CHOICE OF FIELDS OF STUDY OF DIPLOMA STUDENTS IN KENYA: A CASE STUDY OF THE TECHNICAL UNIVERSITY OF KENYA

BY

JUMA BEATRICE JEDIDAH

X50/72930/2009

Research Project Submitted in Partial Fulfilment of the Award of Master of Arts in Economics of the University of Nairobi

NOVEMBER 2015

DECLARATION

I declare that this is my original work and has not been submitted for examination in any other institution for examination.

Signature_____ Date _____

Juma Beatrice Jedidah

X50/72930/2009

This Research Project has been submitted for examination with my approval as the university supervisor.

Signature_____ Date_____

Prof. D. M. Kulundu

University of Nairobi, Kenya

This Research Project has been submitted for examination with my approval as the university supervisor.

Signature_____ Date_____

Dr. Anthony Wambugu

University of Nairobi, Kenya

DEDICATION

This Project is a special dedication to my husband, Mr. Christopher Muganda and my sons for all their loving support, understanding and sacrifice during the time of my studies.

ACKNOWLEDGEMENT

First and foremost I thank God for providing me with good health and peace of mind. I am highly indebted to many people whose combined efforts have led to the fruitful realization of this research project through their sacrifices and tireless efforts.

Sincere gratitude to my supervisors, Prof. D. M. Kulundu and Dr. Anthony Wambugu whose constant efforts and constructive criticism have invaluably improved the quality of this Research Project.

I acknowledge the guidance, support and unreserved contribution from other lecturers, administrative and support staff of the University of Nairobi in the development of this research project.

Heartfelt gratitude to my husband, Chris, and my sons Dennis, Brian and Larry. To all my friends and colleagues at my place of work for their understanding, unceasing support, and for valuable views and opinions during my research.

Sincere gratitude to the Technical University of Kenya administration and all my respondents (Diploma students at the Technical University of Kenya) who spent their valuable time answering my questions without whose cooperation, this study remains incomplete.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS AND ACRONYMS

CHE	-	Commission for Higher Education
ECCD	-	Early Childhood Care and Development
EFA	-	Education for All
ERS	-	Economic Recovery Strategy
IT	-	Institute of Technology
KPUC	-	Kenya Polytechnic University College
MDG	-	Millennium Development Goals
MOCC	-	Mother's Occupation
PRSP	-	Poverty Reduction Strategy Plan
URP	-	Urban Residential Place
RRP	-	Rural Residential Place
STEM	-	Science, Technology, Engineering and Mathematics
TSS	-	Technical Secondary Schools
TTI	-	Technical Training Institute
UON	-	University of Nairobi
UPE	-	Universal Primary Education
TIVET	-	Technical Industrial Vocational& Entrepreneurship Training

ABSTRACT

Education and training plays an important role in economic development through its dimension of building the capacity of human capital. Through education and training people acquire a variety of knowledge, skills and attitudes which enable them to engage in productive economic activities. Despite numerous efforts by the Government of Kenya aimed at making education accessible and improving the quality of education, there still exists some challenges faced by tertiary educational institutions such as low student enrolment ,accompanied with a low enrolment of female students in Science and Engineering fields of study .This study aimed at finding out factors that influence choice of fields of study of Diploma students at the Technical University of Kenya and analyse whether the factors were different for male and female students. The sample size used for analysis comprised of 260 students randomly selected from three faculties; Applied Sciences, Engineering and Social Sciences. Descriptive statistics, Multinomial Logistic Regression and Likert Scale in analyzing the data. The empirical results showed that the factors varied across the faculties; with the most significant factors in the faculty of Applied Sciences being K.C.S.E grades (B and above) and family income while in the Faculty of Engineering, the factors identified were gender (male) and grades B and above. This calls for the intervention educational policy makers in collaboration with relevant stakeholders to formulate policies that will encourage school leavers to enroll for Science and Engineering courses so as to avert shortage of middle-level skilled labour in all sectors of the economy to foster economic growth and development.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

1.1.1 Education and Training in Kenya

The government of Kenya recognizes education as a priority for sustainable development. This is reflected in policy documents such as, the Poverty Reduction Strategy Plan (PRSP) (Government of Kenya,2002), Economic Recovery Strategy for Employment and Wealth Creation (Government of Kenya, 2003), Vision 2030 and the Education Policy Paper (Government of Kenya, 2005).The government aims at providing quality education and training to all Kenyans through ensuring equitable access to education and training to develop quality human resource which is a prerequisite for the attainment of national goals for industrial development and Vision 2030 (Government of Kenya, 2012).

Appendix 5 shows the structure and organization of Kenya's education system which is 8.4.4 system was intended to make education more relevant and to produce adequate skilled and high level manpower. The starting point of the education ladder is early Childhood (Nursery and Pre-unit) followed by basic Education (Primary and Secondary) and then post-secondary education, commonly known as Technical, Industrial, Vocational and Entrepreneurship Training, TIVET (National Polytechnics, Teacher Training colleges, Institutes of Technology, Technical Training Institutes and Universities) which take two to four years. University education is the apex of Kenya's formal education and training (Government of Kenya, 2005).

Kenya has 2 Technical Universities, 3 national polytechnics, 17 institutes of technology, 1 technical teachers' training college, 21 technical training institutes and almost 1000 private commercial colleges. There are over 600 youth polytechnics throughout the country (Government of Kenya, 2005). School leavers can enroll for technical or business courses in public or private TIVET institutions and attain certificate or diploma in Engineering, Building and Construction, Survey and mapping, Applied Sciences, Hospitality and Tourism, Creative Arts, Social Studies, and Business Studies.

TIVET involves acquisition of the knowledge, skills and attitudes necessary for the practice of various trades. It aims to produce skilled artisans, technicians and technologists for both formal and informal sectors at the ratio of one technologist to five technicians to thirty artisans (1: 5:30) (Government of Kenya, 2005). It is hoped that providing training opportunities for the increasing number of school leavers will enable them to acquire practical skills and attitudes for income generation in paid employment and self-employment. Technical and vocational Education can also be acquired through apprenticeship in the informal sector.

1.1.2 Technical, Industrial, Vocational and Entrepreneurship Training in Kenya (TIVET)

Technical and vocational education in Kenya is popularly known as TIVET. Following the recommendations of the ministerial committee on problems facing national polytechnics, it was agreed that Industrial and Entrepreneurship be included in the synonym, hence the "E" for Education was replaced by Entrepreneurship (Government of Kenya, 2003).The objective of TIVET is to provide life-long education and training for

self-reliance (Government of Kenya, 1988). TIVET in Kenya is governed by the constitution of Kenya, Science and Technology Act (Cap 250), Education Act (Cap 211), Higher Education Loans Board Act (Cap 213), Industrial Training Act (Cap 237), Kenya National Examination Act (Cap 225), Local Government Act (Cap 265), Teachers' Service Commission Act (Cap 212) and Universities Act (Cap 210B).

TIVET in Kenya is offered at four levels namely: Artisan level in Youth Polytechnics and Apprenticeship training in the formal and informal sector; Craft Level in Technical Training Institutes (TTIs) and Institutes of Technology (ITs) and Technician level in National Polytechnics and some few TTIs and ITs. The courses offered in the training institutions range from Engineering, Applied Sciences, Creative and Liberal Arts and Business. Graduates from TIVET institutions are awarded Certificates and Diploma on successful completion of the two or three years of study. Those who attain Diploma can proceed to University for Undergraduate and Post-graduate Degrees. In this regard, the government upgraded the Kenya Polytechnic and Mombasa Polytechnic into University Colleges in 2008 (Government of Kenya, 2005).

Technical and Vocational Training is funded by various sources. The government contributes towards the payment of salaries of staff in public TIVET institutions, and depending on the availability of funds, subsidize on the supply of equipment. Parents on the other hand cater for tuition, operational costs and accommodation expenses. Another source of funding is through levies such as the Industrial Training Levy which is levied to the employer through the Industrial Training Council under the Ministry of Labour or the

Catering Training and Tourism Development Levy under the Ministry of Tourism and Wildlife (Government of Kenya, 1983).

TIVET in Kenya faces a number of challenges such as inadequate equipment, obsolete equipment, low budgetary allocations, lack of effective co-ordination of training, duplication in the production of skilled personnel, under-utilization of available training facilities, unnecessary competition, irrelevant training programmes, declining enrolment in engineering and building courses, negative perception about TIVET by the public, gender underrepresentation in some courses, limited presence of TIVET experts in top policy organs of the government and mismatch between supply and demand for skilled manpower leading to poor job prospects for TIVET graduands (Government of Kenya, 2003).

Table 1.1 shows student enrolment in TIVET institutions by sex for the period 2007-2011. TTIs and Institutes of Technology recorded the highest student enrolment, followed by Youth Polytechnics while the National Polytechnic had the lowest enrolment. However, the Kenya Polytechnic had the highest number of students amongst the other Polytechnics. The number of male students who enrolled in national Polytechnics, TTIs and ITs was higher than the female students with a noticeable higher number of male students enrolled in TTIs. However, in the Youth Polytechnics, female students' enrolment was higher than male students' enrolment.

Table 1.1: Student Enrolment by Sex in TIVET institutions, 2007 to 2011

	2007		2008		2009		2010		2011		GRAND TOTAL
INSTITUTION	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	
National Polytechnics											
Kenya Polytechnic University College	6,521	3,401	6,602	3,546	2,642	1,156	2,904	1,357	2,360	4,512	**35,001**
Mombasa Polytechnic University College	3,285	3,012	3,456	3,543	3,518	2,152	2,041	3,276	3,558	1,794	**29,635**
Kisumu Polytechnic	1,489	824	1,768	1,022	2,276	1,472	1,798	781	1,990	938	**14,358**
Eldoret Polytechnic	1,894	858	1,996	987	1,949	1,302	1,903	1,718	3,132	2,145	**17,884**
Subtotal	**13,189**	**8,095**	**13,822**	**9,098**	**10,385**	**6,082**	**8,646**	**7,132**	**11,040**	**9,389**	**96,878**
Other TIVET Institutions											
Technical Training Institutions	10,818	9,517	12,132	9,876	12,514	9,923	12,908	9,970	16,719	13,255	**117,632**
Institutes of Technology	5,407	4,473	5,807	4,768	5920	4,813	6,035	4,858	10,179	8,607	**60, 867**
Subtotal	**16,225**	**13,990**	**17,939**	**14,644**	**18,434**	**14,736**	**18,943**	**14,829**	**26,898**	**21,862**	**178500**
Youth Polytechnics	9,528	15,489	12,154	17,543	13,222	18,122	14,384	18,720	15,648	19,338	**154,148**
GRAND TOTAL	**29,414**	**12,085**	**31,761**	**23,742**	**28,819**	**20,818**	**27,589**	**21,961**	**37,938**	**31,251**	

Source: Government of Kenya (2012)

1.1.3 The Kenya Polytechnic University College (KPUC)

The Kenya Polytechnic was established in 1960 and officially opened on 29th May 1961 to train middle level manpower after conversion of Royal Technical College into a constituent college of University of East Africa (Government of Kenya, 1964). The Kenya Polytechnic was intended to absorb Technical Secondary Schools (TSS) leavers. When it started the Kenya Polytechnic had three departments: Engineering, Applied Sciences and Commerce. By 1986, there were eleven departments. In 1987 there was a reorganization of the departments of General Studies, Library and Archival Studies and the Creation of the departments of Surveying and Mapping. In 1996, the department of Mathematics and Statistics was merged with the department of Applied Science (KPUC, 2006).

