examined by Kenya National Examinations Council. All factors that hindered good performance could not be treated by this study therefore the study was limited

to availability of physical, teaching-learning facilities, teacher-student ratios and instructional supervision.

### **1.9 Assumptions of the study**

The following constituted the basic assumptions of the study:

i.) That the sample drawn was a representative of the target population.

The researcher also assumed that all the information given was free from external influence by the institutions management.

ii.) That passing technical examination was a true reflection of producing experienced professionals with right skills in their areas of specialization.

iii.) That principal's knew their administrative and supervision tasks.

iv.) That the questionnaires were adequate to give relevant information.

### **1.10 Definition of significant terms**

**Influence** refers the effect institutional factors have on performance in diploma technical examinations.

**Recruits** are youth enrolled at NYS before completing para -military training.

**Service men and women** refer to male and female trainees in various technical courses at NYS after completing para-military.

**Teacher-student ratio** is number of students divided by the number of teachers in an institution.

**Teaching-Learning facilities** refer to machines, materials, tools and equipment used for training in technical courses.



**Physical facilities** refer to the adequacy of buildings, library, workshops, and resource rooms provided to optimize productivity in teaching- learning process.

### **1.11 Organisation of the study**

The study was organized into five chapters. Chapter one entails background of the study, statement of the problem, purpose of the study, objectives of the study, limitations of the study, delimitations of the study, significance of the study, definition of operational terms and organisation of the study. Chapter two covers the literature review discussed under concept of achievement in technical examinations, teaching-learning resources and performance in technical examinations, teacher-student ratio and performance in technical examinations, supervision of teaching activities and performance in technical examinations, physical facilities availability and performance in technical examinations and summary of literature review.

Chapter three had research methodology discussed under research design, target population, sample size and sampling procedures, research instruments, instrument validity, instrument reliability, data collection procedures, data analysis techniques and ethical considerations. Chapter four covers data analysis, interpretation and discussions. Chapter five had the summary of the research findings, conclusions, recommendations and suggestions for further studies.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter reviews related literature under the concept of achievement in technical examinations, adequacy teaching and learning resources and performance in technical examinations, teacher student ratio and performance in technical examinations, supervision of teachers and performance in technical examinations, level of adequacy of physical facilities and performance in technical examinations, conceptual framework, theoretical frame work and summary of the literature review.

#### **2.2 Concept of achievement in technical examinations**

Achievement in technical courses is the degree to which a student is able to accomplish a course and pass national examination. In South Asia, countries had invested on a critical pillar of overall sustainable development through high quality TVET that transitioned from low-skilled labour to higher productivity and globally competitive labour. TVET achievement helps the countries to participate and contribute to society in reduction of poverty and food security (Tertiary & Vocational Commission, 2011).

In Texas, achievement is a method of expressing student scholastic standing. The country designed new courses through which students acquire work-ready academic skills, technical and employability skills. The sequence of new courses involved high-demand, high-skill and high-wage career fields. The students acquired essential skills for lifelong learning through projects and

activities that blended the learning of academic, technical, habits and behaviour around authentic real- world problems and projects (Kession, 2014).

Africa Union Commission (2011), underlined importance of TVET as a support mechanism for economic growth and as a means of empowering individuals to lead sustainable livelihoods. It asserted that quality TVET contributed to sustainable development of youth and their civic engagement. African Union stressed that TVET should address employability, relevance and portability of TVET qualifications across national borders as well as self employment (African Union, 2013).

In Kenya, technical education was a major avenue for industrial development, social and economic progress of the country. TVET produced skilled, technical and professional manpower needed for national development (Nyerere, 2009). Vision 2030 aims at making Kenya an industrialized, middle income generating country through selling goods and services of industrial nature beyond borders to provide high quality life to citizens. This was realized through technological innovations ensured by appropriate proportions of well qualified technologists and engineers (MOEST, 2008).

At National Youth Service, technical courses aim at producing skilled youth to participate and contribute to society in reducing unemployment, poverty, food security and improve health. Skill acquisition caters for workforce demand and pressure of economic competitiveness as well as creating entrepreneurs. Achievement in diploma technical examinations was

determined, examined and graded by KNEC in terms of distinctions, credits and pass (KNEC, 2016).

### **2.3 Teaching- learning resources and performance in diploma technical examinations**

Teaching- learning resources include all material resources used to support delivery of quality education and increase production of results. Adequate tools and equipment, textbooks and other instructional materials were necessary for teaching effectively. Highly competent teachers found it difficult to teach effectively with inadequate resources. High performing schools with good resources like textbooks, visual aids, electricity were distinguishable from low achieving schools without the resources (World Bank, 2010).

Okwarol (2008) reported that most African institutions had inadequate computers, lecturers and equipment, internet facilities and textbooks further limits research, information and knowledge hence poor results. Abbasi and Mir (2012) noted technical institutions in Ghana were limited and those that existed lacked resources, aids and experienced teachers to impart skills which resulted to deficiencies and poor performance. Boateng (2012) attributed poor performance to financial constraints while Amadi (2011) noted partly it was due to lack of access to libraries with e-facilities and modern textbooks.

Good quality standard institutions achievement was by provision, adequacy and utilization of resources in Nigeria (Asiabaka, 2008; Amadi, 2011). According Bamiro and Adedeji (2010) lack of infrastructural facilities due to low funding

and increased enrolment were major problems of technological institutions so to improve performance available facilities were maintained. Amanadi (2011) noted Nigeria funded engineering infrastructure to mass produce design and fabricate equipment, machine, tools and engines to avoid starving schools.

Lack of enough trained teachers lead to unsatisfactory instructional materials utilization hence less quality and quantity of educational technologies provision in Ethiopia. Ghana was unable to produce middle level technician and human resources due to obsolete, sub-standard, outdated and damaged equipment (Taylor & Vlastos, 2009). Technical institutes had inadequate facilities and enrolment with appropriate development and improvement of teaching learning resources and other facilities compromised Kenyan education (GOK, 2013).

#### **2.4 Teacher-student ratio and performance in technical examinations**

Teacher-student ratio refers to number of students scheduled to meet in an administrative and instructional unit under one teacher' guide. In Bangladesh schools with low teacher-student ratio increased teachers-students interaction, catered for individual ability and motivational differences (Raychauduri, 2010). According to Haimson (2014) in crowded classes learning process was affected and teachers overworked thus low teacher-student ratio across America nations might have been responsible for good performance among minority students.

Studies done at California and Tennessee found that with reduced class size students shared knowledge, test score and relationships with peers and teachers improved, and student-teacher contact increased. Changed student behaviour

reduced interruptions, in depth subject matter coverage done and student progress tracking better (Kession, 2014). Andrew (2008) reviewed research from ten studies of test scores in large and small class setting in North Carolina found that small class sizes scored higher than large classes.

According to a research done at Florida, decreased number of students increased their performance (Fullan, 2007). Teachers had time to build relationships with students which allowed them to gain confidence, producing higher achievement scores on standardized tests hence success in Bangladesh education (Raychaudhuri, 2010). Some researchers agreed that classes with less than twenty students are thought to be small and achievement increased compared to larger sizes, test scores were higher and drop-out rates low (Hamison, 2014).

Most researchers argue that in Nigeria educational literature, teacher-student ratio was often mentioned as national influence on students' achievement and proved a significant determinant of degree of success (Umanadi, 2011). Abbasi and Mir (2012) of Ghana claimed that reduction in class-size enhanced learning. Raychaudhuri (2010) examined various studies in India which recognized teacher-student ratio and social interactive participation enhanced performance. Heineesen (2010) in West Indies says that in low teacher-student ratio, students performed poorly without a conducive learning environment.

In Kenya the policy for technical courses was that each class should have twenty students but most institutions had forty five students per class. At NYS

the number of students went even up to seventy per class therefore the lecturers were forced to use one fit for all methodology which had effects on skills acquisition and performance in diploma technical courses. During practical lesson lecturers are unable to mark the projects effectively due to big numbers.

### **2.5 Supervision of teachers and performance in technical examinations.**

Supervision is a set of activities carried out to make teaching and learning better. Personnel supervision involves sensitizing, mobilizing and motivating staff towards performing duties optimally to achieve stated goals and objectives of education New York. Supervision is enhancing lecturers by stimulating advising and guiding to effectively and efficiently teach (Reddan & Harrison, 2010).

Developed countries supervision of educational institutions was better organized and well co-ordinated than in developing countries. In United States of America, supervisors strived to develop positive working alliance with supervisees, provide syllabuses, clarification, clear goals, manner and norms to improve performance (Haimson,2014). Inspectorate of National Education of Turkey inspected and supervised schools in Turkey (Engin, 2009). In Belgium controlling of pedagogical activities promoted performance (OECD, 2011).

In most Africa countries, special staff for support services existed as distinct from supervision. In Botswana, in-service officers undertook this task, and Namibia created of advisory teachers. Zanzibar had a group of teacher advisors while in Tanzania and Zimbabwe educational officers were expected to perform

both inspection and advice tasks. Zimbabwe supervisors were subject specific, not decentralized and operated mainly from regional level (Afeti, 2014).

In Nigeria, Umanadi (2008) stated that quality education was prioritized worldwide and educational reforms used supervision in achieving acceptable standard and predetermined specifications. Amadi (2011) says supervision ensured duties were performed, improved incompetent teachers, provided organisation patterns and examinations ethics to promote quality education and goal achievement in Nigeria. Boateng (2012) noted successful supervisors linked interpersonal to technical skills in Ghana to improve instruction, build self-acceptance, moral, trust and rapport.

Pedagogical leadership study by Pansiri (2008) says Botswana supervisors praised good teaching strategies and gave constructive feedback after visits so there were accepted improvement partners rather than intruders but some couldn't provide professional support. Ethiopia started quality education initiative called 'General Education Quality Improvement Package' (GEQIP) to improve teaching programs and teachers' development (African Union, 2011).

Supervision in Kenya was delegated to Directorate of Quality Assurance and Standards (DQAS) in- charge of monitoring of curriculum delivery in institutions. The officers should inspect institutions plant against the set standards of technical education. (MOEST, 2012). According to Mbiti (2007) supervision improved students' outcome and teachers' professional growth. It



involved leadership, cooperation, creativity, integration, community orientation and planning.

Wango (2010) says supervision was a basic requirement in administration. It concerned efficient and proper management of personnel in line with set institutional goals. It was defined in terms of leadership towards teacher, other education workers, stimulated professional growth, developed teaching strategies, selected and revised education, and evaluated instructions. It was a key player in decisions and operations of organisations.

## **2.6 Physical facilities and performance in technical examinations**

Physical facilities refer to entire institution plant which administrators, teachers and students harness, allocate and utilize for smooth and efficient management of education. Quality and adequacy of physical facilities or infrastructure had impact, variety of effects to the teaching learning process and performance in national examinations (Fullan,2007). They include major structures, buildings, administration block, offices, staffroom, stores, classroom, laboratories, libraries and workshops among others (Reddan & Harrison, 2010).

A study at Belgium region of Flanders shows schools with good quality infrastructure scored significantly higher compared to those with poor infrastructure hence the conclusion good quality infrastructure contributes to good performance (OECD, 2011).In Brazil, China, Botswana and Uganda, Bradley (2008) found that libraries contributed to performance since institutions with libraries showed significant achievement. Infrastructure was a key base for

learning and most institutions in Australia were characterized by inadequacies in physical facilities, quality library and workshops (Bradley, 2008).

According to World Bank (2010), TVET was still underserved in most African countries and the stock of human capital with highly variable quality tertiary-level skills was comparatively small compared to the recent trends in technology. As such poor performance in technical education could seriously stagnate long term growth prospects. Okwarol (2008) reported that most African institutions had inadequate staff, workshops, computer laboratories, classrooms and equipped libraries for effective teaching.

According to Robert and Sampson (2011), educators in Nigeria argued physical facilities affected performance due to poorly equipped workshops and library. Bamiro and Adedeji (2010) asserted that underfunding had limited Nigeria from effective and efficient teaching, research and capacity to improve physical facilities so performance dropped. Heinneesen (2010), notes inadequate facilities in most Ghanaian polytechnics like unequipped central libraries, and overcrowded classrooms affected students ability to cope with course workload.

Taylor and Vlastos argued that physical facilities like buildings, classroom, library, furniture, recreational facilities and lecture theatres played fundamental role in improving achievement in Ethiopia. According to Hussein et al (2012), adequate physical facilities promoted achievement and overcrowded classrooms negatively affected achievement. Most technical institutions lacked proper and

adequate infrastructure in Kenya and therefore lowered performance. NYS institutions had inadequate facilities due to the increased number of recruits

### **2.7 Summary of literature review**

Most studies established that infrastructural and teaching-learning resources inadequacy in most institutions negatively affected students' performance. Globally, governments need to equip technical institutions appropriately and adequately to produce well skilled technical personnel. Libraries should be connected to internet and equipped with modern textbooks for learners to do research on their own. (Reddan & Harrison, 2010).

In most studies Small class size benefits included increased student achievement, higher graduation rates in New York. Technical lecturers should be employed to reduce workload in most institutions (Kession, 2014). Large classes resulted in diverse field of students with varying degree of learning ability which affected skill acquisition. Governments should employ enough qualified professionals to enable production of adequately skilled graduates (Engin, 2009).

Most studies shows supervision enhanced performance and promoted professional development but it was affected by inefficient supervision techniques and procedures. Supervisors should possess broad general and professional knowledge and continuous improvement strategies (Reddan & Harrison, 2010). Supervision of institutions in different countries was not done

regularly therefore regular supervision schedules should be enhanced and professional supervisors employed.

## **2.8 Theoretical framework**

The study was guided by Systems Theory which was proposed by Ludwig Von Bertalanffy in 1951. The theory is widely used industries, organisations, technology and management among others. A system is a complex of elements in interaction or working together of parts to achieve an objective. It is open or closed and seeks to explain 'synergy' and interdependence (Meadows, 2008).

The underlying assumption of systems theory is that organisation parts are interrelated and inter-dependant and they interact to make a whole. The theory contends that a system as a whole works differently than parts of a system hence the whole is greater than the sum of the parts. The theory can be used for a variety of programs and summative and formative evaluation can be used to make improvement towards more successful programs. The theory provides a model of identifying problems to take steps of correction (Golineli, 2010).