Kenya Polytechnic was upgraded to a university college in 2008(Government of Kenya, 2010) and on 15th January 2013 it was granted a charter and became a fully-fledged University and was renamed; Technical University of Kenya (TUK).The mission and vision of TUK is: "To provide quality and innovative technological education and training" and "To be a top rated university of Technology" respectively, while the motto is "Education and Training for the real world" (Technical University of Kenya,2010).As a Technical University it is expected to continue with its mandate of training middle-level manpower required in all the sectors of the economy. It therefore offers a wide range of Diploma courses in Business, Applied Sciences, Health, Humanities and Social Sciences, Hospitality and Tourism and Engineering to secondary school leavers. TUK also offer Bachelor of Technology degrees to Diploma holders and school leavers admitted through

the Kenya Universities and Colleges Placement Board that replaced the Joint Admissions Board (JAB).

Following the new status of the institution, student enrolment for various courses is expected to rise. However some courses seem to have large numbers of trainees than others and there was a decline in enrolment in most courses in 2010/2011 as shown in Table 1.2below.

Table 1.2: Enrolment At Kenya Polytechnic: 2005/2006- 2010/2011

	2005/06	**2006/07**	**2007/08**	**2008/09**	**2009/10**	**2010/11**
Engineering Department						
Mechanical Engineering	398	431	425	418	435	183
Electrical & Electronics Engineering	867	871	867	862	887	372
Automobile Engineering	98	104	89	76	91	38
Aeronautical Engineering	105	128	95	71	97	41
Telecommunications Engineering	120	125	134	144	137	58
Sub-total	**1588**	**1659**	**1610**	**1571**	**1647**	**692**
Building & Civil Engineering Departments						
Building &Civil Engineering	680	712	721	730	737	309
Surveying & Mapping	245	276	301	328	308	129
Sub-total	**925**	**988**	**1022**	**1058**	**1045**	**438**
Science Department						
Applied Sciences	460	485	435	390	445	187
Science Laboratory Technology	1023	1287	1346	1408	1377	578
Maths/Statistics/Computing	956	978	1010	1043	1033	434
Sub-total	**2439**	**2750**	**2791**	**2741**	**2885**	**1199**
Liberal & Professional studies Departments						
Secretarial Courses	201	412	445	481	455	191
Commerce Courses	978	1305	1345	1386	1376	578
Professional Courses	348	423	450	479	460	193
Graphic Art	786	835	845	855	864	363
Institutional Management	367	431	445	459	455	191
Library & Archives	345	434	435	436	445	187
Information & Liberal	456	497	534	574	546	229
Subtotal	**3481**	**4337**	**4499**	**4670**	**4601**	**1932**
Total	**8,433**	**9,734**	**9,922**	**10,139**	**10,178**	**4.261**

Source: Government of Kenya, 2011

Table 1.2 shows the total student enrolment in specific courses for the period 2005-2011. Liberal and Professional Studies Department had the highest student enrolment (23,530), Engineering Department had 8,767, Science Department had 14,805 and Building & Civil Engineering had the lowest student enrolment (5,476).

In Engineering department, Electrical & Electronics engineering had the highest number of students (4,726) accounting for 53% of total enrolment. In Building& Civil Engineering Department, Building and Civil Engineering course had more students than Surveying & Mapping, whereas in Applied Science department, Science Laboratory Technology course had the highest number of students, and in Liberal and Professional studies department, Commerce courses had the highest number of students. This shows that enrolment for Building and Engineering courses has been overtaken by Commerce and Applied Sciences. This study therefore seeks to find out factors that influence enrolment for certain courses and why certain courses are more preferred than others. This information will be useful for policy formulation at institutional level and government level.

1.2 Research Problem

The Government recognizes that TIVET is important to industrialization. The government has put in place measures aimed at promoting TIVET such as provision of bursaries to needy students, subsidizing fees in Youth Polytechnics, scholarships to female engineering students, equipping TIVET institutions identified as Centres of Excellence, refurbishment of youth polytechnics and establishment of the National

Council for Science and Technology and upgrading of the Kenya Polytechnic and Mombasa Polytechnic into Technical Universities (Government of Kenya,2002) while ignoring the role of career guidance on areas of study.

It has also been noted that even with the knowledge of the various factors affecting students' choices of areas of study, the government of Kenya has buried its head in sand rather than addressing these factors as a way of developing a workforce that can spearhead all sectors of the society towards Vision 2030. This may be why despite these government efforts, statistics still indicate that TIVET Institutions are facing a declining enrolment in engineering and building courses (Government of Kenya, 2011). The decline is a concern because it may result in inadequate skilled workers for the engineering and building sector consequently adversely affecting industrial growth, employment creation, and shortage of skilled technicians in key areas of the economy.

Most of the studies reviewed relate to choice of field of study in developed countries and analyze the effect of family background characteristics on educational choices. The studies reveal that factors influencing educational choices vary from country to country and are bound to change over time even in the same country. It would be interesting to find out whether similar factors drive students' choice of field of study in a developing economy. Previous studies on educational choices in Kenya focused on the factors affecting school enrolment decisions and not specific fields of study. A few studies focus on factors influencing career choice but not choice of fields of study among students in TIVET institutions.

The National Manpower Survey (2010/2011)conducted by the Ministry of Labour in conjunction with the Kenya National Bureau of Statistics revealed that Kenya is facing an ageing workforce with over 58% of staff in the public sector being of over 36 years old, while 60% of staff in the private sector being below 35 years old. The report disclosed that the youth are facing challenges in getting government jobs due to inadequate work experience, frozen public employment and that some of the youth skills are in the technology driven occupations, art and music. However, despite this situation facing the youth, the survey revealed that a total of 131,200 employees with different skills such as technicians, secretarial and clerical service workers, skilled farm and craft workers, secondary and technical institute teachers/ instructors, accountants, auditors, tax assessors and chemical engineers were identified to be lacking by the private sector. This is inconsistent with International best practices. This requires policy makers to appraise the factors affecting students' choices of areas of study as a way of dealing with its effect on enrolment for certain courses in TIVET institutions so as to formulate appropriate policies and put mitigative measures.

1.3 Research Questions

This study addresses the following research questions:

i. What influences the choice of fields of study of diploma students at the Technical University of Kenya?
ii. Are there differences in the factors that influence male's and female's choices of fields of study at the Technical University of Kenya?

1.4 Research Objectives

The main objective of this study is to investigate the factors that might influence a student's choice of field of study. The specific objectives are:

i. To analyze factors that influence students' choice of fields of study.

ii. Examine whether factors that influence female student choice of field of study differ from those that influence male students' choice of fields of study

1.5 Rationale of the Study

TIVET plays an important role in the development of human capital, and therefore it is important to know why certain types of individuals choose specific fields of study. In order to address declining enrolment, the study will assist in several ways:

First, the information can assist policy makers to come up with policies concerning efficient allocation of resources to TIVET institutions.

Second, it will assist the government of Kenya in effective manpower planning while focusing on human resource development for all sectors of the economy. This will ensure adequate supply of skilled workers and will spur economic growth and development.

Third, information obtained will assist in the elimination of discriminatory barriers for various Counties in Kenya in order to ensure an adequate supply of skilled manpower of all categories to spur economic development.

Fourth, the findings of this study will be useful for parents, instructors and career advisors regarding what they might expect from students and what types of encouragement may be needed.

Fifth, the information will assist faculty administrators in the academic planning process in order to ensure that the minimum number of students are enrolled in each field of study for effective utilization of resources.

Finally, the findings will be useful for researchers and scholars in this area by adding to the already existing pool of knowledge on this topic and in deepening it by conducting further studies on specific areas recommended by this study.

1.6 Outline of the Proposal

Chapter two provides the theoretical and empirical literature on the subject. In Chapter three a model is developed in which the student's expected level of indirect utility is expressed as a linear function of personal characteristics, family background and region of student's upbringing that is urban or rural. The chapter also provides a definition and justification of the dependent and independent variables, describing how the independent variables will be measured and the techniques for data collection presentation and analysis

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter contains a review of theoretical views and past studies on educational choices. The chapter comprises of three sections; Section 2.1 discusses theoretical literature providing an in-depth analysis of theories of choice, including human capital theory, rational choice theory, and career choice theories linked to the subject, Section 2.2 discusses empirical evidence on factors influencing choice of field of study/ course by post-secondary school students at university and vocational/technical levels; Section 2.3 presents a summary and brings out a gap in the subject which the previous studies have not addressed.

2.1 Theoretical Literature Review

This study is based on the human capital theory. Human capital is the stock of competencies, knowledge and personality attributes embodied in a person (Blaug, 1972). Individuals acquire human capital through education and training or on the job through experience (Becker, 1964). Human capital theory postulates that the costs and returns of education are the main factors driving educational choices. Expenditure on education is regarded as an economic investment that has costs and benefits. A rational individual acts as if balancing costs against benefits. Therefore the human capital investment model postulates that individuals will choose a particular educational choice only if the present value of the expected benefits exceeds the present value of the expected costs.

According to Human Capital theory education and training improves one's productivity and therefore earnings vary with the level of education and training (McConnell, 1989). Given this presumption, a rational school leaver compares potential career paths in terms of forgone earnings and other costs during the training period, and higher expected future income. The school leaver will choose that portfolio of post schooling or human capital investment that yields the highest net expected return.

Choice of field of study is an educational choice and it can be analysed using human capital theory. An individual considers the expected costs and the expected returns of available choices of field of study. Therefore factors that influence expected costs and returns are likely to influence choice of fields of study. A study by Efiong (2006) using age, sex, attitudes to science, IQ and personality on science choice noted from the results of t-test, correlation and multiple regression analyses that attitudes to science was the most important factor in science choice, followed by IQ while sex and personality were important to a lesser degree. The place of age in science choice needs further investigation according to the findings of this study.

2.2 Factors Affecting Student Selection of Study Areas

This section analyses the variables that scholars have put forward as affecting students' choice of study areas. They may include independent, intervening and moderating variables such as age, gender, KCSE mean score, parental occupation, parental level of education, place of upbringing, employability, socio-economic status of the family, type of secondary school attended, community of belongingness, and expected earnings after

graduation. Others include peer pressure, availability of scholarship/study loans, career guidance, and the type of Student.