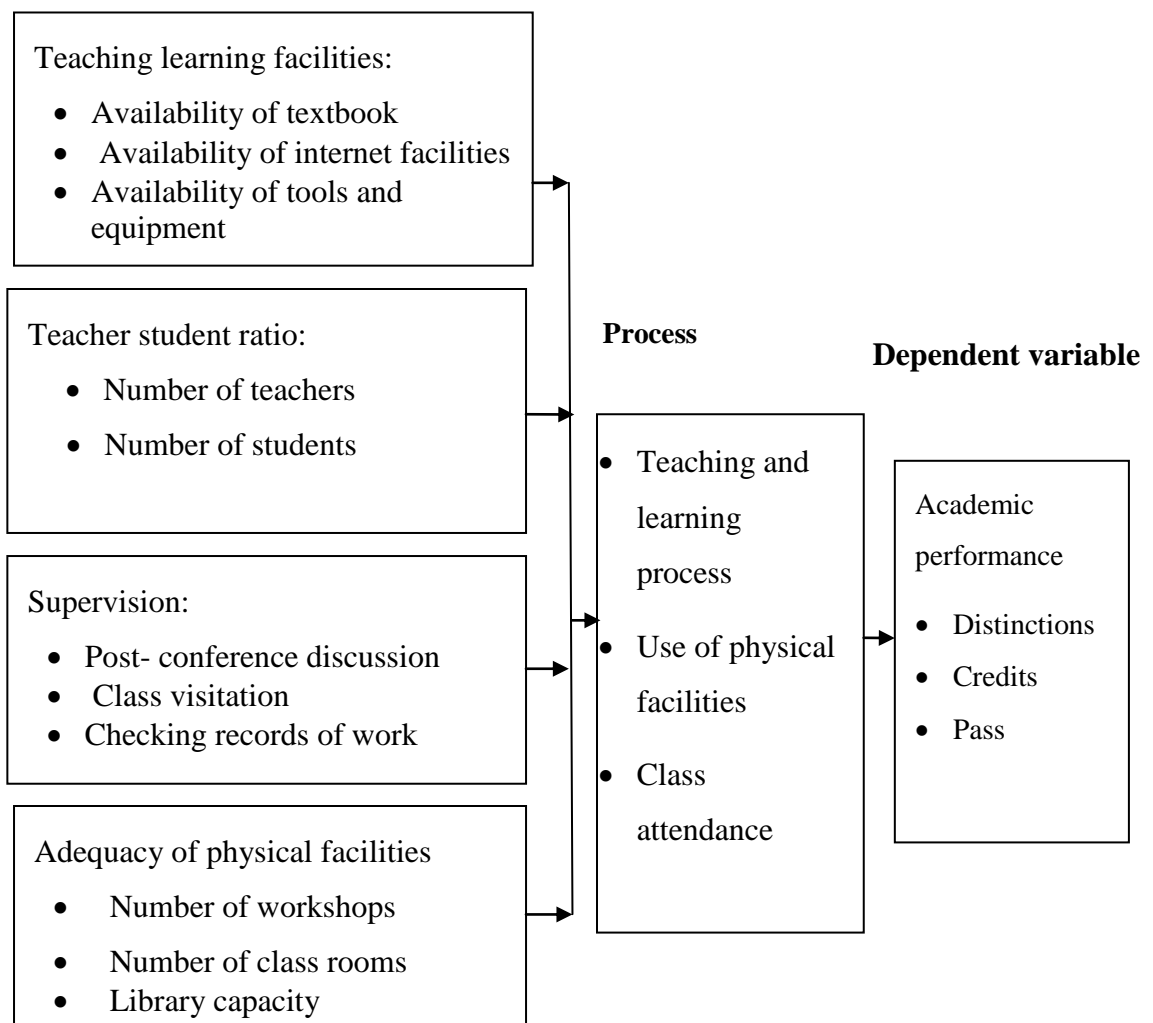
The theory may not meet individual needs compared to other theories like human relations. Deficiencies in flow of information and teaching-learning materials may affect a whole program. When results are not successful all parts must be reviewed to determine needed adjustments. The theory is applicable to this study because Ministry of education has many internal and external parts and continuous communication between inputs, processes, output and

outcomes. A school absorbs inputs, processes them into outputs defined by goals and objectives to produce outcomes (Golineli, 2010).

## 2.9 Conceptual framework

Conceptual framework refers to particular pattern whereby the dependent variables interaction is linked to the objectives, (Kothari, 2008). The conceptual framework is a concise description of phenomenon under study accompanied by graphic picture of variables and relationship between them (Mugenda, 2008).

### Independent variables



**Figure 2.1 Conceptual framework**

The independent variables are the institutional factors and the dependent variable is the performance of servicemen and women. The assumption of this conceptual framework is that independent variables influence performance in the technical examinations. Inputs which include lecturers, students, physical facilities and teaching-learning facilities go through teaching and learning, supervision and evaluation processes to produce outputs like distinctions, credits and pass which results outcomes like quality self reliant graduates and global economy participation.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter focuses on methodology used in the study discussed under the research design, target population, sample size and sampling procedure, research instrument, validity and reliability.

#### **3.2 Research design**

A research design refers to the arrangement of conditions for collection and analyzing data (Cohen, Manion & Morrison, 2007). The study adapted ex-post facto design. According to Orodho (2009) the design is employed when the researcher cannot manipulate or have no direct control over the independent variable since manifestation has already occurred or occurs in natural setting. The design is appropriate in studying educational situations when experiment is impractical. It looks for likeliness or differences among subjects to obtain what might contribute to occurrence of a phenomenon. The design enabled the researcher to bring out relationship between institutional factors and student performance in diploma technical examinations.

#### **3.3 Target population**

A population refers to a group to which the results of a study can be generalized. The target population is all members of a real people or events for which the researcher wishes to generalize the results of the study (Saunders, Lewis & Thornhill, 2007). The sampling units were the three training institutes

and the population target were nine heads of department, ninety lecturers and three thousand service men and women which made a target population of three thousand and ninety nine (3099).

### 3.4 Sample size and sampling procedures

According to Saunders et al (2007), the sample population should have at least thirty respondents to ensure accurate analysis. The sample size was drawn from National Youth Service Engineering Institute, National Youth Service Institute of Business Studies and National Youth Service Technical Institute institutions as shown;

**Table 3. 1 Sample size**

| Respondents           | Target population | Sample | Percentage |
|-----------------------|-------------------|--------|------------|
| Heads of departments  | 9                 | 9      | 100%       |
| Lecturers             | 90                | 30     | 30%        |
| Service men and women | 3,000             | 300    | 10%        |

Heads of department of all courses under study in each of the three institutions were sampled. Random sampling was employed to select 30% of the lecturers from accessible population to ensure equal and independent chances of inclusion in the sample size that might increase reliability of the findings. Stratified sampling was employed to select 10 percent of service men and women since three institutions had different enrolments and different courses also had different enrolments (Mugenda, 2008).



### **3.5 Research instruments**

The study used questionnaires and observation checklist. The questionnaires were filled by the lecturers and the servicemen and women. They were structured into sections. Section had A the general information, B covered concept of achievement, C covered teaching-learning facilities, D dealt with teacher-student ratio, E covered physical facilities and F covered supervision. The 2013 to 2017 national examination performance records were examined and physical facilities checklist checked in the institutions under study.

### **3.6 Instrument validity**

Validity of instruments refers to the quality of the research gathering instrument or procedure that enables it to measure what it is supposed to measure (Mugenda, 2008;Saunders, Lewis & Thornhill, 2007). Validity in research determines whether the accounts provided by the researcher and the participants are accurate, testable and credible to the population (Kothari,2008).Content validity was used in this study since it deals with actualities, fairly and comprehensively covers elements in depth and breadth which was ensured by constructing questionnaires in line with objectives. The researcher presented the instruments to her supervisors who are senior researchers in department of Educational Administration and Planning in University of Nairobi for guidance. They were revised according to supervisors' comments.

### **3.7 Instrument reliability**

This is the consistency of producing a reliable result (Orodho, 2009). A research instrument is reliable if it measures whatever it is measuring consistently. Research instruments that have high reliability coefficient have minimal errors of measurement (Kothari, 2008). Test-retest method was used to estimate the degree to which research instruments are reliable. Questionnaires were administered to respondents not included in the study and the scores were analysed manually. After two weeks, the same questionnaires were administered again to the same respondents and analysis and comparison of result between the two was done using Pearson's Product Moment.

### **3.8 Data collection procedures**

The researcher obtained a search permit from the National Council for Science Technology and Innovation (NACOSTI) under the Ministry of Education, Science and Technology (MOEST). The researcher visited the institutions, issued letters of introduction and sought principals' permission on dates to administer questionnaires, and established rapport with respondents. The researcher then administered specific questionnaires to each specific technical and business courses heads of departments, lecturers and service men and women and requested them to seek clarifications on any part. The researcher collected the filled questionnaires on the agreed dates.

### **3.9 Data analysis techniques**

Data analysis entails making sense of the amount of data collected, reduces the volume of information and identifies significant patterns for constructing a

framework for communicating evidence revealed by the data (Orodho, 2009). Raw data was edited to eliminate inconsistencies through scrutinizing completed instruments to detect and reduce; incompleteness, errors, misclassification and gaps in the obtained information. The researcher coded, entered and processed the data using Statistical Package for Social Sciences (IBM SPSS version 22) computer software.

According to Wegner (2013), weighted means are used to convert qualitative data to quantitative and there after analysed quantitatively. T-test, Multiple comparison of means and weighted means were used in testing objective (i) and (iv) to test performance of service men and women in institutes with adequate physical facilities and teaching-learning resources and performance in institutes with inadequate physical facilities and teaching-learning resources. Chi square test was used in (ii) and (iii) to show relationship and dependency between teacher-student ratio and supervision in institutions and performance in diploma technical examination (Ott 2010). Chi square test was used to determine whether the independent variable performance was dependent on student teacher ratio, availability of teaching and learning resources, principal's supervision of lecturers and availability of physical resources (Orodho, 2009).

### **3.10 Ethical Considerations**

According to American Psychology Association (2010), guidelines on ethical considerations include maintaining confidentiality, limits of confidentiality, use of confidential information, institutional approval, maintenance of records,

and informed consent, plagiarism and data. The researcher obtained introductory letter from the University, sought for permit from NACOSTI and permission from NYS institutions principals to carry out the research. The researcher familiarized herself with respondents and established rapport before administering the questionnaires. Letter of consent was issued to the respondents to read and the researcher clarified participation was voluntary without penalty if one withdrew. The researcher assured participants that the information they gave was for study purposes only and the research data remained confidential. The researcher gave appropriate credit to all those cited in the study.

## CHAPTER FOUR

### DATA ANALYSIS, PRESENTATION AND DISCUSSION

#### 4.1 Introduction

This chapter presents the research findings of this study. Data was collected by use of observation checklist and questionnaires that were administered to servicemen and women, heads of departments and lecturers at NYS Institute of Business Studies, NYS Engineering Institute and NYS Technical Institute.

Statistical analysis of the data was done and interpreted to report on the institutional factors influencing performance in diploma technical examinations at National Youth Service training institutions. A combination of descriptive and inferential statistics was used to report based on the research objectives and the corresponding research question.

#### 4.2 Response rate

Response rate refers to the percentage of students, heads of departments and lecturers who responded to the questionnaires. This was to establish the data collection tool return rate as reflected in table 4.1 below.

**Table 4.1 Response Rate of the Questionnaires**

| Category of respondent | Number of Questionnaires |          | Percentage% |
|------------------------|--------------------------|----------|-------------|
|                        | Issued                   | Returned |             |
| Heads of departments   | 9                        | 7        | 77.7        |
| Lecturers              | 30                       | 28       | 93.3        |
| Service men and women' | 300                      | 300      | 100         |
| Overall response       | 339                      | 335      | 98.8        |

The findings indicated that all the administered questionnaires from the sampled students were returned, a 100 percent response rate. 7 out of 9 purposively sampled heads of departments responded which is a response rate of 77.7 percent and 28 out of 30 randomly sampled lecturers responded translating to 93.3 percent. Overall, they were 335 out of the target 339 responses reflecting 98.9 percent. Mugenda and Mugenda (2008) asserts that normally a response rate above 70 percent can lead to generalization of results therefore the result can be generalized from the 77.7 percent of heads of departments and 93.3 percent of lecturers.

#### **4.3 Demographic data of the respondents**

The demographic information sought to establish background information of respondents based on gender, institution and course pursued by the students, and courses taught by the heads of departments and lecturers.

##### **4.3.1 Students distribution across institutions**

The researcher distributed the questionnaires in the three institutions under study. The selection of the sample was proportionally done as per institution's population as reflected in table 4.2 below.

**Table 4. 2 Students distribution across the institutions**

| Institution | Frequency | Percent |
|-------------|-----------|---------|
| NYS EI      | 85        | 28.4    |
| NYS IBS     | 133       | 44.4    |
| NYS TI      | 82        | 27.2    |
| Total       | 300       | 100.0   |

The findings indicate that the highest numbers of students were in NYS IBS 133 (44.4%), followed by NYS Engineering Institute 85 (28.4%) and NYS Technical Institute had the least 82(27.2%). The total population was three thousand students, distributed as NYS Engineering Institute, eight hundred and fifty (850), NYS Institute of Business Studies, one thousand three hundred and thirty (1330) and NYS Technical Institute, eight hundred and fifty (850).

#### 4.3.2 Distribution of students across the institutions and courses.

The distribution of respondents was done as per the population of students in each course. Table 4.3 shows the distribution of servicemen and women.