2.2.1 Student's Age

Ramirez (2001) argues that postsecondary education and training results in significant gains for young people but its net benefits fall with age. Therefore, older students are less likely to enter more demanding fields. In addition, incentives to invest in human capital diminish with age, due to the shorter period that older people have to amortise investment costs in terms of forgone earnings (McConnell & Brue, 1989). Karen et al (2011) and Davies and Guppy (1997) found that students aged 25 years and above were most likely to choose humanities or social sciences regardless of gender and less likely to enter more demanding fields of study respectively.

2.2.2 Gender of Student

Davies and Guppy (1997) found that males were more likely than females to enroll in engineering, economics and medicine. Similarly Karen *et al* (2011) found that women are less likely to choose Engineering and Sciences than men. Female students whose mothers were in professional occupations were more likely to major in engineering and sciences. It was also found that in addition, some communities regard certain careers as "female" or "male" jobs. Bell et al. (2005) and Vidal Rodeiro (2006) found that boys showed a preference for more practical subjects whilst girls showed their liking for subjects in the Humanities and Languages fields.

2.2.3 KCSE Grade/ Academic Ability

Nguyen and Taylor (2003) found that academic ability has a powerful effect on post high school choices. They found that the academically able students are more likely to choose long cycle courses that take four years, and are less likely to enroll in two-year colleges or to enter the labour market. Students with high academic ability are more intellectually talented and are likely to enter more intellectually demanding courses such as engineering, economics and medicine than technical or creative arts. Another factor under this perspective as noted by Rodeiro (2007) is that self-perception of the students ability in the subjects also played a critical role in deciding their areas of study.

2.2.4 Parents' Occupation

Parental occupation is included to capture the effects of family's financial resources and to indicate the influence of mother or father as role models on males and females during the process of field selection. Oosterbeek and Webbink (1997) found that students born of parents working in technical fields were more likely to enroll in technical fields. A study by Rodeiro (2007) showed a correlation between parents' occupation and child's choice of AS/A level subjects. The children of the more advantaged social classes were oriented towards science and more challenging academic subjects. Children from less advantaged backgrounds were more inclined to have a mixture of subjects.

2.2.5 Parents' Level of Education

Karen *et al* (2001) argues that educated parents are in a better position to offer guidance on career choice and understand the importance of education and training since they are more exposed and may not be restricted to cultural beliefs and customs. Having highly

educated parents increases the probability of women choosing science and engineering courses. The findings of Bait-Almal (2012) speak the same language as it revealed that parents' level of education plays a critical role in influencing the choice of area of study. In Kenya some communities discriminate the girl child by denying them education with the belief that it is a waste of resource since the girl is likely to get married to an educated man whereas boys are likely to get married to uneducated girls (Iminza, 2006). Therefore the choice of field of study may be influenced by the parents' perception about various educational choices and their level of education.

2.2.6 Place of Upbringing

A few scholars have reasoned that being brought up in urban centers and rural setting may impact on a student's ability to choose area of study based on the level of exposure, socio-cultural beliefs and stereotypes on some type of professions among others. This may have changed due to the presence of internet accessibility through mobile phones though it may not be necessarily so due to hard economic times that may not allow many students to have enough airtime to browse various professions, job openings that can influence their choice of study areas. According to Bait-Almal (2012), subject choice process is influenced by multiple factors and that substantial differences between subject choices are seen among urban and rural students, the latter being destined to study in poorly equipped rural schools. It also highlights the importance of geographical location in playing a key role in influencing the decision. More interestingly, the study established that students from urban areas with educated parents are more likely to take courses offered in long established universities in the cities (Bait-Almal, 2012).

2.2.7 Employability

Ramirez (2001) and Bait-Almal (2012) analyzed this from career prospectus perspective and noted that the choice of the areas of study are more market driven as a way of the students strategically positioning themselves against the high unemployment level.

This employability based on market needs may also be linked to social networks that can help the student to get a job placement. This factor may be attributed to the biting unemployment levels both globally and locally making students to o for courses that assure them of competitive advantage and good footing in the job market.

2.2.8 Socio-Economic Status of the Family

This may include family size, type of family (single parent, parent partner, both parents, and children's home), income, social networks among others Family size is measured as the number of family members including the respondent. The family size is an indicator of the household's consumption level and may provide evidence on family resources (Montmarquette *et al*, 2002). The greater the number of working siblings, the greater the family's financial resources may be. The choice of course is likely to be affected by family resources. It may be argued that a student who comes from a family that is more privileged in terms of financial resources may be willing to choose a more tedious field of study that takes a longer duration and that has a higher probability of better pay in the labour market.

Family structure can take different forms: single parent, parent-partner and two parent family. These may have an impact on the educational performance of the student. There exists a perception that students from parent partner family fare worse than their peers

from intact (two-parent) families and also fare worse than their peers from single parent families (Montmarquette *et al*, 2002). Students from parent-partner family are more likely to choose less tedious or difficult courses that have high job prospect and higher possibility of success.

2.2.9 Type of Secondary School Attended

Some scholars contend that studying in boarding or day schools as well as studying in highly rated or categorized schools may also influence a student's choice of area of study due to institutional infrastructure (Bait-Almal, 2012). Similarly, this could be the case if a student were to study in a low rated school. This is argued to be due to the level of learning environment offered by the various types of schools, study hours and inclinations such as towards science, mathematics or arts and humanities.

It can also be argued that students can select schools or colleges that provide the courses that match their future aspirations failure to which especially due to high cost, distance, parting with friendship groups may cost them their entire future (Rodeiro, 2007).

2.2.10 Community of Belongingness

It has been noted by some scholars that some races or communities are inclined towards certain professions both globally and even at the national setting. Studies by Bell *et al.* (2005) and Rodeiro (2006) independently showed that differences in choices of areas of study were also attributed to ethnic groups. The results show that in comparison to the white group, Black African, Chinese, Indian, Pakistani and students from a mixed background were more likely to take two or more maths/science subjects. On the other hand, some minorities, such as Indian, Pakistani or Bangladeshi were less likely to take

modern foreign languages (Modood, 1997; Rodeiro, 2006). It is important to know that differences in subject choices made by different ethnic groups might have an origin in family attitudes towards education and towards what subjects and courses are seen to lead to professional careers even in the Kenyan case

2.2.11 Expected Earnings after Graduation

The expected earnings or career prospects especially with reference to what the practitioners in various fields are already earning sometimes also play a key role in enticing some student to select such areas of specializations or not. Areas that are perceived to be perpetuating poverty or impoverishing are more often than not abandoned by students (Ramirez, 2001).

Rusell and Atwater (2005) found that graduates from STEM fields attain higher occupational earnings and social status. However, there are other variables which may intervene and consequently change the students' areas of study. Such variables include peer pressure, availability of Scholarship/ study loans, career guidance and type of student.

2.2.12 Peer Pressure

Studies in the US have shown that peer pressure from age-mates and colleagues one has completed studies with at any level may influence and thereby drive students towards the choice of areas of study that are most preferred by their colleagues or that have been mostly chosen by colleagues. This may not be so much in line with the interest of the individual student's capability (McPaulo, 2007).This is contested by the findings of

Rodeiro (2007) that school pressure, timetabling, liking of the teacher, influence of friends did not score highly for the majority of the students' choice of areas of study.

2.2.13 Availability of Scholarship/ Study Loans

Modood (1997) states that some students from low economic status may choose areas of study they are sure the family budget may manage and consequently shy away from courses that require more years of study to avoid exhaustion and diminishing of their family's financial resources. This is regardless of the fact that their abilities would have been best utilized if they had chosen the areas of study which take longer years such as surgery among others. Such factors could change if they were to be assured of educational funding through scholarships, bursaries or study loans.

2.2.14 Career Guidance

Career guidance has been exalted as playing a key role in informing the students' choices of areas of study at varying degrees. Rodeiro (2007) found that career guidance through the information received from teachers, parents or the media influenced the students' choices of areas of study. Career guidance appeared to offer considerable scope for equipping students with the necessary knowledge and skills required to allow them to make subject choices. However, some students in the study claimed that they had not received enough information to make informed decisions. Sutton Trust (2007) also noted that Universities appear concerned that the quality of advice given to students on the choice of subjects, future career options, and guidance on higher education varies across the school sector in terms of inadequate amount of information receive and poor timing. According to Sutton Trust (2007), students are not being given career advice at a

sufficiently early age to allow them make informed choices and they do not receive a full picture of the consequences of their subject choices. Consequently, advice on subject choice and on the alternatives open to students should begin earlier in the secondary school years in order not to have restricted opportunities later and needs to be re-introduced on different occasions.

2.2.15 Type of Student

Type of student as understood to be above average, average or below average may also to a greater extent determine the kind of units that the students can comfortably study or manage based on their IQ or academic potentials. Although Bait-Almal (2012) found that the student's academic ability has little influence on the selection process, this is a factor that cannot by any means be ignored.

2.3 Review of Empirical Literature

Oosterbeek and Webbink (1997) used data from the Netherlands and a probit model to analyze the decision whether or not to attend technical institutions. The authors found that students from high income families were less likely to enroll in technical fields. Secondly, students born of parents working in technical related fields were more likely to enroll in technical fields. Oosterbeek and Webbink (1997) argued that children from high income background may regard technical courses as tedious and not offering higher returns. Furthermore such children come from families that have "social networks" and have more chances of entering the labour market than their counterparts from low social class. This study does not explain the role of parental education level, family structure and gender on the students' choice.

Davies and Guppy (1997) analyzed student's choice of field of study using US microdata. A discrete choice model was estimated using multinomial logit regression. They found that males were more likely than females to enroll in well-paying fields of study such as engineering, economics and medicine. This may be because men require financial security to take care of their families. Talented individuals with high cognitive capabilities choose riskier areas of study, with expectations of higher returns. On the other hand low social class individuals are more likely to enter fields that provide possibilities of accessing higher earning streams. This also found that that the genetic factors, family's income level and socioeconomic status influences student's choice of field of study. The study however did not explain the role of parental education, parental occupation, family structure, type of school attended; whether public or private and the students place of upbringing; whether urban or rural on the choice of field of study.

Van de Werfhorst *et al*. (2001) estimated logit model to analyze choice of fields of study in the Netherlands. They found that children of the cultural ´elite tended to choose fields where they could acquire 'cultural capital', that is, non- technical fields such as arts and humanities while students from the economic ´elite were under-represented in such fields. Low social class individuals were over-represented in lucrative fields such as economics and engineering.

This may be attributed to the argument that the cultural elite appreciate cultural diversities and would therefore choose those disciplines that would expose them to these diversities such as arts whereas low social class are interested in future financial security. The study does not explain the differences in male and female students' choice of fields

of study, the influence of parental education level, parental occupation, the students' educational attainment and individual characteristics such as age and place of upbringing.