**Table 4. 3 Distribution of students across the institutions and the courses**

| Course | Name of institution |             |             | Total      |
|--------|---------------------|-------------|-------------|------------|
|        | NYS EI              | NYS IBS     | NYS TI      | Total      |
| EE     | (34) 55.4%          | (0) 0.0%    | (27) 44.6%  | (61) 100%  |
| ME     | (24) 45.6%          | (0) 0.0%    | (29.) 54.4% | (53) 100%  |
| ICT    | (27) 38.2%          | (19) 26.3%  | (25) 35.5%  | (71) 100%  |
| BMT    | (0) 0.0%            | (61) 100%   | (0) 0.0%    | (61) 100%  |
| HRM    | (0) 0.0%            | (53) 100%   | (0) 0.0%    | (53) 100%  |
| Total  | (85) 28.4%          | (133) 44.4% | (82) 27.2%  | (300) 100% |

The findings reveal that some course had more students than the others. In Engineering Institute and NYS Technical Institute, business management and human resource management courses were not done, instead, students were taking electrical and mechanical engineering and while Information Communication Technology was in all institutions. The highest numbers were

in Electrical engineering 34 reflecting (55.4%), followed by mechanical engineering with 24 (45.6%) and finally Information Communication Technology with 27(38.2%). In NYS Technical Institute, electrical had 44.6 percent, mechanical engineering 54.4 percent and Information Communication Technology 35.5 percent.

In NYS Institute of Business Studies there were no electrical and mechanical engineering courses (both had 0%) but had students spread in three departments, and enrolled in three courses namely; Information Communication Technology with 19 percent, business management with 100 percent and human resource with 100 percent. This business management and human resource management courses were in NYS Institute of Business Studies only. It evident that most institution offered courses traditionally perceived as male courses.

#### **4.3.3 Distribution of respondents by gender and departments.**

The researcher sought to identify the gender of the student respondents across the departments. This was important in order to establish courses that were preferred by service men and those preferred by service women. Stratified Simple random sampling method was used to select service and women in each course. Leedy & Ormrod (2013) argued that the larger and more homogeneous the population, the smaller the percentage one needs to select so as to have a representative sample. According to Gupta (2013) random sampling ensures that each member of the population has an equal and



independent chance of being selected as a sample member. Gender distribution across the departments is reflected in table 4.4 below.

**Table 4. 4 Distribution of respondents by gender and departments.**

| Gender | Course |       |       |       |       | Total  |
|--------|--------|-------|-------|-------|-------|--------|
|        | EE     | ME    | ICT   | BMT   | HRM   |        |
| Male   | (49)   | (42)  | (40)  | (36)  | (35)  | (202)  |
|        | 24.2%  | 20.9% | 19.9% | 18.0% | 17.0% | 100%   |
| Female | (12)   | (13)  | (33)  | (23)  | (17)  | (98)   |
|        | 11.8%  | 13.7% | 33.3% | 23.5% | 17.6% | 100.0% |
| Total  | (61)   | (55)  | (73)  | (59)  | (52)  | (300)  |
|        | 20.3%  | 20.0% | 24.3% | 19.7% | 16.0% | 100.0% |

EE= Electrical Engineering, ME= Mechanical Engineering, ICT=Information Communication Technology, BMT= Business Management, HRM= Human Resource Management. (Figures in brackets are counts).

The findings shows that the highest number respondents 73 (24.2%) were from information communication technology department followed by Electrical engineering department while the lowest 52(17.9%) were from the Human Resource Management and mechanical engineering department. The findings from table 4.4 also show gender distribution within courses. Information Communication Technology had the highest number of female 33(33.3%) students respondents followed by Business Management with 23(23.5%) and the lowest was electrical and Mechanical. The highest numbers of male respondents 49 (24.2%) were from electrical course while the lowest 17(17.6%) were from human resource and business management courses. This

means mechanical and electrical had more male students than human resource, Business Management and Information Communication courses. The findings indicate that servicemen preferred engineering courses than service women.

#### 4.3.4 Distribution of lecturers and heads of department in the institutions

Heads of departments and randomly sampled lecturers were sampled to fill in the questionnaires. The distribution of questionnaires in the institutions departments is as reflected in table 4.5.

**Table 4. 5 Distribution of lecturers and heads of departments by departments**

| Category of staff   | Gender | Course |     |     |     |     | Total | %     |
|---------------------|--------|--------|-----|-----|-----|-----|-------|-------|
|                     |        | EE     | ME  | ICT | BMT | HRM |       |       |
| Heads of department | Male   | 1      | 1   | 1   | 1   | 1   | 5     | 17.2  |
|                     | Female |        |     | 1   |     | 1   | 2     | 6.9   |
| Lecturer            | Male   | 3      | 3   | 3   | 3   | 5   | 17    | 41.4  |
|                     | Female | 2      | 2   | 1   | 4   | 2   | 11    | 34.5  |
| Total               |        | 6      | 6   | 6   | 8   | 9   | 35    | 100.0 |
| Percentage          |        | 17%    | 21% | 17% | 24% | 21% | 100%  |       |

Figures in the table indicate frequencies EE= Electrical Engineering, ME= Mechanical Engineering, ICT=Information Communication and Technology, BMT= Business Management, HRM= Human Resource Management Figures in brackets are counts.

The findings revealed that the highest number of lecturers 17 (41.4%) and heads of departments 5(17.2%) sampled were males. Female heads of departments were 6.9 percent while the male lecturers were 34.5 percent. The

highest number was from the business management course, (24%), while Mechanical and human resource had 21 percent and electrical and information communication technology each had 17 percent. The reason for higher proportion of heads of departments and lecturers may be attributed to nature of courses because male teachers prefer technical courses than female.

#### **4.4 Comparison of 2013 – 2017 achievement**

Achievement in technical education is the degree to which one is able to accomplish a course and pass a national examination. The researcher wanted to establish how servicemen and women had performed between 2013-2017. The results are shown in table 1.1. Just like Blalock & Hubert (2011), performance in examinations within the institutions was done by comparing performance grades achieved in the institutions. NYS technical institute was felt to be doing poorly compared to the other institutions as per the KNEC examinations results in table 1.1.

Other t-values for comparing mean performance in the institutions for 2013-2017 KNEC examinations were shown in table 4.6.

**Table 4.6 t-values for testing differences in mean performance.**

|                               | 2013  | 2014  | 2015  | 2016  | 2017  |
|-------------------------------|-------|-------|-------|-------|-------|
| t-values NYS EI and NYS TTI   | 0.002 | 0.007 | 0.004 | 0.001 | 0.017 |
| t- values NYS IBS and NYS TTI | 0.015 | 0.019 | 0.013 | 0.036 | 0.007 |

The figures indicate the t-values computed for 2013 to 2017 results show that there is a significant difference in performance between NYS Engineering Institute and NYS Institute of Business Studies. The findings interpretations

agrees with Gupta (2013) who says that when all the t-values are less than 0.05, then there are differences in performance therefore there are differences in performance of NYS Institute of Business Studies and NYS Technical Institute, and of NYS Engineering Institute and Technical Institute. This supports the assertion that NYS Technical Institute had performed poorly in national technical examinations.

For NYS Institute of Business Studies, only ICT could be compared as it was common in all institutions the other means could not be compared since courses were different. A further comparison of correlation coefficient of performance 2013-2017 examinations in the same institutions was done and it supported the results. Table 4.7 shows the correlation coefficients for years 2013 to 2017 results.

**Table 4.7 Correlation coefficients for 2013 -2017 performance**

| Institution        | Year |      |      |      |      |
|--------------------|------|------|------|------|------|
|                    | 2013 | 2014 | 2015 | 2016 | 2017 |
| NYS IBS and NYS TI | 0.4  | 0.2  | 0.09 | 0.3  | 0.28 |
| NYS EI and NYS TI  | 0.34 | 0.29 | 0.19 | 0.33 | 0.18 |
| NYS IBS and NYS EI | 0.9  | 0.8  | 0.86 | 0.91 | 0.89 |

The correlation coefficients for the years 2013-2017 show that, there is a strong correlation in performance of NYS Institute of Business Studies and NYS Engineering Institute. The least it ever was, 0.8 in 2014. According Ott (2010) a correlation figure above 0.07 is strong and positive. This shows a lot of consistency in performance. However, comparing the means performance

between NYS Technical Institute and NYS Institute of Business Studies shows weak correlation figures though positive. This means that while the pass rate is high in NYS Institute of Business Studies, it was low in the NYS Technical Institute. Table 4.7 shows the highest correlation between the performance of NYS Technical Institute and any of the other two was 0.4 in 2013 which was a weak correlation. According to (Ott, 2010), for any pass rate below 0.007 the correlation is weak and negative.

#### **4.5 Teaching learning resources and performance in technical examinations**

The first objective was to establish the influence of adequacy of teaching and learning resources on performance in diploma technical examinations. The findings were important in establishing the effect of availability of teaching and learning resources on performance. The respondent's views were measured on a Likert scale, of 1-4, where "very adequate" was (4) and "inadequate", (1). Weighted averages were computed for each institution and different values were realized for the different categories of respondents. The students expected minimum and maximum values of weighted means are shown in Table 4.8.

**Table 4.8. Adequacy of teaching and learning resources students weighted mean**

| Institution                       | Minimum | Maximum | Mid- point |
|-----------------------------------|---------|---------|------------|
| NYS Engineering Institute         | 8.5     | 34      | 21.3       |
| NYS Institute of Business Studies | 13.3    | 53.2    | 33.3       |
| NYS Technical Institute           | 8.2     | 32.8    | 20.5       |

The computed weighted means were compared to midpoints of the means for each institution. Any mean that was higher than the midpoint was interpreted as adequate while lower ones were interpreted as inadequate. In NYS Institute of Business Studies any mean lower than 21.3 was interpreted as inadequate. For NYS Engineering Institute, a mean lower than 33.3 was interpreted as inadequate while in NYS Technical Institute, a mean lower than 20.5 was reflecting inadequacy of resources. The findings agree with Wegner (2013) who found that computed minimum and maximum values of weighted means could be compared to midpoints of the means.

**Table 4. 9. Multiple comparisons of means for adequacy of teaching and learning resources**

| (I) NYS institution | (J) NYS institution | Mean Difference (I-J) | Std. Error | Sig.    | 95% Confidence Interval |             |
|---------------------|---------------------|-----------------------|------------|---------|-------------------------|-------------|
|                     |                     |                       |            |         | Lower Bound             | Upper Bound |
|                     | NYS IBS             | -5.867                | 2.774      | .052*   | -11.78                  | .05         |
| NYS EI              | NYS TI              | 4.650                 | 2.774      | .114    | -1.26                   | 10.56       |
|                     | NYS EI              | 5.867                 | 2.774      | .052    | -.05                    | 11.78       |
| NYS IBS             | NYS TI              | 10.517*               | 2.774      | 0.002** | 4.60                    | 16.43       |
|                     | NYS EI              | -4.650                | 2.774      | .114    | -10.56                  | 1.26        |
| NYS TTI             | NYS IBS             | -10.517*              | 2.774      | 0.002** | -16.43                  | -4.60       |

\*\* The mean difference is significant at the 0.05 level.

\*The mean difference is almost significant

Table 4.9 clearly shows that there is no significant difference between the adequacy of teaching learning resources between NYS Institute of Business Studies and NYS Technical Institute ( $t = 0.002$ ) (shown with \*\* in table),

however between NYS Engineering and NYS Institute of Business Studies the t-value is 0.052 (shown with \*) were almost at the significant level. According to Wegner (2013), a t-value less than 0.05 is always significant at 5 percent level of significance. This explains the difference in performance between NYS Institute of Business Studies and NYS Technical Institute which meant it does not perform as well as NYS Institute of Business Studies

The lecturers and heads of departments in NYS Institute of Business Studies reported that resources were adequate apart from the library that required equipping with modern reading materials. The lecturers and heads of departments at NYS Engineering institute reported that computers, equipment, tools, exercise books, white board markers and audio-visual aids were adequate but few modern text books were available for lecturers and not for students.

Data collected from the students, heads of department and lecturers on adequacy of each of those items was also presented in tables. Frequencies showing very adequate, adequate, fairly adequate and inadequate were converted to percentages and weighted mean for each computed. They were based on a sample of three hundred (300) students and thirty (30) lecturers and nine (9) heads of departments combined.

#### **4.5.1 Adequacy of computers in the institutions.**

In this error of technology change computers are very important and learners should have enough computers. The adequacy of computers in the three institutions is reflected in table 4.10.

**Table 4.10. Adequacy of computers in the laboratories**

| Institution | Respondent         | Percentages |    |    |    | Weighted mean |
|-------------|--------------------|-------------|----|----|----|---------------|
|             |                    | VA          | A  | FA | I  |               |
| NYS EI      | Students           | 33          | 39 | 25 | 4  | 30            |
|             | Lecturers and HODs | 24          | 20 | 45 | 11 | 26            |
| NYS IBS     | Students           | 50          | 50 | 0  | 0  | 35            |
|             | Lecturers and HODs | 30          | 45 | 25 | 0  | 31            |
| NYS TTI     | Students           | 12          | 29 | 21 | 38 | 22            |
|             | Lecturers and HODs | 7           | 12 | 34 | 47 | 18            |

VA=Very Adequate, A= Adequate, FA= Fairy Adequate, I=Inadequate

At NYS Institute of Business Studies, 50 percent of the students reported that computers were very adequate and the other 50 percent as adequate. 30 percent of lecturers reported they were very adequate while 45 percent of heads of departments reported they were adequate. So, 75 percent of both lecturers and heads of departments reported adequacy of computers in NYS Institute of Business Studies therefore the computers were adequate. Students, lecturers and heads of departments had the highest weighted means of 35 and 30 respectively.

NYS Engineering Institute followed where 33 percent and 39 percent of students reported computers were very adequate and adequate respectively. This was 72 percent for students and the weighted mean was 30. Heads of departments and lecturers in Engineering Institute, 24 percent reported very adequate and 20 percent as adequate. This was 44 percent, the second highest after NYS Institute of Business Studies. Heads of departments and lecturers had a weighted mean of 26, while students had 30. NYS Technical Institute



reported 12 percent as very adequate from heads of departments and lecturers and 29 percent of students as adequate respectively. The weighted mean was 22, while that of lecturers and heads of departments was 18 and it was the lowest. It means that if computers contributed to performance then NYS Technical Institute would perform worse than Engineering Institute and NYS Institute of Business Studies. This agrees with GOK (2013) which noted that technical institutes had inadequate facilities; enrolment with inappropriate development, other facilities compromised Kenyan education.