Rochat and Demeulemeester (2001) investigated the process of choice of field of study using Belgian data. The estimation was done using multinomial probit models. They found that students with fathers in '′elite' occupations, such as managers, civil servants or professionals, were relatively more likely to enroll in short cycle artistic and pedagogical studies including engineering. They also found that such students are less likely to enroll in long cycle business, economics, and social studies. This study shows that parental education and occupation influence choice of fields of study. However, the study does not show the effect of parental education and occupation on mates and females choices of fields of study.

Karen *et al* (2011) analyzed the effects of socioeconomic status and parental occupation on choice of college major on beginning postsecondary students in the United States using multinomial logit regression. They found that students who believe that being very well off financially is very important are more likely to major in business and more demanding field of the sciences and engineering. Secondly, women from families with high socioeconomic status are less likely than males to choose business courses. Thirdly, that male students whose fathers are in professional or executive occupations were more likely to choose humanities, social sciences, the sciences and engineering whereas male students whose mothers were in professional or executive occupations were more likely to choose education or the humanities and social sciences and less likely to select the sciences and engineering. Fourth, females whose fathers are in professional or executive

occupations are more likely to choose the sciences, engineering or health whereas those whose mothers are in professional or executive occupations are less likely to select education and health.

Finally, if both parents are in professional or executive occupations, female students are more likely to choose science ,engineering or health and male students are much more likely to choose the humanities and social sciences and business. This study however, does not explain the effect of family structure, type of school attended and place of upbringing on male and female students' choice of fields of study.

Montmarquette*et al.* (2002) estimated a mixed multinomial probit model using Canadian data to determine how young people choose college majors by analyzing the extent to which factors such as gender, cognitive abilities, family income and the education and occupational levels of parents, perceived possibility of success, expected earnings and region of living: rural or urban influence the choice of college major. They found that choice of a college major is influenced by individual characteristics, family background and the probability of success, and that women were over represented in liberal arts and education, and underrepresented in science although the women were from higher income families. The probability of success was highest in education and lowest in science, while male who entered business had a higher probability of success than females. They also found that having a parent in a professional occupation had no effect, but that students supported by an educational loan were more likely to choose those fields (education or liberal arts) in which the probability of success was higher on average.

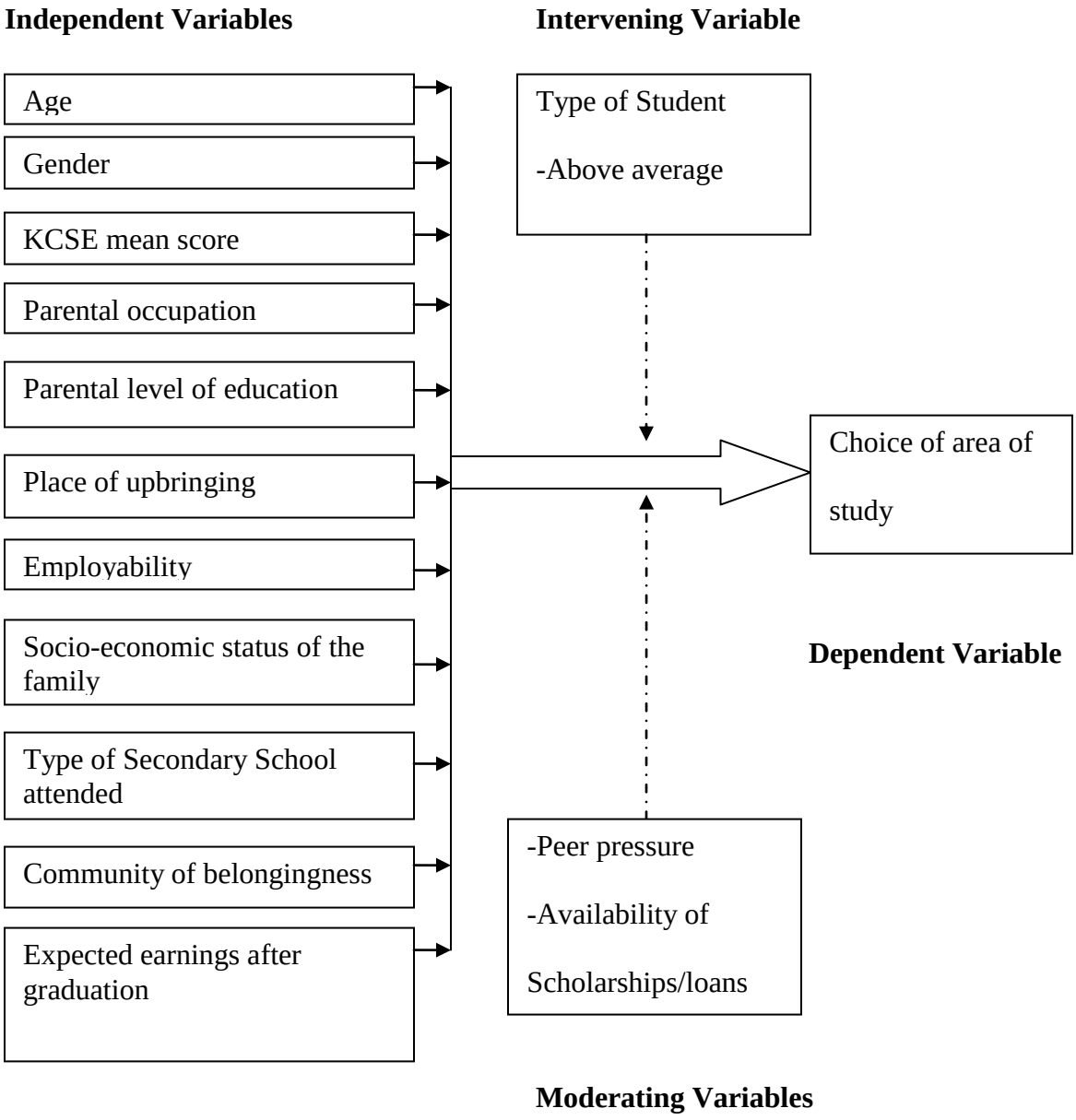
2.4 Summary of Literature Review

The reviewed literature shows that the factors influencing students' decision to attend post high institutions vary from country to country and across generations depending on the prevailing social, economic and political conditions. However, the cost of education and training versus the future expected returns plays a key role in influencing the decision to attend school or college. Student characteristics such as gender and physical and mental abilities; family background characteristics such as income level, parental occupation and education level influence the choice of field of study. There are difference in choice of fields of study between males and females. Family "networks" and the 'perceived probability of success also influences the choice of fields of study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Conceptual Framework



Source: Author (2014)

Figure 3.1: Conceptual Framework

The independent variable in this study include age, gender, KCSE mean score, parental occupation, parental level of education, place of upbringing, socio-economic status of the family, type of secondary school attended, community of belongingness, expected earnings after graduation among others.

The intervening variable, type of student; be they above average, average, and below average may also impact on the independent and moderating variables. The independent variables may each directly affect the choice of area of study, but this relationship may be altered by some moderating factors such as peer pressure, availability of scholarship/study loans and career guidance as presented below.

A student who may have chosen a course before coming to the university may come to the university and, finding that the course has very few or no students, or after being enticed by fellow students on the benefits of another course, may eventually change from the initially chosen course to the one advised/preferred by his/her peers.

A student from a poor socio-economic status who might have been driven to choose a course due to lack of financial assurance may opt to change the course if financial assurance were to be offered through bursaries, Constituency Development Fund, scholarships and student loans.

Students who get proper career guidance may choose study areas where they are most suited in comparison to students lack career guidance. This may also vary as different career guidance masters/mistresses have varying level of knowledge of the industry, understanding of the student. Some students take the advice of career guides as final.

Type of student such as above average, average, and below average students may also reduce or increase the strength of the factors affecting students' choice of area of study and consequently affect their choice of area of study. Below average students who might have been assisted in various ways to pass their KCSE exams may find it difficult to cope with the course they qualified for and consequently chose when they actually join the university and be forced to pick easier alternatives to avoid strain. Another example in this case is that an above average student may be difficult to yield to peer pressure tan a below average student and vice versa. This may be the case with all the other independent variables in the conceptual framework.

3.2 Analytical Framework

Individuals wishing to pursue diploma courses at the Technical University of Kenya have a set of courses to choose from. The courses range from engineering, applied sciences, and business. The model assumes that a student chooses a field of study that offers him or her maximum utility, given the student's personal characteristics, family background and regional characteristics. It is assumed that each course offers a certain level of utility given the costs and benefits. The utility function can be expressed the utility function can be expressed as follows:

$$\boldsymbol{U_{ij} = \beta' X_{ij} + \varepsilon_{ij}} \quad \textbf{----------(1)}$$

Where:

$\boldsymbol{U_{ij}}$is the expected level of indirect utility for student *i* in course j, expressed as a linear function of the individual's personal characteristics, family background and regional characteristics represented by $\mathbf{X_{ij.}}$ **β'** represents vectors of parameters.

ε_{ij} is an unobserved random error term that represents the peculiarities of the individual's preference for course *j*

When there are J choices, the probability that individual i chooses alternative j is:

$$\boldsymbol{Pr(y_i = j) = Pr(U_{ij} > U_{ik}) \; for \; all \; j \neq k} \quad (2)$$

For the choices available to diploma students at TUK and for any student with characteristics **X,** the discrete choice model generates probabilities $\mathbf{P_{ij}}$.

3.3. Model Specification

In modeling student choice at the Technical University of Kenya, the assumption made is that a student chooses from a set of alternatives provided in the three Faculties; Faculty of Applied Sciences and Technology, Engineering, Faculty of Built Environment and Faculty of Social Sciences and Technology.

The dependent variable in this study is the choice of Diploma course made by students at TUK.

(y=1) if student chooses Applied Science courses

(y=2) if student chooses Engineering courses

(y=3) if student chooses Business and Management courses

Therefore the model will be:

$Y_n = \beta_0 + \beta_1 X + \varepsilon$ ……..1

Where Y_n= Is the dependent variable and n=0, 1 and 2

X is the vector matrix for the independent variables

ε is the error term

3.4 Definition and Measurement of Variable

Student's Age

The age of students was measured in years. The aim was to determine whether age influences choice of Diploma course. It is generally believed that older students are less likely to choose courses that take long, or those that are more intellectually demanding due to the eternal demands that they may be having. Ramirez (2001) argues that postsecondary education and training results in significant gains for young people but its net benefits fall with age. Therefore, older students are less likely to enter more demanding fields.

Gender of Student

Gender is a qualitative variable measured by a dummy taking a value of 1 if student is male and 0 if student is female. This permitted analysis of gender differentials in student choices of courses. Gender inequality is evident in educational choice in the same way that it prevails in career choice. Blakemore and Low (1984) study found that young female students with higher fertility rate preferred college majors that are less subject to atrophy and obsolescence. Karen et al (2011) study revealed that women are more likely to choose male-dominated fields of study if their fathers had high occupation levels. This clearly shows that there is a tendency of people of the same sex choosing courses that lead to occupations that are dominated by their gender.

KCSE Grade /Academic Ability

Previous academic attainment was measured using K.C.S.E Mean Grade; the mean grade for admission into any Diploma course at the Technical University of Kenya is C-. The academic attainment was measured using values 0.1,2,3,4.5,6,7,8,9 for grades A,A-, B+, B, B-, C+, C, C-, D+, and D respectively. This helped in determining whether the academically able students are more likely to choose long cycle courses that take four years, and are less likely to enroll in two-year college or to enter the labour market; and whether students with high academic ability who are more intellectually talented are likely to enter more intellectually demanding courses such as engineering, economics and medicine than technical or creative arts. Nguyen and Taylor (2003) found that academically able students are more likely to choose courses that take a longer period and that are intellectually challenging..

Family Size

Family size; is measured as the number of family members including the respondent. The family size is an indicator of the household's consumption level and may provide evidence on family resources and possible strains on such resources. The greater the number of working siblings, the greater the family's financial resources may be. This could be vice versa in cases where there are a high number of students in a family. It was measured using a range of Above 4, 4-8 and Above 8 taking values of 0,1 and 2 respectively. Montmarquette et al (2002) study revealed that the greater the family's financial resources, the more willing a student may be willing to choose a more tedious field of study that takes a longer duration and that has a higher probability of better pay.

Family Structure

Family structure can take different forms: single parent, parent-partner, two parent family, total orphans, and adopted children. These may have an impact on the educational performance of the student and even their choice of area of study. Single parent had a value of 0, parent-partner had a value of 1, both parents had a value of 2, total orphans 3 and adopted children 4.

Parents' Occupation

Parental occupation was included to capture the effects of family's financial resources and to indicate the influence of mother or father as role models on males and females during the process of field selection. It was measured using value of 1 if father is employed; 0 otherwise and 1 if mother is employed; 0 otherwise

Parents' Education Attainment

Education level of the parents was checked for father/male guardian and mother/female guardian ranging from doctoral to no formal education using values,0,1,2,3,4,5 respectively to establish assertions such as that having highly educated parents increases the probability of women choosing science and engineering courses.

Community of Belongingness/ Ethnicity

The main ethnic groups were listed to help identify the effect of community of belongingness/ ethnicity on choice of area of study. These were Kikuyu, Kalenjin, Luhya, Luo, Kamba, Kisii and Swahili This is because in Kenya some communities discriminate the girl child by denying them education with the belief that it is a waste of resource since the girl is likely to get married to an educated man whereas boys are likely to get married

to uneducated girls. In addition, some communities regard certain careers as “female” or “male” jobs and some communities preferring ‘white collar’ or ‘blue collar’ jobs.

3.5 Research Design

The research utilized a descriptive design because it determines and reports things the way they are, it utilizes a questionnaire as a tool of data collection. This type of design enables one to obtain information with sufficient precision so that hypothesis can be tested properly (Creswell, 2003). According to Creswell (2003), descriptive research design is used when data is collected to describe persons, organizational settings or phenomenon, as a framework that guides the collection and analysis of data and to describe the actual state of affairs (Kothari, 2005).

3.6 Study Population

The research population consisted of only regular/ full time students (day-regular) undertaking Diploma courses in the three faculties of The Technical University of Kenya, that is, Faculty of Applied Sciences and Technology (2,753 students), Faculty of Engineering and Built Environment (5,060 students), and Faculty of Social and Technology Studies (4,518). The student population is approximately 12,331 (TUK, 2014). The Faculty of Applied Sciences and Technology has three schools, while the Faculty of Engineering and Built Environment and Faculty of Liberal and Professional Studies have 3 and 4 schools respectively. However, the respondents were drawn from one School in each Faculty; that is School of Applied Sciences, School of Engineering and Built Engineering and School of Business and Management Studies.

3.7 Sampling Procedure

According to Patton (2002), a sample is a set of observations drawn from a population by a defined procedure. The sample represents a subset of the population. Samples are collected and statistics are calculated from the samples so that one can make inferences or extrapolations from the sample to the population.

The study used stratified random sampling and simple random sampling. The study utilized stratified random sampling using the various schools and departments as strata. Stratified sampling gives each element in the target population a calculable and non-zero probability of being selected (Ogula, 2010). Stratified procedure assures the researcher that the sample will be representative of the population in terms of certain critical factors such as schools and departmental representativeness.

The researcher selected students from three schools; namely; Applied Science Engineering, and Business and Management Studies based on the number of students enrolled. One school was chosen from each of the faculties above to represent their faculty to avoid conducting a census; these were School of Applied Sciences and Technology (650 students), School of Engineering Science and Technology (358 students), and School of Management and Business Studies (2,199 students). The three sampled schools had 81, 97 and 1,127 diploma students respectively totaling to 1,305.

The sample size proposed was within the statistical limits of the Krejcie and Morgan sample size as sown in Appendix 3, that is, 373 for a population of 10,000 (N=10,000). This sample size was representative enough to enable the study to draw reliable findings for the study objective. The basic idea of sampling is to select some elements from the

population in order to draw conclusions about the whole (Walliman, 2005). The number 373 was then distributed across the schools and departments that were included in this study. The researcher then used simple random sampling technique to select a proportionate number of respondents from each school, to provide the total sample size of 373. This represents 3.84% of the population.

Table 3.1: The Sampling Matrix

Population Stratum	**Total**	**Sample**	**% Representation**
Faculty of Applied Sciences and Technology	2,753	83	0.03
Faculty of Engineering & Built Environment	5,060	153	0.03
Faculty of Social Sciences and Technology	4,518	137	0.03
Totals	12,331	373	100.00

Source: TUK (2013)

3.8 Data Collection Procedures

Primary data was collected by administering a pre-coded questionnaire to first year students undertaking diploma courses in the faculties of Applied Sciences and Technology, Engineering and Built Environment, and Social Sciences and Technology specifically in their school of Pure and Applied Sciences, School of Engineering Science and Technology and School of Business and Management Studies respectively. However in these schools the respondents included students undertaking different courses such as Analytical chemistry Applied Biology Industrial Chemistry, Food Science& Technology, Science Laboratory Technician, Physical Sciences and Industrial & Applied Biology,

Civil engineering, Electrical engineering, Mechanical Engineering, Surveying and mapping, Human Resource Management, Procurement & Supply Chain, Business Administration, Business Information Technology, Sales & Marketing. It was assumed that the first year students will provide more reliable information about factors that influenced their choice of course. Diploma students were preferred since they form the middle level personnel required in various sectors of the economy. The data collected included personal characteristics; (age, gender, educational attainment), family socio-economic status, parental occupation, parents' education level, type of school attended and place of upbringing.

3.9 Data Analysis

The data was first edited in order to sieve any unnecessary information that may have been supplied by the respondents. The researcher used factor analysis and multinomial logit (MNL) model to analyze the effects of personal characteristics, family characteristics and regional characteristics on the choice of field of study of diploma students. Multinomial logit regression is applied when the dependent variable is nominal (unordered) and consists of more than two categories (Long, 1997).

MNL regression analysis takes into consideration the categorical nature of the independent variable. It is used to predict the probabilities of the different possible outcomes of a categorically distributed dependent variable, given a set of independent variables. When MNL is used to model choices, it relies on the assumption of Independence of Irrelevant Alternatives (IIA) or binary independence which is a maxim of decision theory in economics and social sciences in an attempt to provide a

rational account of individual behavior or aggregation of individual preferences. It means that the odds for any pair of outcomes are determined without reference to the other outcomes that might be available. If it is violated then it means all options are feasible meaning that Multinomial logit is not appropriate if the assumption is violated thus requiring further tests such as changing the base (Long, 1996).

CHAPTER FOUR

PPRESENTATION OF RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter provides descriptive statistics and multinomial regression results for the factors influencing Diploma students' choice of field of study at the Technical university of Kenya. The first section provides descriptive statistics of the students' personal characteristics and family characteristics drawn from the summary statistics shown in Table 4.1.1. The summary statistics show the figures and percentages for the factors identified in the Faculty of Applied Sciences, Faculty of Engineering and Faculty of Social Sciences and Technology; specifically; School of Pure and Applied Sciences, School of Engineering and the School of Business Studies. The second section provides the regression results that show the findings in the School of Pure and Applied Sciences and the School of Engineering, since the School of Business was chosen as the reference category. The third section provides the Likert scale summary statistics that shows figures and percentages of other intervening factors that may influence students' choice of fields of study that were rated by the respondents agreeing or disagreeing.

4.2 Descriptive Statistics

Table 4.1.1: Summary statistics for factors influencing choice of fields of study

		Faculty of Applied Sciences	%	Faculty of Engineering & Built Environment	%	Faculty of Social Sciences & Technology	%	Total	%
Gender	Male	54	71	57	81	57	50	168	65
	Female	22	29	13	19	57	50	92	35
Age	Below 20	7	9	10	14	21	18	38	15
	20-30	63	83	56	80	77	68	196	75
	Above 30	6	8	4	6	16	14	26	10
Grades	B and above	42	55	32	46	26	23	100	38
	C and below	34	45	38	54	88	77	160	62
Place of upbringing	Rural	53	70	50	71	65	57	168	65
	Urban	23	30	20	29	49	43	92	35
Type of Sec. School	Private	13	17	7	10	15	13	35	13
	Public	63	83	63	90	99	87	225	87
Ethnicity	Kikuyu	24	32	21	30	44	39	89	34
	Kalenjin	5	7	5	7	6	5	16	6
	Luhya	15	20	4	6	18	16	37	14
	Luo	12	16	16	23	19	17	47	18
	Kamba	4	5	11	16	15	13	30	12
	Kisii	6	8	4	6	5	4	15	6
	Swahili	5	7	7	10	2	2	14	5
	Others	5	7	2	3	5	4	12	5
Family type	Single-parent	12	16	15	21	36	32	63	24
	Parent-partner	6	8	7	10	27	24	40	15
	Two-parent	54	71	42	60	49	43	145	56
	Orphan	4	5	6	9	2	2	12	5
Siblings	Below4	25	33	21	30	40	35	86	33
	4 to 8	46	61	36	51	45	39	127	49
	above 8	5	7	13	19	29	25	47	18
Family Income	Below 25k	15	20	37	53	49	43	101	39
	25k - 50k	53	70	26	37	43	38	122	47
	Above 50k	7	9	6	9	21	18	34	13
Father employment	Employed	22	29	28	40	55	48	105	40
	Unemployed	54	71	42	60	59	52	155	60
Mother employment	Employed	16	21	19	27	52	46	87	33
	Unemployed	60	79	51	73	62	54	173	67
Father Education	Higher	36	47	31	44	75	66	142	55
	Basic	23	30	21	30	18	16	62	24
	None	17	22	18	26	21	18	56	22
Mother Education	Higher	26	34	23	33	62	54	111	43
	Basic	38	50	38	54	44	39	120	46
	None	12	16	9	13	8	7	29	11

Source: Obtained and calculated from Questionnaires

Gender

It is evident that being male or female may affect a student's choice of field of study as revealed by the findings in Table 4.1. 1. There were more female students undertaking Business Courses than Sciences and Engineering, with the least number of females undertaking engineering. The male students were fairly well represented in all the three schools, with the School of Engineering and School of Business having equal numbers of male students. However, the School of Business had an equal number of male and female students. These findings are consistent with Karen et al (2011) study, which found that women were less likely to choose Engineering and Sciences than men.