#### 4.5.2 Adequacy of tools and equipment in the workshops

Workshop tools and equipment used in Engineering Institute and Technical Institute where the engineering courses dominated. Institute Business Studies had computer tool boxes therefore comparison of adequacy of tools and equipment was done at Engineering Institute and Technical Institute. The results are reported in table 4.11

**Table 4. 11. Adequacy of tools and equipment in the workshops**

| Institution | Respondent         | Percentages     |               |               |               | Weighted Mean |
|-------------|--------------------|-----------------|---------------|---------------|---------------|---------------|
|             |                    | VA              | A             | FA            | I             |               |
| NYS EI      | Students           | 43<br>(42.2%)   | 29<br>(28.4%) | 21<br>(20.5%) | 7<br>(6.9%)   | 31            |
|             | Lecturers and HODs | 37<br>(37.0%)   | 42<br>(42.0%) | 17<br>(17.0%) | 4<br>(4.0%)   | 31            |
| NYS IBS     | Students           | 100<br>(100.0%) | 0<br>(0.5%)   | 0<br>(0.5%)   | 0<br>(0.5%)   | 40            |
|             | Lecturers and HODs | 10<br>(10.0%)   | 15<br>(15.0%) | 27<br>(27.0%) | 48<br>(48.0%) | 19            |
| NYS TI      | Students           | 28<br>(28.0%)   | 37<br>(37.0%) | 22<br>(22.0%) | 13<br>(13.0%) | 28            |
|             | Lecturers and HODs | 23<br>(23.0%)   | 44<br>(44.0%) | 18<br>(18.0%) | 15<br>(15.0%) | 28            |

VA=Very Adequate, A= Adequate, FA= Fairy Adequate, I=Inadequate

Students in NYS Institute Business Studies reported computer tool boxes as 100 percent very adequate, with a weighted mean of 40 percent. Lecturers and heads of departments in the same institution reported 10 percent and 15 percent very adequate and adequate respectively a total of 25 percent adequacy. The results for students and lecturers in Institute Business Studies, contradict each other.

Engineering Institute students reported 43 percent as very adequate and 29 percent as adequate respectively. The weighted mean for both students, lecturers and heads of departments 31. In Technical Institute, students reported 28 percent as very adequate and 37 percent as adequate. Both very adequate and adequate resulted in 72 percent for Engineering Institute and 65 percent adequate for Technical Institute. The weighted mean for both lecturers and heads of departments, and students was 28, lower than that of Engineering Institute so Engineering Institute would be expected to perform better. According to Robert and Sampson (2011) educators in Nigeria argued that poor performance was due to poorly equipped workshops.

#### **4.5.3 Adequacy of text books in the institutions libraries**

Text books are learning resources expected to boost performance. Both quantities and quality text books contribute to performance. The responses on adequacy of text books are shown in table 4.12.

**Table: 4.12. Adequacy of text books in the institutions libraries**

| Institution | Respondent         | Percentages   |               |               |               | Weighted Mean |
|-------------|--------------------|---------------|---------------|---------------|---------------|---------------|
|             |                    | VA            | A             | FA            | I             |               |
| NYS EI      | Students           | 14<br>(14.0%) | 14<br>(14.0%) | 28<br>(28.0%) | 43<br>(43.0%) | 26            |
|             | Lecturers and HODs | 12<br>(12.0%) | 14<br>(14.0%) | 20<br>(20.0%) | 54<br>(54.0%) | 26            |
| NYS IBS     | Students           | 9<br>(9.0%)   | 13<br>(13.0%) | 14<br>(14.0%) | 27<br>(27.0%) | 15            |
|             | Lecturers and HODs | 11<br>(11.0%) | 12<br>(12.0%) | 20<br>(20.0%) | 52<br>(52.0%) | 23            |
| NYS TI      | Students           | 12<br>(12.0%) | 13<br>(13.0%) | 24<br>(24.0%) | 54<br>(54.0%) | 25            |
|             | Lecturers and HODs | 13<br>(13.0%) | 13<br>(13.0%) | 15<br>(15.0%) | 53<br>(53.0%) | 25            |

From the table, 14 percent of the students and 12 percent of the lecturers, indicated text books as very adequate while 14 percent of students and 14 percent of lecturers reported text books as adequate in Engineering Institute. Both have a weighted mean of 26. The results imply that Engineering Institute had inadequate text books. In NYS Institute of Business Studies, 9 percent of students and 11 percent of lecturers reported text books to be very adequate while 13 percent of students and 12 percent of lecturers reported text books as adequate. This resulted in 21 percent adequate claimed by students and 23 percent by lecturers and weighted mean was 15 and 23 respectively indicating text books shortage.

In Technical Institute, the weighted mean was 25 for both students and lecturers, and compares very well with that of Engineering Institute (26). In

Technical Institute, 12 percent of the students and 13 percent of the lecturers reported text books as very adequate while 33 percent of students and 13 percent of lecturers reported them as adequate. Both had a weighted mean of 25 implying that lecturers were unable to teach effectively due to lack of support materials that serve as a compass to direct them. Okwaro (2008), reported that inadequate textbooks and lack of internet facilities further limits research, information and knowledge hence poor results.

#### 4.5.4 Adequacy of exercise books and consumable materials

The exercise books are vital part of stationery provided by the institutions for note taking and subsequent revision while consumable materials are materials that cannot be reused like manila papers, white board markers among others . Adequacy of exercise books and consumable materials is shown in table 4.13.

**Table: 4.13. Adequacy of exercise books and consumable materials**

| Institution | Respondent         | Percentages   |               |               |               | Weighted Mean |
|-------------|--------------------|---------------|---------------|---------------|---------------|---------------|
|             |                    | VA            | A             | FA            | I             |               |
| NYS EI      | Students           | 45<br>(44.5%) | 27<br>(26.7%) | 22<br>(21.8%) | 7<br>(6.9%)   | 31            |
|             | Lecturers and HODs | 51<br>(50.5%) | 22<br>(21.8%) | 21<br>(20.8%) | 6<br>(5.9%)   | 32            |
| NYS IBS     | Students           | 34<br>(33.7%) | 28<br>(27.7%) | 26<br>(25.7%) | 12<br>(11.9%) | 28            |
|             | Lecturers and HODs | 40<br>(39.6%) | 26<br>(25.7%) | 20<br>(19.8%) | 14<br>(13.9%) | 29            |
| NYS TI      | Students           | 51<br>(50.5%) | 24<br>(23.8%) | 15<br>(14.9%) | 10<br>(9.9%)  | 32            |
|             | Lecturers and HODs | 46<br>(45.5%) | 30<br>(29.7%) | 16<br>(15.8%) | 8<br>(7.9%)   | 31            |

VA=Very Adequate, A= Adequate, FA= Fairy Adequate, I=Inadequate

Both NYS Engineering Institute and Technical Institute had higher weighted means of adequacy of exercise books and consumable materials. The students had a mean of 31 in Engineering Institute and 32 in Technical Institute while lecturers had 32 and 31 respectively. NYS Institute of Business Studies had slightly lower means with 28 for students and 29 for lecturers and heads of departments. These are within the same range as with other institutions which means that adequacy of exercise books and consumable materials might not have contributed or influenced performance. This implies that consumable materials were adequate in the institutions. High performing schools with adequate resources were distinguishable from low achieving schools without the resources (World Bank,2010). Abbasi and Mir (2010) reported adequate teaching and learning resources were necessary for teaching effectively.

#### **4.5.6 Adequacy of audio visual aids in the institutions**

These are important equipment used by lecturer during lesson presentations and they aid learning by stimulating the sense of sight and hearing. Table 4.15 shows the adequacy of audio visual aids in the three institutions.

**Table: 4.14: Adequacy of audio visual aids used by lecturers**

| Institution | Respondent         | Percentages   |               |               |               | Weighted Mean |
|-------------|--------------------|---------------|---------------|---------------|---------------|---------------|
|             |                    | VA            | A             | FA            | I             |               |
| NYS EI      | Students           | 20<br>(20.0%) | 21<br>(21.0%) | 24<br>(24.0%) | 35<br>(35.0%) | 23            |
|             | Lecturers and HODs | 25<br>(25.0%) | 23<br>(23.0%) | 25<br>(25.0%) | 27<br>(27.0%) | 25            |
| NYS IBS     | Students           | 29<br>(29.0%) | 18<br>(18.0%) | 20<br>(20.0%) | 33<br>(33.0%) | 24            |
|             | Lecturers and HODs | 25<br>(25.0%) | 23<br>(23.0%) | 22<br>(22.0%) | 30<br>(30.0%) | 24            |
| NYS TI      | Students           | 5 (5.0%)      | 13<br>(13.0%) | 27<br>(27.0%) | 56<br>(56.0%) | 17            |
|             | Lecturers and HODs | 9 (9.0%)      | 12<br>(12.0%) | 33<br>(33.0%) | 46<br>(46.0%) | 18            |

VA=Very Adequate, A= Adequate, FA= Fairy Adequate, I=Inadequate

The weighted means show that NYS Institute of Business Studies had adequate audio-visual aids with the mean of 24 for both students and lecturers and heads of departments. Both adequate and very adequate combined indicate that 47 percent of students and 48 percent of lecturers reported adequacy of audio visual aids in NYS Institute of Business Studies. In NYS Engineering Institute the mean was 23 for students and 25 for lecturers and heads of departments meaning audio visual resources were adequate.

Technical Institute has a mean of 17 for students and 18 for lecturers. This is low compared to two other institutions. Very adequate and adequate combined for the students and lecturers and heads of departments shows that only 18 percent and 21percent reported adequate audio-visual aids. This means lessons are presented better in NYS Institute of Business Studies and NYS

Engineering Institute compared to Technical Institute. Just like World Bank concluded in 2010, high performing schools with visual aids, electricity and computers were distinguished from low achieving school without such resources. Performance in Technical Institute may not have been as good as in the other two institutions with resources.

#### 4.5.7 Influence of adequacy of teaching-learning resources

The chi-square statistic was computed to establish the association between the adequacy of teaching and learning resources and performance in diploma technical exams. The hypothesis being tested was “there is no significant difference between adequacy of teaching–learning resources and performance in diploma examinations”. The findings are presented in Table 4.15.

**Table 4.15: Cross tabulation of adequacy of teaching–learning resources and performance**

|          |            |                               | Performance |        |        | Total  |
|----------|------------|-------------------------------|-------------|--------|--------|--------|
|          |            |                               | Distinction | Credit | Pass   |        |
| Adequacy | Adequate   | Count                         | 46          | 38     | 14     | 98     |
|          |            | % within Performance category | 42.2%       | 47.5%  | 36.8%  | 43.2%  |
|          | Inadequate | Count                         | 63          | 42     | 24     | 129    |
|          |            | % within performance category | 57.8%       | 52.5%  | 63.2%  | 56.8%  |
| Total    |            | Count                         | 109         | 80     | 38     | 227    |
|          |            | % within performance category | 100.0%      | 100.0% | 100.0% | 100.0% |

The chi-square results are presented in Table 4.16.

**Table 4.16: Chi-square tests for adequacy of resources and performance**

|                              | Value  | df | Asymp. Sig.<br>(2-sided) |
|------------------------------|--------|----|--------------------------|
| Pearson Chi-Square           | 72.301 | 2  | .000                     |
| Likelihood Ratio             | 70.088 | 2  | .001                     |
| Linear-by-Linear Association | 69.243 | 1  | .000                     |
| N of Valid Cases             | 227    |    |                          |

The findings in Table 4.17 show a Pearson Chi-Square statistic,  $\chi^2 = 72.301$ , and  $p < 0.001$ , therefore a very small chance that the observed data under the null hypothesis has no relationship and therefore rejected because  $p < 0.05$ . This finding agrees with that of Okwaro (2008) who found there was a relationship between availability of teaching and learning resources and performance in diploma technical examinations.

#### **4.6 Teacher-student ratio and performance in technical examinations**

The second objective was to determine the influence of teacher-student ratio on performance of service men and women in diploma technical examination. This was important for the researcher to determine whether teacher student ratio influence performance.

##### **4.6.1 Teacher-student ratio in the institution**

These are numbers of students per class compared to lecturers in each class. The findings of the study are reflected in table 4.18.



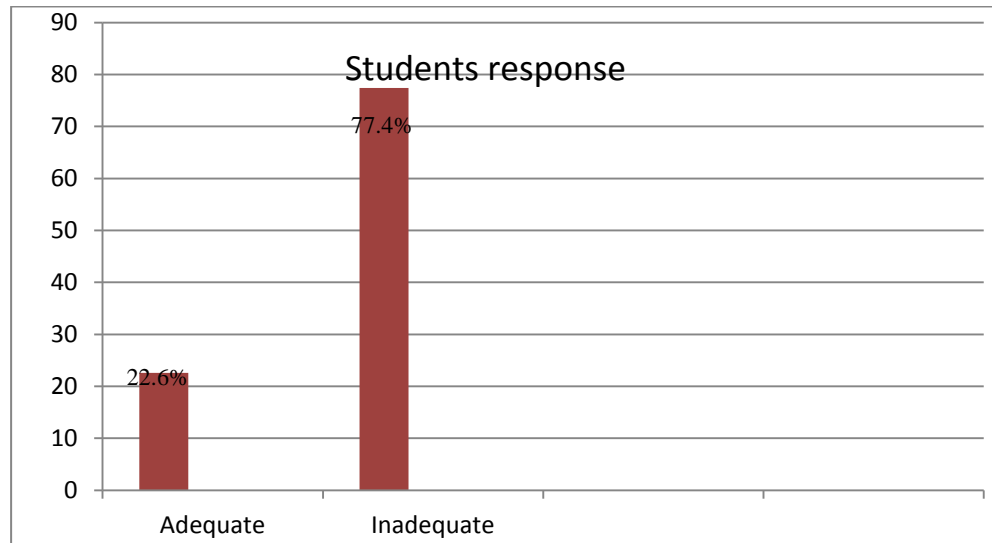
**Table 4.17: Average class size in the institutions**

| Institution                       | Average class size | Recommended |
|-----------------------------------|--------------------|-------------|
| NYS Engineering Institute         | 33                 | 20          |
| NYS Institute of Business Studies | 34                 | 25          |
| NYS Technical Institute           | 44                 | 22          |

The findings show that the average class size differs. In NYS Technical Institute, the average class size was 44 which implied teacher student ratio was 1:44, Engineering Institute 1:34, and Institute business 1:33 respectively. The Heads of departments and lectures estimated the ratios to be 1:32 Engineering Institute, 1: 33 NYS Institute of Business Studies, 1: 45 for Technical Institute which shows that Technical Institute classes are large. According to a study done at California and Tennessee in reduced class size students shared knowledge, test score and relationships with peers and teachers improved, in-depth subject matter coverage done and student progress tracking better (Andrew, 2008).