Age

Ramirez (2001) argued that postsecondary education and training results in significant gains for younger people and that older people are less likely to enter demanding fields of study. The finding of the current study confirms this argument to be true. The findings revealed that students aged below 20 and between20-30 were the majority in all schools representing 90% of the total population. Older students aged above 30 were more in the School of Business. It is perceived that Business courses offer a greater probability of securing employment opportunities and that they are not tedious and demanding in terms of time spent. Science and Engineering courses require a lot of time for practical work in the laboratories and workshops besides, the high cost of material requirements. For this reason, older people who may have family commitments and hence may not have enough time.

K.C.S.E Grade

The minimum grade for being enrolled for any Diploma course in Kenya is C-. Majority of the students (62%) had scored C and below, while 38% had scored B and above. Majority of the students who scored C and below were in the School of Business, while those who scored B and above were the majority in the School of Applied Sciences and Engineering. However, the School of Pure and Applied Sciences had the highest number of students who scored B and above. The findings of this study are consistent with those of Nguyen and Taylor (2003), who found that academic ability has a powerful effect on post high school educational choices; and that students with high academic ability are more likely to enroll for long cycle courses that are intellectually demanding such as engineering, medicine and economics.

Place of Upbringing

Having been brought up in the rural or urban area may impact on a student's ability to choose the field of study due to level of exposure, socio-cultural beliefs, stereotypes, environmental and geographical factors. According to Bait- Almal (2012), students from urban areas with educated parents are more likely to enroll for courses in long established universities in the cities. The findings of the current study differ with Bait-Almal's, in that, the current study found that majority(65%) of students undertaking Diploma courses at TUK were brought up in rural areas. Out of this number 38% were undertaking business courses. The School of Business had the highest number of students who were brought up in the urban areas.

Type of Secondary School Attended

The type of secondary school attended; whether public or private may influence a student's choice of field of study due to the differences in students' academic ability, learning environment, physical facilities, teachers qualifications, study hours and subject inclinations; such as towards science, mathematics or arts, and involvement in career guidance. This study found that 87% of the students studied in public schools. It was however noted that the school of business had the highest number of students who studied in private schools. This can be attributed to the fact that most private schools have an inclination to majoring in Business subjects due to the perceived low costs involved in the implementation of Business subjects as opposed to the high costs involved in the implementation of Sciences and Technical oriented subjects. The requirements for offering Business subjects are premise, teacher and textbooks, while for Science and Technical subjects require relatively expensive tools, equipment, and fixtures besides large laboratory and workshop space.

Ethnicity

Although ethnicity may not have a great influence in basic educational choices, it may impact on career choices and thus influence a school leaver's choice of field of study in tertiary educational institutions. People from certain tribes or races are inclined towards certain professions. Some studies such as Bell et al (2005) and Rodeiro (2006) independently revealed that differences in choices of areas of study were influenced by ethnicity; that students from a mixed background were more likely to take two or more maths or science subjects than the White group, Black African, Chinese, India and Pakistani counterparts. It was necessary to find out if the situation is similar in Kenya.

This study found that the Kikuyu students were the majority representing 34%, followed by Luos (18%), 14% were Luhyas, 12% were Kambas, 6% were Kalenjins, 6% were Kisii and 5% were swahilis. The kikuyus were the majority in all the three schools, and their number was higher in the school of business.

Family Structure

Family structure can be in the form of single parent, parent-partner and two parent types. According to Montmarquette et al (2002), students from parent-partner families are more likely to choose difficult courses that have high job prospects. This is contrary to the findings of the current study, which found that the majority of the students (56%) were from two parent families. The School of Business had the highest number of students from single parent and parent-partner family structure, while the School of Pure and Applied Sciences had the highest number of students from two-parent family structure. Children from single parent family structure may want to offer support to their parents and as such may end up choosing the fields of study where employment opportunities and earnings after graduating are likely to be higher.

Family Size/ Number of Siblings

The total number of nuclear family members determines the family size. The family size is an indicator of the level of household consumption and provides evidence of a family's financial resources. A large family that has many working children is likely to be better off financially than one that has fewer working children. The working siblings may influence their younger siblings to choose certain fields of study alongside offering financial support to them. As a result a student who has working siblings may choose a

more demanding field of study, in terms of the financial requirements. This study found that majority of the students representing 49% had 4-8 siblings. It was noted that students from the school of Business and School of Applied Sciences had more than 4 siblings.

Family Income

Postsecondary education and training has direct and indirect costs. The level of family income may influence a student's choice of area of study. A family that has sufficiently high financial resources is in a better position to invest in their children's human capital. This study found that the majority of the students' (47%) parents/guardians earned between Ksh 25,000- 50,000, while 39% earned below Ksh 25,000 and 13% had parents/guardians earning above Ksh 50,000. Students in the school of business had the highest percentage (18%) of parents earning above Ksh.50,000 while students in the School of Engineering had the highest percentage (53%) of parents earning below Ksh.25,000 and students in the School of Applied Sciences had the highest percentage (70%) of parents earning between Ksh. 25,000 to Ksh.50,000.

Parents' Occupation

Whether a parent is employed or unemployed may be an indicator of the socioeconomic status of a family; specifically the financial endowment. This study found that 40% of the students had fathers who were employed while 33% of the student had mothers who were unemployed. 94% of Students in the School of Business had employed fathers and mothers. School of Business and School of Applied Sciences had the highest number of unemployed fathers and mothers compared to 50% in the school of Applied Sciences and 67% in the School of Engineering. Parental occupation may have impact on a student's

choice of field of study, through parents acting as role models and offering career guidance due to the parents' level of exposure and interaction with people of different professions. Such parents are in a better position to advise their children on the field of study to choose.

Parents' Level of Education

The educational status of parents may have an effect on a student's choice of field of study. Educated parents are in a better position to offer career guidance to their children and have a higher probability of making monetary transfers to children than the uneducated parents, despite acting as role models. This study found that 55% of students had fathers with higher education while 45% of students had mothers with higher education. The proportion of students whose both parents had higher education was largest in the School of Business. The School of Business and School of Engineering students had the highest number of uneducated fathers while the students in the school of Applied Science had the highest number of uneducated mothers. The finding that the school of Business had the highest number of educated fathers and mothers is inconsistent with the findings of Karen et al (2001), which revealed that having highly educated parents increases the probability of women choosing science and engineering.

4.3 Multinomial Logistic Regression Results

When using MNL regression one category of the dependent variable is chosen as the reference category. In this study the reference category was the Faculty of Social Sciences and Technology; specifically the School of Business and Management Studies. The Schools selected in Faculty of Applied Sciences & Technology and Faculty of

Engineering and Built Environment were; School of Pure and Applied Sciences and School of Engineering respectively. Table 4.1.2 shows the Multinomial regression results

Table 4.1.2: Multinomial Logistic Regression Full Results

Base outcome: Faculty of Social Sciences and Technology (School of Business)

	Faculty of Applied Sciences				**Faculty of Engineering**			
Variables	Coef.	Std. Error	P>z	Exp (B)	Coef.	Std. Error	P>z	Exp (B)
Gender								
Male	0.5292	0.4437	0.233	1.7	1.5211*	0.4353	0.000	4.577
Female	0.0000			1.0	0.0000			1.0
Age								
Below20	0.3747	0.9495	0.693	1.5	0.8986	0.8747	0.304	2.456
abv21below30	1.2669	0.7699	0.1	3.6	1.13	0.7459	0.13	3.096
Grades								
Bandabove	1.4779*	0.4347	0.001	4.4	0.9158*	0.4042	0.023	2.499
Upbringing place								
Rural	-0.2735	0.5071	0.59	0.8	-0.2547	0.4711	0.589	0.775
Secondary School								
Private	0.3767	0.6061	0.534	1.5	-0.2217	0.609	0.716	0.801
Ethnicity								
Kikuyu	-1.7562	0.9281	0.058	0.2	0.184	1.0458	0.86	1.202
Kalenjin	-2.1641	1.2352	0.08	0.1	-0.0336	1.2541	0.979	0.967
Luhya	-0.6102	0.9645	0.527	0.5	-0.8499	1.1544	0.462	0.427
Luo	-2.0687	1.0537	0.05	0.1	0.6047	1.1161	0.588	1.831
Kamba	-2.7409	1.0834	0.061	0.1	0.2968	1.1269	0.792	1.346
Kisii	-0.3893	1.2313	0.752	0.7	0.724	1.2589	0.565	2.063
Swahili	0.2401	1.3593	0.86	1.3	2.6273	1.3737	0.056	13.837
Family type								
Singleparent	-3.5023*	1.3047	0.007	0.03	-2.4996*	1.0969	0.023	0.082
Parentpartner	-3.3741*	1.3415	0.012	0.034	-2.9076*	1.158	0.012	0.055
Twoparent	-1.0759	1.2199	0.378	0.341	-1.2682	1.0859	0.243	0.281
Family size								
Smallfam	1.144	0.7747	0.14	3.1	-0.709	0.6273	0.258	0.492
Midsizefam	0.9154	0.7188	0.203	2.5	-0.0986	0.5704	0.863	0.906

Table 4.1.2: Multinomial Logistic Regression Full Results Continued

Family Income								
Below25k	-1.4746	0.7558	0.051	0.2	0.6681	0.6629	0.313	1.951
Betwn25n50k	1.2934*	0.6398	0.043	3.6	0.7982	0.6382	0.211	2.222
Parents' Employment								
Father employed	-1.1059*	0.5202	0.034	0.3	0.4724	0.4935	0.338	1.604
Memployed	-1.6389*	0.521	0.002	0.2	-1.027*	0.4589	0.025	0.358
Parents' Education								
Feduhigher	-1.0284	0.7305	0.159	0.4	-1.3854*	0.6327	0.029	0.25
Fedubasic	-0.1209	0.8207	0.883	0.9	-0.9483	0.7208	0.188	0.387
Meduhigher	-1.6705*	0.8111	0.039	0.2	-0.6678	0.7422	0.368	0.513
Medubasic	-1.2361	0.7771	0.112	0.3	-0.3308	0.6943	0.634	0.718
_cons	2.8978	2.1219	0.172	18	0.0848	1.9337	0.965	1.088

Number of observations	260
LR chi2(30)	175.03
Prob> chi2	0
Pseudo R2	0.3133
Log likelihood	-191.80

* Significantly different from zero at 5% significance level.