#### **4.6.2 Servicemen and women response on adequacy of teacher-student ratio**

The researcher sought from servicemen and women the adequacy of lecturers in the institutions. This was necessary in order to assess whether the number of lecturers contributed to performance in national examinations. The responses are reflected in figure 4.1 below

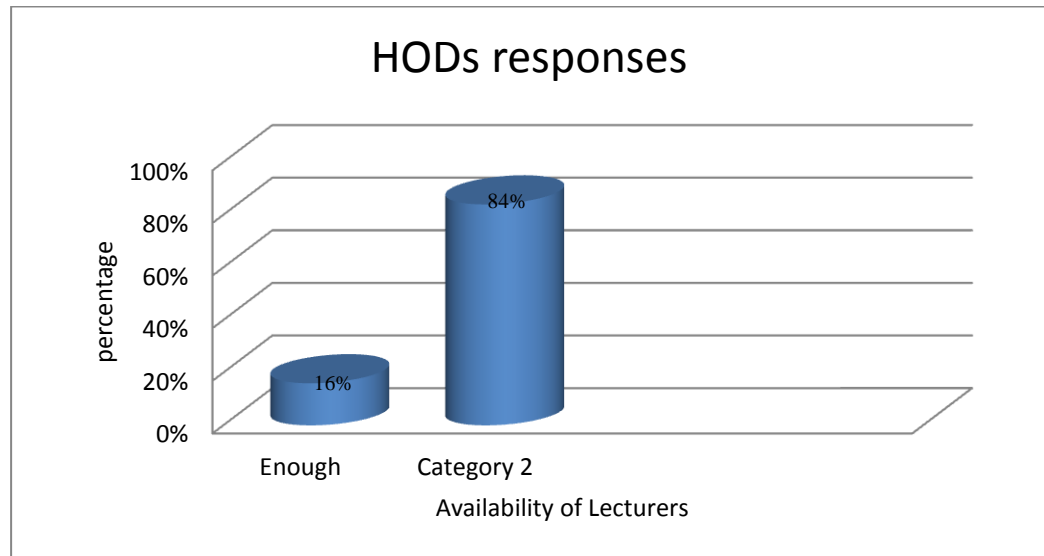


**Figure 4.1 Students responses on adequacy of teacher-student**

From the findings 77.5percent of the respondents indicated that the lecturers were not enough. This implies that the service men and women' were left to study on their own since the lecturers were not enough. This agrees with Raychaduri (2010) report that availability of lecturers services to students increases interaction which enables them to progress in their education in Bangladesh.

#### **4.6.3 Lecturers and head of department's response on adequacy of lecturers.**

The researcher sought heads of departments' response on adequacy of lecturers in the institutions so as to determine the influence of teacher-student ratio on performance in national technical education. Figure 4.1 shows the results.



**Figure 4.2 Head of departments and lecturers responses on teacher-student ratio**

The findings show that 84 percent of the respondents indicated that lecturers were few and some subjects lacked lecturers. They had employed part time lecturers to reduce the shortage and at times they were not able to pay the lecturers promptly and this led to some leaving to better paying institutions. The shortage could have been attributed to delayed promotions. Researchers in Nigeria argue that teacher-student ratio is often mentioned in educational literature as a national influence on students' achievement and proves a significant determinant of degree of success. The absence of lecturers in some subjects could attribute to poor performance. (Umanadi,2011).

This implies that the heads of departments were overloaded which was likely to affect their performance in carrying out their professional responsibilities. Heads of departments are also at times forced to assign lecturers subjects they have not specialized. They further indicated that adequate lecturers in the institutes enhance growth in knowledge and skills of the service men and

women. According to Haimson (2014) crowded classes affect the learning process and lecturers overwork in high teacher- student ratio.

#### **4.6.4 Supervision practical work during learning.**

This involves supervising student as they work on their projects. This was important because it helps the lecturer identify areas that need emphasis as well as students weaknesses. Table 4.19 shows the students response on the supervision of their practical work.

**Table 4.18: Percentage of students’ practical work supervised.**

| Institution                    | Yes | No  |
|--------------------------------|-----|-----|
| NYS Engineering Institute      | 63% | 37% |
| NYS Institute Business Studies | 60% | 40% |
| NYS Technical Institute        | 15% | 85% |

Yes = practical work supervised No= practical work not supervised

NYS Engineering Institute, had the best supervision as 63 percent of the students admitted that their practical work was supervised, while at NYS Institute of Business Studies, 60 percent of the students said their work was supervised. In a study by Kession (2014) cited (Annunziata, 1997) reported that consistent student supervision by teachers impacted positively on teaching contributing to good class performance. This then implied that in NYS Technical Institute where supervision was not as good as in the other institutions, performance was equally not good. In general, the reason for the poor supervision as given by the students and lecturers as large classes, congested classes without walking spaces in between, and teachers exhausted due to high allocated teaching load.

**Table 4.19: Cross tabulation of students who passed examinations with class size**

| Institution             | Passed examination | Failed examinations | Total |
|-------------------------|--------------------|---------------------|-------|
| NYS EI (small classes)  | 74                 | 11                  | 85    |
| NYS IBS (small classes) | 120                | 13                  | 133   |
| NYS TTI (large classes) | 62                 | 20                  | 82    |
| Total                   | 256                | 44                  | 300   |

The results in table 4.19 above showed that passing the examination depended on the size of class, ( $\chi^2_{(1)} = 0.0114$ ). According to (Ott, 2010) two variables are dependent if their computed Chi-value is less than 0.05 at the 5 percent level of significance. The table shows a cross tabulation of class size with examination passes. A Chi-square value of 0.0114 was interpreted to mean that the smaller the class, the better the performance (Leedy & Ormrod, 2013). NYS Engineering Institute and NYS Institute of Business Studies had smaller classes and performed better than NYS Technical Institute.

The association between teacher-student ratio was statistically determined using the Pearson correlation coefficient. The statement being tested was “how does the teacher-student ratio influence performance of service men and women in diploma technical examinations?”The findings are presented in Table 4. 20.

**Table 4.20: Pearson correlation of teacher-student ratio and performance**

|               |                       | Teacher-student ratio | Performance |
|---------------|-----------------------|-----------------------|-------------|
| Pearson       | Teacher-student ratio | 1.000                 | 0.56        |
| Si – 1 tailed | Performance           | 0.56                  | 1.000       |
| N             | 227                   | 209                   |             |

The data in Table 4.20 shows that there was a positive relationship with a coefficient of 0.56 between teacher-student ratio and performance. This finding concurs with the findings in Table 4.20.

#### **4.7 Supervision of lecturers and performance in technical examinations**

Supervision is a set of activities carried out to make teaching and learning better through stimulating, advising and guiding lecturers to perform duties optimally so as to achieve stated goals and objectives.

##### **4.7.1 Supervision of teaching activities by heads of department**

The HODs supervised records of work, schemes of work, lesson plans, class attendance registers and lesson notes in departments as a delegated responsibility by the principals. The pattern and frequency of checking professional documents is reflected in Table 4.21.

**Table 4.21: Frequency of lecturers' records supervised by heads of departments**

| Institution | Frequency of lecturer's records checked by HOD   |   |   |
|-------------|--|---|---|
|             | Weekly   | Monthly   | Termly  |
| NYS EI      | <ul style="list-style-type: none"> <li>• Lesson plans</li> <li>• Lesson notes</li> </ul> | <ul style="list-style-type: none"> <li>• Records of work covered</li> <li>• Class attendance registers</li> </ul> | <ul style="list-style-type: none"> <li>• Schemes of work</li> </ul> |
| NYS IBS     | <ul style="list-style-type: none"> <li>• Lesson plans</li> <li>• Lesson notes</li> </ul> | <ul style="list-style-type: none"> <li>• Records of work covered</li> <li>• Class attendance registers</li> </ul> | <ul style="list-style-type: none"> <li>• Schemes of work</li> </ul> |
| NYS TI      | <ul style="list-style-type: none"> <li>• Lesson plans</li> <li>• Lesson notes</li> </ul> | <ul style="list-style-type: none"> <li>• Records of work covered</li> <li>• Class attendance registers</li> </ul> | Class registers   |

At both NYS Institute of Business Studies and Engineering Institute lesson plans and lesson notes were checked once a week, records of work once a month and schemes of work once a term. In technical institute, the schemes and records of work were checked at least twice a term, and lesson plans and lesson notes once a month. This frequency is lower compared to that of other two institutions which shows supervision in the three institutions was at variance. These are vital records kept by a lecturer and contribute to performance if well prepared and implemented. According to Kession (2014), this checking should end up with a discussion on the findings.

#### **4.7.2 Supervision of practical work in class and workshops**

This is supervision of work as the lesson for example technical drawing or other project progresses. The data for students who claimed practical work was checked and supervised is shown in table 4.22. It was cross tabulated with

those who passed and those who failed the examinations as well as those who claimed supervision or no supervision.

**Table 4.22 Cross tabulation of examination passed and supervised**

| Examination status | Was supervision done? |    | Total |
|--------------------|-----------------------|----|-------|
|                    | Yes                   | No |       |
| Passed             | 190                   | 58 | 248   |
| Failed             | 22                    | 22 | 44    |
| Total              | 212                   | 88 | 300   |

Analysis of these results showed that supervision and passing of examinations depended on each other, ( $\chi^2_{(1)} = 0.00026594$ ). This means they are related and it is then important that, supervision of teachers' works and records be done. This explained the variation in performance in the institutions, especially technical institute where the supervision was not as frequent as in the other two institutions. This may have led to laxity among the lecturers and consequently poor performance.

#### **4.7.3 Holding Post conferences**

This is important because it is a form of giving feedback to the lecturers after the classroom visits and checking of their work. Supervisors asserted that it helped in making sure they knew what was going on in the institution, identified risks and specific behaviors, and practices that go unaddressed, avoid assumptions that the supervisors cannot assist or are not interested in the learning of either a servicemen or women. This agrees with Emenalo (2008). Most supervisors asserted that post-conferences were effective because they



identified issues for discussions, reviewed notes from previous meeting, advised individual lecturers and allocated enough time for discussion.

The supervisors at Technical Institute confirmed that they held post-conferences once a year and once per month at Engineering Institute and Institute of Business Studies. They asserted that at times they were unable to meet lecturers because of the workload but whenever they do the post-conferences, they started by creating a relaxed atmosphere to encourage free discussions, avoided discussions that cost valuable time and are of minimal value. They took quick review of all the visits or those that cause concerns or select randomly and indicated those reviewed and they were given direction as required Kession (2014) agrees that free discussions after visits on issues of concerns enhance improve work performance.

The supervisor followed up as required, acted on comments made and made separate personal notes required for the consecutive meeting. The supervisors admitted that they avoided intimidating lecturers who may become reluctant and discourage them from dealing with concerns and issues that need assistance. The findings agrees with Andrew (2008) that this resulted into poor quality of discussion and communication between supervisors and lecturers which in return failed supervisors from being fully supportive and lecturers' not seeking supervisors' assistance. Supervisors encouraged lecturers to seek required support and assistance on good time.

#### **4.7.4 Staff development and how it can be enhanced**

This involves capacity building of the staff and updating them on the policy changes directly affecting their work. The heads of departments reported that staff development could be enhanced by implementing the government policy on promotions, availing higher level study opportunities to staff, encouraging attendance of conferences organized by professionals from other institutions and encouraging academic writing. The government should increase funds allocation for staff development.

Establishing a fully funded research department in every institution was mentioned as a route towards seeking and disseminating knowledge. Comments made by lecturers and heads of departments were that there was a committee for making decisions on courses to be undertaken but at times funds were limited therefore lecturers were forced to pay for themselves. In most cases they catered for seminars and not long-term courses. The inability to acquire new skills could make the lecturers not to transfer up-to-date skills to the service men and women which in turn could lower performance.

#### **4.7.5 Influence of supervision of teaching activities on performance**

The chi-square test statistic was used to test the association between supervision of teaching activities and performance in diploma examinations. This was to test whether supervised institutions performed better than those that were not supervised. The chi-square statistic findings are presented in tables 4.23 and 4.24.

**Table 4.23: Cross-tabulations of supervision of teaching activities and performance**

|              |                               | Performance |        |       | Total  |
|--------------|-------------------------------|-------------|--------|-------|--------|
|              |                               | Distinction | Credit | Pass  |        |
| Supervised   | Count                         | 98          | 109    | 20    | 165    |
|              | % within performance category | 70.5%       | 86.6%  | 90.9% | 72.7%  |
| Unsupervised | Count                         | 41          | 17     | 2     | 62     |
|              | % within performance category | 29.5%       | 13.5%  | 9.1%  | 27.3%  |
| Total        | Count                         | 139         | 126    | 22    | 227    |
|              | % within performance category | 61.2%       | 55.6%  | 9.7%  | 100.0% |

The findings in table 4.23 show that majority 109(86.6) institutions where teaching activities were supervised had recorded credit scores while 98(70.5) had distinctions scores. The reasons given by most respondents were that heads of departments were overloaded therefore unable to supervise frequently as well as lack of inconsistencies in staff development. The chi-square statistic are presented in table 4.24.

**Table 4.24: Chi-square statistics of supervision and performance**

|                              | Value               | df | Asymp. Sig. (2-sided) |
|------------------------------|---------------------|----|-----------------------|
| Pearson Chi-Square           | 66.341 <sup>a</sup> | 2  | .000                  |
| Likelihood Ratio             | 70.428              | 2  | .000                  |
| Linear-by-Linear Association | 46.886              | 1  | .000                  |
| N of Valid Cases             | 227                 |    |                       |

The Chi-Square test computed on the data was significant at the 0.001 level (2-tailed  $p < 0.0005$ ) of significance. ( $\chi^2 = 66.341$ ,  $df = 2$ ), therefore it was determined that there is a significant difference in the supervision of teaching activities across the institutions and performance. This finding agrees with Kession (2014) who found that frequently supervised institutions performed better than those not supervised frequently. Therefore supervision improves performance.

#### **4.8 Physical facilities and performance in technical examinations**

These are the man made permanent features like classrooms, libraries, computer laboratories, furniture, staffroom and workshops and may impact on performance and quality of education in any learning institution. The researcher sought to establish the influence adequacy of physical facilities from service men and women, lecturers and heads of department to ascertain whether they affect performance in NYS institutions in Nairobi.

##### **4.8.1 Adequacy of computer laboratories in the institutions**

These are specifically learning resource centres fitted with networked computers for learning. Besides being networked, the computers there in, must be working and installed with modern and recent software. Table 4.25 show the adequacy of computer laboratories.

**Table 4.25 Adequacy of computer laboratories in the institutions**

| Institution | Respondent         | VA | A  | FA | I  | Weighted mean |
|-------------|--------------------|----|----|----|----|---------------|
| NYS EI      | Students           | 26 | 29 | 28 | 17 | 27            |
|             | Lecturers and HODs | 20 | 35 | 32 | 13 | 26            |
| NYS IBS     | Students           | 14 | 27 | 42 | 17 | 24            |
|             | Lecturers and HODs | 18 | 37 | 28 | 17 | 26            |
| NYS TTI     | Students           | 23 | 28 | 34 | 15 | 26            |
|             | Lecturers and HODs | 15 | 30 | 32 | 24 | 24            |

The highest mean is 27, for students and 26 lecturers and heads of departments at NYS Engineering Institute. Majority of students, lecturers and heads of departments reported adequacy of computers. In NYS IBS, the students had a mean of 24, and the lecturers heads of department had 26. The lecturers and heads of department in NYS IBS weighted means compare very well with Engineering Institute. For NYS Technical Institute, the means are like those of Engineering Institute, they are 26 for students and 24 for lecturers and heads of departments. This is interpreted to mean the level of adequacy of computer laboratories in the three institutions are the same and as such the effect of performance would be the same.

The heads of departments, lecturers and servicemen and women further indicated that computer laboratories should be enlarged due to the increased recruits to enhance successful progression. The institutions should be connected to internet to enhance performance. The findings corroborates with (Gurney,2007)who noted that lack of physical facilities affects learners ability

#### 4.8.2 Adequacy of classrooms and furniture in the institutions

These rooms used by both lecturers and students during learning and should be spacious, well lit, equipped and ventilated for learning purposes. The adequacy of classrooms and furniture is shown in table 4.26.

**Table 4.26 Adequacy of classrooms and furniture in the institutions**

| Institution | Respondent         | Percentage |    |    |    | weighted mean |
|-------------|--------------------|------------|----|----|----|---------------|
|             |                    | VA         | A  | FA | I  |               |
| NYS EI      | Students           | 30         | 49 | 17 | 3  | 31            |
|             | Lecturers and HODs | 26         | 53 | 14 | 7  | 30            |
| NYS IBS     | Students           | 20         | 49 | 17 | 13 | 28            |
|             | Lecturers and HODs | 23         | 41 | 23 | 13 | 27            |
| NYS TI      | Students           | 22         | 45 | 23 | 10 | 28            |
|             | Lecturers and HODs | 17         | 48 | 14 | 21 | 26            |

VA=Very Adequate, A= Adequate, FA= Fairy Adequate, I=Inadequate

The highest weighted mean was at Engineering Institute with 31 for students and 30 for heads of departments and lecturers. Both very adequate and adequate for students, lecturers and heads of departments combined results was 79 percent adequacy. NYS Institute Business Studies had slightly lower means with 28 for students and 27 for lecturers and heads of departments. Students reported more adequacy of classrooms and furniture than lecturers in this institution. In NYS Technical Institute, the means for students 28, and lecturers and heads of departments 26 were lower compared to the other two institutions. This means, if adequacy of classrooms and furniture affect performance, then performance in technical institute would be the lowest.

These findings imply that with inadequate classrooms, many students are unlikely perform because they are forced to look for empty classes to study. The findings agree with Bamiro and Adejeji who asserted that adequate physical facilities promoted achievement and overcrowded classrooms negatively affected achievement. This could affect service men and women' performance negatively and be discharged from the service.

The Lecturers further revealed that insufficient classrooms and furniture make teaching difficult. This implies that teachers are not able to effectively check practical. These findings concurs with Hussein et al (2012)who revealed that any trace of inadequacy leads to frustration and the motivating factor in terms of comfort diminishes. He further noted that in appropriate physical facilities like lack of adequate classrooms and furniture may hinder students' progress.

#### **4.8.3 Adequacy of library in the institutions**

A library is a collection of books and reference materials as well as reading space where students visit either private study or consulting for references. The responses for the adequacy of library are shown in table 4.27.

**Table 4.27: Adequacy of the library in the institutions**

| Institution | Respondent         | Percentage |    |    |    | Weighted mean |
|-------------|--------------------|------------|----|----|----|---------------|
|             |                    | VA         | A  | FA | I  |               |
| NYS EI      | Students           | 13         | 15 | 54 | 18 | 32            |
|             | Lecturers and HODs | 15         | 21 | 43 | 21 | 34            |
| NYS IBS     | Students           | 9          | 22 | 40 | 29 | 28            |
|             | Lecturers and HODs | 12         | 25 | 37 | 26 | 28            |
| NYS TI      | Students           | 18         | 14 | 18 | 51 | 23            |
|             | Lecturers and HODs | 20         | 13 | 14 | 53 | 23            |

VA=Very Adequate, A= Adequate, FA= Fairy Adequate, I=Inadequate

In the table, the weighted means were 22 and 23 for students and Lecturers at Engineering Institute, 21 and 22 for students and for lecturers at NYS IBS, and 20 for both students and Lecturers and heads of departments at NYS Technical Institute. These means were lower at NYS Technical Institute which means, if adequacy of the library had an effect on performance, then NYS Technical Institute would not have performed like the other two but would be poor. This agrees with Bradley (2008) who found that libraries contribute to performance since schools with them showed significant achievement in Australia.

The libraries were small compared to required standards. This implies that access to libraries was limited and textbooks outdated. Lack of such a facility was likely to compromise the lecturers' morale to teach and may lead to poor performance of service men and women' which in return could lead to high resignation rate. The findings are in agreement with Amadi (2011) who noted poor performance was partly due to lack of access to libraries with e-facilities.



Inadequate library also implied that the service men and women' could not carry out their studies outside the classroom or do further research on their own in case of clarification in the absence of a teacher. This observation agrees with Heinneesen who noted inadequate libraries affected student ability to cope with course workload. Taylor and Vlastos argued that a library played a fundamental role in improving achievement in Ethiopia.

#### 4.8.4 Adequacy of workshops in NYS Engineering Institute and NYS

##### Technical Institute

The study sought information from the respondents in the study regarding the influence of availability of workshops on performance of service men and women in diploma technical examinations. This was important to ascertain whether availability of workshops influenced performance in NYS Engineering Institute and NYS Technical Institute. The findings are given in Table 4.28

**Table 4.28: Adequacy of Workshops in NYS Engineering Institute and NYS Technical Institute**

| Institution | Respondent         | Percentage |    |    |    | Weighted mean |
|-------------|--------------------|------------|----|----|----|---------------|
|             |                    | VA         | A  | FA | I  |               |
| NYS EI      | Students           | 10         | 12 | 24 | 54 | 22            |
|             | Lecturers and HODs | 8          | 13 | 20 | 59 | 23            |
| NYS TI      | Students           | 13         | 14 | 20 | 53 | 20            |
|             | Lecturers and HODs | 11         | 12 | 19 | 58 | 20            |

VA=Very Adequate, A= Adequate, FA= Fairy Adequate, I=Inadequate

The findings revealed that service men and women' indicated there were inadequate workshops with a weighted mean of 22 at Engineering Institute and 20 at NYS Technical Institute while lecturers had 23 at Engineering Institute and 20 at NYS Technical Institute . This implies that teaching of most practical subjects was not done adequately in engineering courses due to inadequate workshops. Amadi (2011) linked poor performance to inadequate infrastructure like workshops in Nigeria.

The findings also revealed that lecturers and HODs had means of 23 at Engineering Institute and 20 at technical institute an indication that there were inadequate workshops. The implication of this finding is that service men and women' did not do adequate practical work on their programs and would therefore not acquire the needed practical skills which in the view of Engin (2009) are important in technical and vocational education and pre-requisites for national development. In TVET students acquire academic skills, technical and employable skills in Texus (Kession, 2014)

In establishing whether workshops were adequate in the institutes, majority of the respondents indicated that they were inadequate. This meant that a good number of students could not access workshops for their practicals effectively. The finding agrees with Fullan (2007) that quality and adequate workshops impact variety of effects to the teaching learning process and performance in national examinations. The lecturers and HODs revealed that inadequacy of physical facilities was mainly contributed by high cost of construction.

The Heads of department opined that physical facilities had a high effect on performance of service men and women in diploma technical examinations. They also indicated that adequate facilities in the institutes enhanced growth in knowledge and skills of servicemen and women, high retention rate, movement from one module to another and high graduation rate, but lack of facilities led to some service men and women being discharged from the service. Okwarol (2008) reported that most technical institutions had inadequate workshops for effective teaching.

#### **4.8.5 Observation Checklist**

The researcher made an observation on the availability and adequacy of the facilities in the institutes. The physical facilities were available but not adequate. This could have been because of the increased numbers of recruits intake and limited funds allocated for construction thus buildings in training institutions take long to be completed. This was an indication that physical facilities were likely to be one of the major contribution of low performance of service men and women in diploma technical examinations in Nairobi County.

#### **4.8.6 Enhancing performance**

Teachers felt that their performance would improve if the classes were made smaller, weekly teaching work load reduced, frequent participation in conferences and creating extra time for teaching, where tuition would be individualized. Others suggested performance improving considerations included use of the student governorship to increase supervision, arranging and strengthening peer teaching, increasing resources and internet facilities.

The students suggested increase of the number of lecturers, increase the amounts of consumable materials during teaching, use of more audio visual equipment during teaching, bring in more modern text books in the library, increase the number of computer laboratories, construction of classrooms, reducing the class sizes, improving supervision of work by lecturers in the workshops as well as increasing the tools and equipment, and increasing the amount of time spent in the workshops.

Internet access was inadequate in the institutions; however, majority of students accessed through their own mobile phones using own connection own data bundles. A group comprising 6.2 percent could not access internet at all- either through the school or their own mobile phones. Other students also suggested that that there be inter- institutions competitions for them to able to test their competences before the national examinations while others said internship to be more than the normal three months

#### **4.8.7 The influence of adequacy of physical facilities on performance**

The chi-square test was computed to assess the association between adequacy of physical facilities and performance in diploma technical examinations. The null hypothesis being tested was “there is no significant difference between the adequacy of physical facilities on performance in diploma examinations. The findings are presented in Tables 4.29 and 4.30.

**Table 4.29: cross tabulations of influence of adequacy of physical facilities on performance**

|                        |                               |                               | Performance |        |        |       |
|------------------------|-------------------------------|-------------------------------|-------------|--------|--------|-------|
|                        |                               |                               | Distinction | Credit | Pass   | Total |
| Adequacy of facilities | Adequate                      | Count                         | 34          | 18     | 8      | 60    |
|                        |                               | % within performance category | 37.8%       | 19.4%  | 18.2%  | 26.4% |
|                        | Inadequate                    | Count                         | 56          | 75     | 36     | 167   |
|                        |                               | % within performance category | 62.2%       | 80.6%  | 81.8%  | 73.6% |
| Total                  | Count                         | 90                            | 93          | 44     | 227    |       |
|                        | % within performance category | 39.7%                         | 41.0%       | 19.4%  | 100.0% |       |

The findings in table 4.30 shows that majority 56(62.2%) of the institutions with inadequate physical facilities had more distinctions in their examinations while only 8(18.2%) institutions with adequate physical had scored a pass. This was mostly because inadequate practicals due to inadequate physical facilities. The Pearson chi-square results are presented in Table 4.30.

**Table 4.30 Chi-square statistics for adequacy of physical facilities on performance**

|                              | Value               | df | Asymp. Sig. (2-sided) |
|------------------------------|---------------------|----|-----------------------|
| Pearson Chi-Square           | 88.354 <sup>a</sup> | 2  | .000                  |
| Likelihood Ratio             | 68.745              | 2  | .000                  |
| Linear-by-Linear Association | 57.506              | 1  | .000                  |
| N of Valid Cases             | 227                 |    |                       |

The findings in table 4.33 show a Pearson Chi-Square statistic,  $\chi^2 = 88.354$ , and  $p < 0.001$  and consequent mixed possibility that physical facilities had effect on performance. This means some physical facilities like library and workshop were very important while others may not have had any effect on servicemen and women performance depending with courses.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents the summary of major findings of the study, conclusions and the recommendations based of the findings.

#### **5.2 Summary of the study**

The purpose of the study was to investigate institutional factors influencing students' performance in diploma technical examinations in National youth service training institutions in Nairobi city county, Kenya. Four research objectives were formulated from which research questions were drawn to guide data collection and analysis. Literature was reviewed in line with the study objectives. The theoretical and conceptual frame work was provided. The study adapted ex-post facto design. The study target population was all the nine heads of department, ninety lecturers and three thousand service men and women. The sample size was 339 and it included the nine (9) heads of departments, thirty (30) lecturers and 300service men and women. Observation list and questionnaires for heads of departments, lecturers, service men and women were used to collect data on dependent and independent variables. Instrument validity was sought from the supervisors. Test-retest method was to test reliability of the instrument for data collection.