Table 4.1.2 shows that the independent variables; grades (B and Above), family type (Single parent and parent partner), family income (Between 25k to 50k),parent's employment (father's employment and mother's employment) and parent's education (mother's education) were significant in distinguishing Faculty of Applied Sciences and Technology (School of Pure & Applied Sciences) from Faculty of Social Sciences and Technology. (School of Business and Management Studies)

The independent variables gender (Male),grades (B and Above), family type (Single parent and parent partner), parent's employment (Mother's employment) and parents'

education (Father's Education) were found to have a significant impact in distinguishing Faculty 2 (School of Engineering) from Faculty 3 (School of Business and Management Studies)

Table 4.1.3: Multinomial Logistic Regression Gender-Stratified Results for Males

	Faculty of Applied Sciences				**Faculty of Engineering**			
Variables	Coef.	Std. Error	P>z	Exp (B)	Coef.	Std. Error	P>z	Exp (B)
Age								
Below20	1.436	1.3916	0.303	4.2	1.5725	1.1548	0.173	4.8
abv21below30	1.6941	1.1793	0.151	5.4	1.6073	0.9834	0.102	5.0
Grades								
Bandabove	2.9310*	0.6795	0.000	18.746	1.5744*	0.5576	0.005	4.8
Upbringing place								
Rural	-0.9561	0.7609	0.209	0.384	-0.6146	0.6481	0.343	0.541
Secondary School								
Private	0.4827	0.9564	0.614	1.620	-0.1879	0.8533	0.826	0.829
Ethnicity								
Kikuyu	-0.9499	1.4639	0.516	0.387	0.2250	1.2380	0.856	1.252
Kalenjin	-0.3722	1.9465	0.848	0.689	0.4904	1.6551	0.767	1.633
Luhya	0.8093	1.4876	0.586	2.246	-0.3121	1.3032	0.811	0.732
Luo	-1.0064	1.6721	0.547	0.366	1.0019	1.3668	0.464	2.724
Kamba	-2.6411	1.6628	0.112	0.071	-0.0727	1.3231	0.956	0.930
Kisii	-0.7756	2.0338	0.703	0.460	0.5483	1.5410	0.722	1.730
Swahili	14.7669	837.37	0.986	2589201	16.312	837.37	0.984	12142351
Family type								
Singleparent	-17.9000	951.333	0.985	0.000	-16.153	951.33	0.986	0.000
Parentpartner	-17.4306	951.333	0.985	0.000	-17.269	951.33	0.986	0.000
Twoparent	-14.5045	951.333	0.988	0.000	-14.897	951.33	0.988	0.000
Family size								
Smallfam	1.9664	1.1212	0.079	7.145	-0.7172	0.8201	0.382	0.488
Midsizefam	1.5089	1.0182	0.138	4.522	-0.5285	0.7507	0.481	0.589

Table 4.1.3: Multinomial Logistic Regression Gender-Stratified Results for Males

Continued

Family Income								
Below25k	-1.6322	1.0467	0.119	0.195	0.7626	0.8833	0.388	2.144
Betwn25n50k	1.8478*	0.9143	0.043	6.346	1.5912	0.8827	0.071	4.910
Parents' Employment								
Femployed	-1.2120	0.7577	0.110	0.298	0.2565	0.6421	0.690	1.292
Memployed	-2.4245*	0.8048	0.003	0.089	1.4829*	0.6577	0.024	0.227
Parents' Education								
Feduhigher	-1.7463	1.1931	0.143	0.174	-1.1286	0.9149	0.217	0.323
Fedubasic	-0.1843	1.2779	0.885	0.832	-0.5442	0.9977	0.585	0.580
Meduhigher	-2.2612	1.2180	0.063	0.104	-1.3348	0.9980	0.181	0.263
Medubasic	-1.4714	1.1776	0.211	0.230	-0.9440	0.9175	0.304	0.389
_cons								

Number of observations	168
LR chi2(50)	138.6
Prob> chi2	0
Pseudo R2	0.3756
Log likelihood	-115.21458

* Significantly different from zero at 5% significance level.

Table 4.1.4: Multinomial Logistic Regression Gender-Stratified Results for Females

	Faculty of Applied Sciences				**Faculty of Engineering**			
Variables	Coef.	Std. Error	P>z	Exp (B)	Coef.	Std. Error	P>z	Exp (B)
Age				0.000				
Below20	-16.8386	4421.63	0.997		-1.7128	2.643	0.517	0.180
abv21below30	2.9610	2.193	0.177	19.317	-0.2870	2.175	0.895	0.751
Grades								
Bandabove	-1.2904	1.097	0.239	0.275	1.0496	1.291	0.416	2.857
Upbringing place								
Rural	-0.1471	1.190	0.902	0.863	-1.2885	1.317	0.328	0.276
Secondary School								
Private	0.6670	1.421	0.639	1.948	1.2249	1.685	0.467	3.404
Ethnicity								
Kikuyu	-6.5591	3.669	0.074	0.001	20.6820[a]	14168.1	0.999	-
Kalenjin	-10.8328	4.894	0.119	0.000	18.3054[a]	14168.1	0.999	-
Luhya	-7.5364	3.985	0.059	0.001	4.8684	15568.3	1.000	130.11
Luo	-36.0269	4985.14	0.994	0.000	17.9520[a]	14168.1	0.999	-
Kamba	-6.9943	3.752	0.062	0.001	23.0085[a]	14168.1	0.999	-
Kisii	-5.4917	3.827	0.151	0.004	20.6741[a]	14168.1	0.999	-
Swahili	-5.7190	3.840	0.136	0.003	21.2507[a]	14168.1	0.999	-
Family type								
Singleparent	-13.6781	3523.58	0.997	0.000	-3.6148	3.031	0.233	0.027
Parentpartner	-16.2570	3523.58	0.996	0.000	-3.4791	3.817	0.362	0.031
Twoparent	-12.1045	3523.58	0.997	0.000	-2.6869	3.484	0.441	0.068

Table 4.1.4: Multinomial Logistic Regression Gender-Stratified Results for Females

Continued

Family size								
Smallfam	-1.6085	1.787	0.368	0.200	-0.5836	1.994	0.770	0.558
Midsizefam	-1.7462	1.984	0.379	0.174	3.6559	2.389	0.126	38.701
Family Income								
Below25k	-0.9641	2.274	0.672	0.381	3.2113	2.571	0.212	24.812
Betwn25n50k	2.4075	2.114	0.255	11.106	-0.4760	2.306	0.836	0.621
Parents' Employment								
Femployed	-1.9076	1.297	0.141	0.148	0.1240	1.595	0.938	1.132
Memployed	0.4353	1.389	0.754	1.545	0.5585	1.444	0.699	1.748
Parents' Education								
Feduhigher	-0.5064	1.950	0.795	0.603	-2.1596	1.749	0.217	0.115
Fedubasic	0.3577	2.072	0.863	1.430	-2.4582	2.046	0.230	0.086
Meduhigher	-3.2994	2.702	0.222	0.037	19.8892[a]	11821.6	0.999	-
Medubasic	-3.4618	2.511	0.168	0.031	22.0148[a]	11821.6	0.999	-
_cons								

Number of observations	92
LR chi2(50)	85.63
Prob> chi2	0.0013
Pseudo R2	0.5084
Log likelihood	41.390584

Note: Where the Exponentiated Beta coefficient value is indicated by – (dash) indicates that the value is very large and represents the coefficient value denoted by superscript[a]

Interpretation of the coefficients

The presence of a relationship between the dependent variable and the independent variables is based on the statistical significance of the final model chi-square (model fitting Information). In this analysis, the probability of the final model chi-square (175.03) was 0.000, which is less than the level of significance of 0.05. The null hypothesis that there was no difference between the model without independent variables and the model with independent variables was rejected. The existence of a relationship between the independent variables and the dependent variable is evidenced by p-value less than the significance level of 0.05.

The exponentiated beta (Exp β) coefficients are the odds ratios. Ratios greater than one indicate that an increase in the regressor leads to a higher probability that an outcome j will occur rather than the base outcome, with the opposite being true for ratios less than one.

Table 4.1.2 shows the full results of the MNL regression for all the 260 students in the sample. The significance of the β coefficients must be interpreted with respect to Faculty 3 (Faculty of Social Sciences and Technology). The independent variables that were statistically significant in distinguishing the Faculty of Applied Sciences from the Faculty of Social Sciences and Technology were; grades (B and above), family type (single parent and parent partner), family income (between 25k – 50k), parents employment (fathers employed and mothers employed) and parents education. The independent variables that were statistically significant in distinguishing Faculty of Engineering from Faculty of Social Sciences and Technology were; gender (male), grades (B and above),

family type (single parent and parent-partner),parents employment (mother employed) and parents education (father's education-higher).

Gender was a statistically significant factor in distinguishing the Faculty of Engineering from the Faculty of Social Sciences. The probability that a male student's choice in the Faculty of Engineering was influenced by gender was found to be 4.577 times higher.

Students who scored grade B and above are more likely to choose fields of study in the Faculty of Applied Sciences and Engineering rather than in the Faculty of Social Sciences. The K.C.S.E grade obtained was found to be highly significant in influencing a student's choice of field of study across the faculties. The coefficient estimate grade was higher for Faculty of Applied Sciences than Faculty of Engineering.

Family type in the form of single parent and parent-partner was found to be statistically significant in both faculties; Applied Sciences and Engineering. However it was a less likely influence on the choice of fields of study in the two faculties, evidenced by low odds ratios of 0.03 and 0.034 for Faculty of Applied Sciences and 0.082 and 0.055 for Faculty of Engineering respectively.

The impact of family income on choice of fields of study was greater in the Faculty of Applied Sciences. It was a statistically significant factor that distinguished the Faculty of Applied Sciences from the Faculty of Engineering and Faculty of Social Sciences. The probability that family income (between Ksh 25,000 and 50,000) influenced the choice of fields of students in the Faculty of Applied Sciences rather than Faculty of Social Sciences was 3.65 times higher.

Parents' employment was a statistically significant factor that distinguished both the Faculty of Applied Sciences and Faculty of Engineering from the Faculty of Social Sciences, but had a low odds ratios of 0.331, 0.194 and 0.358. However, having a mother and father who are employed may increase the probability of a student choosing Applied Science courses, whereas having a mother who is employed increase the probability of a student choosing courses in the Faculty of Engineering due to the costs involved in undertaking practical assignments and projects.