The first objective was to determine the influence of availability of teaching - learning resources and performance of servicemen and women in diploma

technical examinations. It was to test whether the adequacy of teaching learning resources influences performance in nation technical examinations and whether institutes with adequate teaching-learning resources performed better than those with inadequate resources. The study revealed that the two institutes that had adequate teaching learning resources performed than the one that had inadequate resources. Adequate tools and equipment, text books and other resources were necessary for effective teaching and consequently good performance. Therefore it was concluded that adequate teaching-learning resources influenced performance in national technical examinations.

The second objective was to determine the influence of teacher student ratio and performance of servicemen and women in diploma technical examinations. Teacher student ratio was seen to have direct influence on performance in technical examinations. The Chi test value showed a dependence on teacher student ratio on class size and consequent performance. Institutions with low teacher student ratios catered for students' individual ability, motivational differences and increased interaction between teachers and students. Where the ratio was large, supervision of students' work was a challenge and this affected performance in a negative way and where teacher student ratios were small, performance in examinations was better.

The third objective was to determine the influence of the principal's supervision of teaching activities on performance of service men and women in diploma technical examinations. Analysis of results showed that supervision and passing of examinations depended on each other, ( $\chi^2_{(1)} = 0.00026594$ ). This means that passing examinations is related to supervision. In institutions



where supervision was frequent, performance was better compared to where it was not. It is then important that, supervision of teaching activities be done because it ascertains planning and executing of teaching plans which is key to performance. In institutions and countries where supervision was done, performance in examinations was better compared to where it was not well.

The fourth objective was to establish the influence of the level of adequacy of physical facilities on the performance of service men and women in technical diploma examinations. Infrastructure is a key base for learning and most institutions are characterized by inadequacies in physical facilities, quality library and workshops. Studies showed that institutions that had good quality infrastructure contributed to good performance in examinations. Adequacy of physical facilities (referring to the entire institutional plant) was seen to have a direct impact on results and contributed to good performance in national technical examinations.

### **5.3 Conclusions**

This section provides the conclusion of the findings of the study according to the research objectives. The study concluded that achievement in technical education can be enhanced by providing all the requirements stipulated in each area of specialization. The study also concluded that lecturer student ratio influences performance in national technical examinations. The study also concluded that teaching learning resources influence performance in national examinations. The study also concluded that supervision of teaching activities influence performance in national examinations but concluded that adequacy

of some of the physical facilities may not influence performance in national technical examinations. TVET education have a great role to play in harnessing a lot of potentials of human resource of every country because it helps in attaining self reliance goals and solves many political, economic, social cultural and religious problems therefore government should provide. TVET education every in the world has been described as a strategic and viable program important in attaining the millennium development goals.

In terms of achievement analysis of the data in table 1.1 shows that NYS Technical Institute performed worse than the NYS Institute of Business Studies and Engineering Institute. This was attested by the correlation coefficients of the data shown in table 4.7. From table 1.1 the summary of performance between 2013 and 2017 was as follows:- NYS Institute of Business Studies and NYS Engineering Institute had an average of between 8 - 10 percent distinctions, 11.9 - 9 percent credits, Pass 14 percent, Referrals 28 percent, and Fail 4 percent while NYS Technical institutions had 1.6 percent distinctions, 7.6 percent, Credit, 10.08 percent, Pass, Referrals 6.0 percent and Fail 12.9 percent. This means NYS Technical Institute performance was very low compared to the others which asserts that lack of teaching resources, physical facilities, lack of proper supervision and teacher-student ratios influences performance.

The study concluded that teaching-learning resources were found to be influencing performance results and their effect was the same across the institutions. They must be adequate, relevant and right quality for proper acquisition of skill. Poor and inadequate resources affect overall academic

achievement. Sufficient resources promote achievement so there is a close link between achievement and availability of teaching-learning resources.

The study concluded that teacher-student ratio influences performance and in technical education smaller class size promote higher levels of student engagement and it is cost effective to reduce lecturer-student ratio to increase performance and qualified graduates. The study concluded that classes were more than twice the recommended ratio of 1:20 in Kenya and an interactive learning platform for proper skills acquisition is essential. With low teacher-student ratio students have less disruptive behaviours, performance increase, high graduation rates, more complex concepts are learnt and engagement of each student in educational activities. The study concluded that majority of the institutions were understaffed which negatively affected learning and achievement of excellence in acquisition of employable skills, productivity, and production of quality graduates who work effectively in labour market.

The study concluded that effective supervision is key in enhancing performance and must be done at moderate intervals to verify quality of curriculum content for quality education to be achieved. Supervision activities are affected by lack of commitment, awareness and cooperative effort, and limited experience. Post conferences should be held and trainings, workshops and seminars for consistency and effectiveness. Supervisors should have broad knowledge and professional nature to inspire others. Strategies for continuous improvement should be put in place.

Technical education directly influences national productivity which largely determines living standards and ability to compete in global economy. The study concluded that adequacy of facilities influence performance in national technical examinations. Physical facilities should be in adequate quantity and quality and appropriate for quality education. They should be of the required specifications and be improved to correspond to rapid technological changes.

#### **5.4 Recommendations**

Based on the findings, the following recommendations have been advanced:

- i.) The study recommends that the government should allocate more funds to technical institutions countrywide to purchase relevant, appropriate and adequate teaching and learning resources to enhance proper skill acquisition.
- ii.) The study recommends that the government to promote and raise salaries for technical lecturers to avoid high turn-over. More lecturers should be employed to lower the teacher-student ratio in the institutions.
- iii.) The study recommends that National Youth Service administration, the government, national education system and stake holders should provide on-going professional development to transform education sector and update lecturers' skills and knowledge in order to increase global competitiveness.
- iv.) The number of service men and women was increase from four thousand to fifteen thousand therefore the study recommends that

government should construct more physical facilities to cater for the increased numbers.

### **5.5 Suggestions for further research**

The study suggests further research in the following areas:

- 1) This study should be replicated in other fourteen institutions within the National Youth Service in other counties and results be compared with those of Institute of Business Studies, Engineering Institute and Technical Institute.
- 2) Further study should be done on other factors other than teaching learning resources, teacher-student ratio, supervision of teaching learning activities and adequacy of physical facilities.
- 3) Further study should be done in all technical institutions under the Ministry of Education in order to enhance performance country wide.
- 4) Similar studies should be done in other countries for Kenya to be able to compare itself with other countries promote global competitiveness.

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## **APPENDICES**

### **APPENDIX I**

#### **LETTER OF INTRODUCTION**

University of Nairobi

Department of Educational Administration and Planning

P.O Box 92,

Kikuyu.

2<sup>nd</sup> November, 2017

Dear Sir/Madam

#### **RE: REQUEST TO COLLECT DATA**

I am carrying out a research on institutional factors influencing performance in Technical examinations at National Youth Service Training Institutions. The study is very important because the government and the tax payers have invested heavily in the buildings, equipping and running the institutions.

The society uses the skills and knowledge to enhance social and economic developments and hence self-reliance and self –employment. Your identity will be treated with utmost confidentiality and the data will be used for research purposes only.

I look forward to your support in gathering data from your institution.

Your's sincerely,

Irene Wambui Wamiti

**APPENDIX II**

**QUESTIONNAIRES FOR TECHNICAL COURSES HEADS OF DEPARTMENTS**

Kindly [ ✓ ] tick against your opinion and fill blank spaces for questionnaires requiring answers.

**Part A: General information**

- 1) What is the name of your institution? .....
- 2) Which department are you heading currently? .....
- 3) Which subjects have you specialized in? (i).....  
(ii).....

**Part B: Concept of achievement**

- 4(a) Are there policies in place on referred or failed students? Yes [ ], No [ ]
- (b)Please explain the policies on students who do meet academic targets.....  
.....
- 5) How can skill acquisition be enhanced? .....
- .....
- .....

**Part C: Availability of Teaching –learning resources**

- 6) Please rate the adequacy of the teaching-learning facilities below;

| Types of teaching learning facilities | Level of adequacy of teaching learning materials |          |                 |            |
|---------------------------------------|--|----------|-----------------|------------|
|                                       | Very adequate                                    | Adequate | Fairly adequate | Inadequate |
| Computers                             |  |          |                 |            |
| Equipment                             |  |          |                 |            |
| Tools                                 |  |          |                 |            |
| Modern text books                     |  |          |                 |            |
| Exercise books                        |  |          |                 |            |
| White boards                          |  |          |                 |            |
| White board markers                   |  |          |                 |            |
| Audio visuals                         |  |          |                 |            |

**Part D: Teacher-student ratio**

7) What is the teacher-students ratio in your department?

| Department | Number of lecturers | Number of students | Ratio |
|------------|---------------------|--------------------|-------|
|            |                     |                    |       |

8) What can be done to retain the lecturers in your institution?.....

.....

9) What challenges do you experience with part time lecturers? .....

.....

**Part E: Supervision of teaching activities**

10) Which supervision practices do you use in your institution? .....



11) About how many times do you check records of work, schemes of work, lesson plans and lesson notes in your department?

| Professional documents | Once a week | Once a month | Once a term | Annually |
|------------------------|-------------|--------------|-------------|----------|
| Records of work        |             |              |             |          |
| Schemes of work        |             |              |             |          |
| Lesson plans           |             |              |             |          |
| Lesson notes           |             |              |             |          |

12) How often do you visit by lecturers while teaching? .....

13) When hold post- conferences with the lecturers?.....

14) How is staff development and enhanced? .....

.....

**Part F: Adequacy of physical facilities**

15) Please rate the adequacy of physical facilities in your department

| Types of Physical facilities | Level of adequacy of physical facilities |          |                 |            |
|------------------------------|--|----------|-----------------|------------|
|                              | Very adequate                            | Adequate | Fairly adequate | Inadequate |
| Workshops                    |  |          |                 |            |
| Classrooms                   |  |          |                 |            |
| Computer laboratory          |  |          |                 |            |
| Library                      |  |          |                 |            |
| Stores                       |  |          |                 |            |
| Staffroom                    |  |          |                 |            |

16) What are the possible reasons in academic achievement .....

.....

**APPENDIX III**

**QUESTIONNAIRES FOR TECHNICAL COURSES' LECTURERS**

Dear respondent,

Kindly [ ✓ ] tick against your opinion and fill blank spaces for questionnaires requiring answers.

**Part A: General information**

- 1) What is the name of your institution? .....
- 2) Which department are you teaching currently?.....
- 3) Which subjects do you teach? (i)..... (ii).....

**Part B: Concept of achievement**

- 4) Which challenges do you face in assessing students academic progress? .....  
.....
- 5) How can performance in your subjects be enhanced? .....  
.....
- 6(a) What hinders proper acquisition of skills? .....  
.....
- (b)What can be done to ensure proper acquisition of skills? .....  
.....

**Part C: Availability of Teaching –learning resources**

- 7) Please indicate the adequacy of the teaching learning facilities as: Very adequate, Adequate, Fairly Adequate, Inadequate.

| Type of teaching learning facilities | Level of adequacy of teaching learning materials |          |                 |            |
|--------------------------------------|--|----------|-----------------|------------|
|                                      | Very adequate                                    | Adequate | Fairly adequate | Inadequate |
| Computers                            |  |          |                 |            |
| Equipments                           |  |          |                 |            |
| Tools                                |  |          |                 |            |
| Modern text books                    |  |          |                 |            |
| Consumables (e.g. Exercise books)    |  |          |                 |            |
| Audio visuals                        |  |          |                 |            |

**Part D: Teacher-student ratio**

- 8) How many students are in your class? .....
- 9) How many are you in your area of specialization? .....
- 10) Are lecturers taxed to teach subjects they have not specialized in? .....

**Part E: Supervision of teaching activities**

- 11) How often are you observed by the head of department while teaching?  
 Weekly [ ], Monthly [ ], Termly [ ], Yearly [ ]
- 12(a) Do you hold post-conference discussions? .....
- (b) How has post-conference improved performance in your department?
- 13) How do you arrange peer-teaching sessions? .....
- .....
- 14) What can be done to improve supervision in your institution?.....
- .....

**Part F: Adequacy of physical facilities**

15) Please rate the adequacy of physical facilities in your department as: very adequate, adequate, fairly adequate and inadequate

| Types of Physical facilities | Level of adequacy of physical facilities |          |                 |            |
|------------------------------|--|----------|-----------------|------------|
|                              | Very adequate                            | Adequate | Fairly adequate | Inadequate |
| Workshop                     |  |          |                 |            |
| Classrooms                   |  |          |                 |            |
| Computer laboratory          |  |          |                 |            |
| Library                      |  |          |                 |            |
| Stores                       |  |          |                 |            |
| Staffroom                    |  |          |                 |            |
| Furniture                    |  |          |                 |            |

16) Does availability of physical facilities contribute to student's performance?.....

.....

17) What factors would attribute to performance of service men and women in diploma technical examination.....

.....

18) In your opinion how else can performance be improved? .....

.....

**APPENDIX IV**

**QUESTIONNAIRES TO TECHNICAL COURSES STUDENTS**

Dear respondent

Kindly tick [ ✓ ] against your option and fill blank spaces for questionnaire requiring answers.

**Part A: General information**

- 1) What is the name of your institution?.....
- 2) Please indicate your gender [ ] Male, [ ] Female
- 3) Which department are in? .....
- 4) Which course are you undertaking? .....

**Part B: Concept of achievement**

- 5) What did you score in national examinations?  
(i)Module 1..... (ii) Module 2.....
- 6) Who pays for the examination in the event of a student being referred? .....  
.....
- 7) What happens to a student who fails twice in one module? .....  
.....  
.....  
.....

**Part B: Availability of teaching-learning facilities**

8) Please indicate the adequacy of the teaching learning facilities as: Very adequate, Adequate, Fairly adequate, Inadequate.

| Types of teaching learning facilities | Level of adequacy of teaching learning materials |          |                 |            |
|---------------------------------------|--|----------|-----------------|------------|
|                                       | Very adequate                                    | Adequate | Fairly adequate | Inadequate |
| Computers                             |  |          |                 |            |
| Equipments                            |  |          |                 |            |
| Tools                                 |  |          |                 |            |
| Modern text books                     |  |          |                 |            |
| Exercise books                        |  |          |                 |            |
| Consumable materials                  |  |          |                 |            |
| Audio visuals                         |  |          |                 |            |

9) Do you have access to internet? .....