The educational level of the parents was found to be statistically significant. For instance, having a mother who has attained higher educational qualifications was a statistically significant factor in distinguishing the Faculty of Applied Sciences from the Faculty of Social Sciences. On the other hand, having a father who has attained higher educational qualifications was a statistically significant factor in distinguishing the Faculty of Engineering from the Faculty of Social Sciences. Although parental education was a statistically significant factor in both faculties, they were less likely to have influenced students' choice of field of study.

The factors that had a higher probability of influencing a student's choice of field of study in the Faculty of Applied Sciences were; grades B and above and family income as evidenced by the Exp (β) coefficients of 4.4 and 3.6 respectively. The significant factors with a higher probability of influencing a student's choice of field of study in the Faculty of Engineering were; gender (male) and grades B and above.

The factors that were not statistically significant were; age, place of upbringing, secondary school attended, ethnicity and family size. However gender was not statistically significant in distinguishing the Faculty of Applied Sciences from Faculty of Social Sciences and Technology. Likewise family income was not statistically significant in the Faculty of Engineering.

Table 4.1.3 and Table 4.1.4 reports the MNL gender stratified results for males and females respectively. These results make it possible to determine whether there are differences in the factors that influence male and female students' choice of fields of study across the faculties. The most obvious difference is the fact that, being male increases the probability of a student choosing fields of study in the Faculty of Engineering and Technology rather than in the Faculty of Social Sciences; specifically in the School of Business and Management Studies.

The most significant factors with a higher probability of influencing a male student's choice of field of study in the Faculty of Applied Sciences were grades (B and Above) and Family income having Exp (β) coefficients of 18.746 and 6.346 respectively.

The statistically significant factors for males choice of fields of study in Faculty of Engineering and Technology (School of Engineering) were grades (B and above); 0.005, and parent's employment (mother's employment); 0.024. The most significant factor with a higher probability of influencing a male student choice of field of study in the School of Engineering was grades (B and above) evidenced by Exp (β) coefficients of 4.828.

4.4 Likert Scale Statistics

An analysis of other factors that may have influenced a student's choice using the Likert scale indicated that; the factors that scored highly with most students agreeing, were; interest in the course (68%), employability (62%), grades (48%), earnings (47%), advice (35%). The percentages represent the number of respondents who agreed that the mentioned factors influenced their choice of field of study. The factors that had the least impact on the student's choice of field of study as indicated by the low percentage scores were; affordability (15%), availability of funding (15%), gender (15%) and family network (10%). The factors that had an insignificant influence on the students' choices were; peer pressure (5%) and duration of the course (5%).

Table 4.1.5: Summary of findings from Likert Scale Section of Questionnaire

	Score							
Factor	**1**	**2**	**3**	**4**	**5**	**Mode**	**Agree (%)**	**Disagree (%)**
Grades	75	50	45	46	44	1	48	35
Employability	80	80	34	34	32	1	62	25
Earnings	47	75	66	33	39	2	47	28
Peers	5	7	10	71	167	5	5	92
Affordability	17	22	38	65	118	5	15	70
Duration	7	7	24	66	156	5	5	85
Advice	31	59	53	32	85	5	35	45
Interest	101	76	52	16	15	1	68	12
Funding	16	23	30	66	125	5	15	73
Family Network	11	15	27	66	141	5	10	80
Gender	20	20	38	62	120	5	15	70

Table 4.1.6: Frequency Distribution for Ordinal Data

Factor	%	Faculty 1	Faculty 2	Faculty 3	Mean (%)	St. Dev (%)
Grades	Agree	51	34	54	46.3	10.8
	Disagree	37	39	31	35.7	4.2
Employability	Agree	57	61	65	61.0	4.0
	Disagree	28	27	23	26.0	2.6
Earnings	Agree	37	50	52	46.3	8.1
	Disagree	38	31	18	29.0	10.1
Peers	Agree	4	4	5	4.3	0.6
	Disagree	92	94	89	91.7	2.5
Affordability	Agree	7	10	24	13.7	9.1
	Disagree	75	80	61	72.0	9.8
Duration	Agree	4	6	6	5.3	1.2
	Disagree	89	87	82	86.0	3.6
Advice	Agree	37	30	36	34.3	3.8
	Disagree	50	50	39	46.3	6.4
Interest	Agree	68	67	68	67.7	0.6
	Disagree	11	16	11	12.7	2.9
Funding	Agree	14	16	15	15.0	1.0
	Disagree	75	74	72	73.7	1.5
Family Network	Agree	9	9	11	9.7	1.2
	Disagree	83	80	77	80.0	3.0
Gender	Agree	13	23	11	15.7	6.4
	Disagree	75	63	71	69.7	6.1

Key

Faculty1= Applied Sciences and Technology;

Faculty 2= Engineering and Built Environment

Faculty 3= Social Sciences and Technology

Interpretation

From the analysis of frequencies of the Likert scale section of the questionnaire, we find from the sample that respondents agreed that grades, employability, earnings and interest had a significant influence on their choice of course, evidenced by averagely 56% agreeing. From the same sample it is also found that peers, affordability, duration, advice, funding, family influence and gender did not have significant impact on the course choice marked by averagely 74% of respondents disagreeing.

Similar trend was evidenced across the faculties, marked by low standard deviation (4.2%) of respondents agreeing and a similarly low standard deviation (4.8%) of those disagreeing. Across the faculties, looking at the factors, peers influence and interest in the course had the lowest standard deviation (0.6%), indicating a uniform consensus among respondents about the influence of the factors. Also, across the faculties, earnings after graduation and affordability of the course displayed the highest standard deviation (9.5%), indicating inherent dissimilar views across the faculties, possibly due to the perceived opportunities and economic welfare differences.

CHAPTER FIVE

CONCLUSION AND POLICY RECOMMENDATIONS

5.1 Conclusion

This study aimed at finding out factors that influence Diploma students' choice of fields in Kenya and to find out whether the factors that influence males' choices are different from those that influence females' choices. The representative sample was randomly drawn from students undertaking Diploma courses at the Technical University of Kenya (TUK), in the Faculty of Applied Sciences, Faculty of Engineering and Built Environment and Faculty of Social Sciences and Technology; specifically the School of Pure and Applied Sciences, School of Engineering and Technology and School of Business and Management Studies respectively.

The empirical analysis indicated that the significant factors influencing students' choice of field of study were varied across the Faculties and for females and males. Female students prefer Business courses to Science and Engineering. Students who score grades and above are more likely to enroll for Applied Sciences and Engineering courses. Students who come from more affluent families are more likely to enroll for Pure and Applied Sciences courses. Family income has a higher probability of influencing male students' choice of fields of study in the Faculty of Applied Sciences .The probability of a student choosing a Science based course increases with the family's financial resources. Students from financially privileged families are more likely to choose fields of study in Pure and Applied Sciences.

The under-representation of female students in the School of Engineering points to the fact that female students perceive Engineering courses to be difficult and or tedious and should be done by males.

A rational individual will always consider the costs and benefits that accrue from the various postsecondary educational training, and will therefore choose the field of study that is likely to provide greater gains in terms of employability and the possibility of increased earnings after graduation. Fields of study that are perceived to offer more employment opportunities are more preferred hence the number of students enrolling for such courses is likely to be higher. Business courses are perceived to have more employment opportunities than Science and Engineering courses.

Having a passion or interest in a particular field of study is amongst the factors that influence students' choice of fields of study. An average of (68%) of students chose the fields of study based on their passion. Their decision was not based on peer pressure, course duration, availability of scholarships or family networks.

5.2 Recommendations and Policy Implications

Education and training is a crucial aspect for development of human capital. Increasing the productivity of a country require an adequate stock of well-trained labour force. Middle-level manpower in all sectors of the economy will ensure increased productivity for a country, despite increasing the level of capital formation. Although the Kenyan education system allows for progression from basic education to tertiary education level, apprenticeship training should be encouraged and an opportunity should be given to

apprentices in tertiary training institutions so that they can obtain certification in order to improve their occupationally mobility.

The findings of the National Manpower Survey 2010/2011 revealed that there is a shortage of chemical engineers amongst other occupation. This can be attributed to the fact that the direct and indirect costs involved in undertaking Pure and Applied Sciences courses may be a hindrance to those who have the intellectual ability to do so. The government should therefore increase funding to training institutions so as to avail bursaries to students undertaking science courses and this may help in increasing the enrolment. College administrators should formulate policies that will check on gender balancing across the various courses.

Although the government has put in place measures that are meant to encourage females to undertake engineering courses such as offering scholarships, there may be need of having exchange programmes whereby female students undertaking engineering are given an opportunity to participate in exchange programmes in the form of apprenticeship in developed countries to facilitate knowledge transfer.

Increased partnerships and linkages with stakeholders and the Ministry of labour is necessary in order to determine the labour needs of the country from time to time. This will ensure that the training institutions offer courses that are responding to the needs of the labour market. This will not only create a balance between the supply and demand for the various categories of labour, but will ensure an adequate supply of skilled labour for all sectors of the economy to steer economic growth and development. Collaboration between training institutions with stakeholders such as Kenya Private Sector Alliance

(KEPSA) National Industrial Training Authority (NITA) and the Federation of Kenya Employers (FKE) should be strengthened so as to harmonize the training of skilled manpower and to establish the labour requirements of the country.

The education system should be reviewed and a revival of Technical Secondary Schools (TSS) be considered. Technical subjects should be introduced at the basic education level so that children can begin to develop interest and potential in the various technical and science subjects from an early stage of the education cycle and may encourage more students to enroll for technical and science fields of study. This calls for increased budgetary allocation for education in order for the government to facilitate the above mentioned processes. This is a crucial step that may help in ensuring an adequate supply of craftsmen, artisans and technologists, hence the country will not rely on expatriates.

The Kenya Colleges and Universities Placement Board should rationalize male and female students' enrolment for various fields of study to ensure that there is a balance between the number of male and female students enrolled in tertiary learning institutions. Furthermore policies that promote the education of both male and female students should be formulated.

REFERENCES

Bait-Almal, Ali Mohamed (2012). *What should I study? Factors affecting student choice of subject at Libyan universities.* PhD thesis, University of Nottingham.

Becker, G. (1964).*Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education.* Chicago: Chicago University Press.

Bedi, A., Kimalu, K., Manda, K. and Nafula, N. (2002). "The Decline in Primary School Enrolment in Kenya" KIPPRA Discussion Paper No.14.

Blakemore, Arthur E, and Low, Stuart A. "Sex Differences in Occupational Selection: The Case of College Majors*." Review of Economics Statistics 66 (February 1984): 157-63*

Blaug, M. (1972).*Introduction to the Economics of Education*. London: Harnondsworth.

Chang, J. C. (2005). "Faculty Student interaction at the Community College: A focus on Students of Color". *Research in Higher Education*, 46 (7), 769-802.

Crook, T. R., Todd, S.Y. Combs, J. G., Woehr, D. J. & Ketchen, D. J. (2011). "Does