**Part C: Teacher-student ratio**

10) How many are you in your class.....

11) Are teachers able to check each student's work during practical lessons? .....

**Part D: Adequacy of physical facilities**

12) Please rate the adequacy of physical facilities in your department as: Very adequate, Adequate, Fairly adequate, Inadequate.

| Types of Physical facilities | Level of adequacy of physical facilities |          |                 |            |
|------------------------------|--|----------|-----------------|------------|
|                              | Very adequate                            | Adequate | Fairly adequate | Inadequate |
| Computer laboratory          |  |          |                 |            |
| Classrooms                   |  |          |                 |            |
| Library                      |  |          |                 |            |
| Furniture's                  |  |          |                 |            |
| Library                      |  |          |                 |            |
| Staffroom                    |  |          |                 |            |

13). What can done to help you perform better? .....

**APPENDIX V**

**QUESTIONNAIRES FOR BUSSNESS COURSES’ HEADS OF DEPARTMENTS**

Kindly tick [ ✓ ] against your option and fill blank spaces for questionnaire requiring answers.

**Part A: General information**

- 1) What is the name of your institution? .....
- 2) Which department are you heading currently? .....
- 3) Which subjects have you specialized in?(i)..... (ii).....

**Part B: Concept of achievement**

- 4(a) Are there policies in place on referred or failed students?.....
- (b)Please explain the policies on students who do meet academic targets  
.....
- 5) How can skill acquisition be enhanced? .....

**Part C: Availability of Teaching –learning resources**

6) Please rate the adequacy of the teaching learning facilities below;

| Types of teaching learning facilities | Level of adequacy of teaching learning materials |          |                 |            |
|---------------------------------------|--|----------|-----------------|------------|
|                                       | Very adequate                                    | Adequate | Fairly adequate | Inadequate |
| Computers                             |  |          |                 |            |
| Printers                              |  |          |                 |            |
| Photo copiers                         |  |          |                 |            |
| Modern text books                     |  |          |                 |            |
| Exercise books                        |  |          |                 |            |
| White boards                          |  |          |                 |            |
| White board markers                   |  |          |                 |            |
| Audio visuals                         |  |          |                 |            |

**Part D: Teacher-student ratio**

7) What is the teacher-students ratio in your department?

| Department | Number of lecturers | Number of students | Ratio |
|------------|---------------------|--------------------|-------|
|            |                     |                    |       |

8) What can be done to retain the lecturers in your institution?.....

.....

9) What challenges do you experience with part time lecturers? .....

.....

**Part E: Supervision of teaching activities**

10) Which supervision practices do you use in your institution? .....

.....

11) About how many times do you check records of work, schemes of work, lesson plans and lesson notes in your department?

| Professional documents | Once a week | Once a month | Once a term | Annually |
|------------------------|-------------|--------------|-------------|----------|
| Records of work        |             |              |             |          |
| Schemes of work        |             |              |             |          |
| Lesson plans           |             |              |             |          |
| Lesson notes           |             |              |             |          |

12)How often do you visit by lecturers while teaching?.....

12) When do you hold post- conferences with the lecturers? .....

13) How is staff development enhanced? .....

14) Please rate the adequacy of physical facilities in your department



| Types of Physical facilities | Level of adequacy of physical facilities |          |                 |            |
|------------------------------|--|----------|-----------------|------------|
|                              | Very adequate                            | Adequate | Fairly adequate | Inadequate |
| Workshop                     |  |          |                 |            |
| Classrooms                   |  |          |                 |            |
| Computer laboratory          |  |          |                 |            |
| Library                      |  |          |                 |            |
| Stores                       |  |          |                 |            |
| Staffroom                    |  |          |                 |            |
| Furniture                    |  |          |                 |            |

15) Suggest way in which performance can be enhanced.....

.....

.....

**APPENDIX VI**

**QUESTIONNAIRES FOR BUSINESS COURSES' LECTURERS**

Dear respondent,

Kindly tick against your opinion and fill blank spaces for questionnaires requiring answers.

**Part A: General information**

- 1) What is the name of your institution?.....
- 2) Which department are you teaching currently? .....
- 3) Which subjects do you teach? (i)..... (ii).....

**Part B: Concept of achievement**

- 4) Which challenges do you face in assessing students academic progress? .....  
.....
- 5) How can performance in your subjects be enhanced? .....  
.....
- 6(a) Do graduates in your discipline acquire all the skills? .....  
.....
- (b)If not, what can be done to ensure proper acquisition of skills? .....  
.....

**Part C: Availability of Teaching –learning resources**

7) Please indicate the adequacy of the teaching learning facilities as: Very adequate, Adequate, Fairly Adequate, Inadequate

| Type of teaching learning facilities | Level of adequacy of teaching learning materials |          |                 |            |
|--------------------------------------|--|----------|-----------------|------------|
|                                      | Very adequate                                    | Adequate | Fairly adequate | Inadequate |
| Desk-top computers                   |  |          |                 |            |
| Laptops                              |  |          |                 |            |
| Projectors                           |  |          |                 |            |
| Printers                             |  |          |                 |            |
| Photocopiers                         |  |          |                 |            |
| Modern textbooks                     |  |          |                 |            |
| Exercise books                       |  |          |                 |            |
| Consumable materials                 |  |          |                 |            |

**Part E: Teacher-student ratio**

8) How many students are in your class? .....

9)How many are you in your area of specialization? .....

10) Are lecturers taxed to teach subjects they have not specialized in? .....

.....

**Part F: Supervision of teaching activities**

10) How often are you observed by the head of department while teaching?

Weekly [ ], Monthly [ ], Termly [ ], Yearly [ ]

11(a) Do you hold post-conference discussions? .....

(b) How has post-conference improved performance in your department?

.....

12) How do you arrange peer-teaching sessions? .....

.....

13) What can be done to improve supervision in your institution?.....

.....

**Part C: Adequacy of physical facilities**

14) Please rate the adequacy of physical facilities in your department as: very adequate, adequate, fairly adequate and inadequate

| Types of Physical facilities | Level of adequacy of physical facilities |          |                 |            |
|------------------------------|--|----------|-----------------|------------|
|                              | Very adequate                            | Adequate | Fairly adequate | Inadequate |
| Computer laboratory          |  |          |                 |            |
| Library                      |  |          |                 |            |
| Classrooms                   |  |          |                 |            |
| Staffroom                    |  |          |                 |            |
| Stores                       |  |          |                 |            |
| Furniture's                  |  |          |                 |            |

15) Does availability of physical facilities contribute to student's performance?.....

16) What factors would you attribute to performance of service men and women in diploma technical examination?.....

.....

17) In your opinion how else can performance be improved? .....

.....

## APPENDIX VII

### QUESTIONNAIRES FOR BUSINESS COURSES STUDENTS

Dear respondent

Kindly tick [ ✓ ] against your option and fill blank spaces for questionnaire requiring answers.

#### **Part A: General information**

1) What is the name of your institution? .....

2) Please indicate your gender [ ] Male [ ] Female

3) Which department are in? .....

4) Which course are you undertaking? .....

#### **Part B: Concept of achievement**

5) What did you score in national examinations?

(i) Module 1..... (ii) Module 2.....

6) Who pays for the examination in the event of a student being referred?.....

.....

.....

7) What happens to a student who fails twice in one module? .....

.....

.....

#### **Part C: Availability of Teaching –learning resources**

8) Please indicate the adequacy of the teaching learning facilities as: Very adequate, Adequate, Fairly Adequate, Inadequate

| Type of teaching learning facilities | Level of adequacy of teaching learning materials |          |                 |            |
|--------------------------------------|--|----------|-----------------|------------|
|                                      | Very adequate                                    | Adequate | Fairly adequate | Inadequate |
| Desk-top computers                   |  |          |                 |            |
| Laptops                              |  |          |                 |            |
| Projectors                           |  |          |                 |            |
| Printers                             |  |          |                 |            |
| Photocopiers                         |  |          |                 |            |
| Modern textbooks                     |  |          |                 |            |
| Exercise books                       |  |          |                 |            |
| Consumable materials                 |  |          |                 |            |

9) How do you access internet? .....

**Part C: Teacher-student ratio**

10) How many are you in your class.....

11) Are teachers able to check each student's work during practical lessons?  
.....

**Part D: Adequacy of physical facilities**

12) Please rate the adequacy of physical facilities in your department as: Very adequate, Adequate, Fairly adequate, Inadequate.

| Types of Physical facilities | Level of adequacy of physical facilities |          |                 |            |
|------------------------------|--|----------|-----------------|------------|
|                              | Very adequate                            | Adequate | Fairly adequate | Inadequate |
| Workshops                    |  |          |                 |            |
| Classrooms                   |  |          |                 |            |
| Computers laboratory         |  |          |                 |            |
| Library                      |  |          |                 |            |
| Furniture                    |  |          |                 |            |

13) What can done to help you perform better? .....

**APPENDIX VIII**

**OBSERVATION CHECKLIST**

| Resources           | Available | Not available | Adequate | Inadequate |
|---------------------|-----------|---------------|----------|------------|
| Workshops           |           |               |          |            |
| Libraries           |           |               |          |            |
| Computer laboratory |           |               |          |            |
| Classrooms          |           |               |          |            |
| Machines            |           |               |          |            |
| Tools and equipment |           |               |          |            |
| Furniture           |           |               |          |            |

## APPENDIX IX

### INTRODUCTORY LETTER



UNIVERSITY OF NAIROBI  
COLLEGE OF EDUCATION AND EXTERNAL STUDIES  
SCHOOL OF EDUCATION  
DEPARTMENT OF EDUCATIONAL ADMINISTRATION AND PLANNING

Telephone: 020-2701902  
Telegram: "CEES"  
E-mail: dept-edadmin@uonbi.ac.ke

P.O. Box 30197-00100, NRB  
OR P.O. Box 92-00902 KIKUYU

November 1, 2017

Our Ref: UON/CEES/SOE/A&P/1/4

#### TO WHOM IT MAY CONCERN

IRENE WAMBUI WAMITI – REGISTRATION NO. E55/78824/2015

This is to certify that Irene Wambui Wamiti is a Master of Education student in the Department of Educational Administration and Planning at the University of Nairobi. She has completed her course work and is summarizing her research proposal on *"Institutional Factors Influencing Students Performance in Diploma Technical Examinations in National Youth Service Training Institutions in Nairobi City County, Kenya"*. Her area of specialization is Educational Administration.

Any assistance accorded to her will be highly appreciated.

Thank you.

Yours faithfully

A handwritten signature in blue ink over a circular official stamp. The stamp contains the text "UNIVERSITY OF NAIROBI" and "01 NOV 2017".

**JEREMIAH M. KALAI, PhD**  
Chairman  
Department of Educational Administration and Planning

JMK/rww



## APPENDIX X

### RESEARCH AUTHORIZATION



**NATIONAL COMMISSION FOR SCIENCE,  
TECHNOLOGY AND INNOVATION**

Telephone: 020 400 7000,  
0713 788787,0735404245  
Fax: +254-20-318245,318249  
Email: dg@nacosti.go.ke  
Website: www.nacosti.go.ke  
When replying please quote

NACOSTI, Upper Kabete  
Off Waiyaki Way  
P.O. Box 30623-00100  
NAIROBI-KENYA

Ref. No. **NACOSTI/P/17/80339/20061**

Date: **14<sup>th</sup> November, 2017**

Irene Wambui Wamiti  
University of Nairobi  
P.O. Box 30197-00100  
**NAIROBI.**

**RE: RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on *“Institutional factors influencing students’ performance in diploma technical examinations in national youth service training institutions in Nairobi City County, Kenya”* I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **14<sup>th</sup> November, 2018.**

You are advised to report to **the County Commissioner, the County Director of Education, Nairobi County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

*G.P. Kalerwa*

**GODFREY P. KALERWA MSc., MBA, MKIM  
FOR: DIRECTOR-GENERAL/CEO**

Copy to:

The County Commissioner  
Nairobi County.

The County Director of Education  
Nairobi County.

## APPENDIX XI

### RESEARCH PERMIT

THIS IS TO CERTIFY THAT:  
**MISS. IRENE WAMBUI WAMITI**  
of UNIVERSITY OF NAIROBI, 30397-100  
NAIROBI, has been permitted to conduct  
research in *Nairobi County*

Permit No : NACOSTI/P/17/80339/20061  
Date Of Issue : 14th November, 2017  
Fee Recieved :Ksh 1000

on the topic: **INSTITUTIONAL FACTORS  
INFLUENCING STUDENTS'  
PERFORMANCE IN DIPLOMA TECHNICAL  
EXAMINATIONS IN NATIONAL YOUTH  
SERVICE TRAINING INSTITUTIONS IN  
NAIROBI CITY COUNTY, KENYA**

for the period ending:  
**14th November, 2018**



.....  
**Applicant's  
Signature**

*J.P. Kalewa*  
.....  
**Director General  
National Commission for Science,  
Technology & Innovation**

### CONDITIONS

1. The License is valid for the proposed research, research site specified period.
2. Both the Licence and any rights thereunder are non-transferable.
3. Upon request of the Commission, the Licensee shall submit a progress report.
4. The Licensee shall report to the County Director of Education and County Governor in the area of research before commencement of the research.
5. Excavation, filming and collection of specimens are subject to further permissions from relevant Government agencies.
6. This Licence does not give authority to transfer research materials.
7. The Licensee shall submit two (2) hard copies and upload a soft copy of their final report.
8. The Commission reserves the right to modify the conditions of this Licence including its cancellation without prior notice.



REPUBLIC OF KENYA



National Commission for Science,  
Technology and Innovation

**RESEARCH CLEARANCE  
PERMIT**

Serial No.A 16439

CONDITIONS: see back page

## APPENDIX XII

### RESEARCH SITE AND LOCATION

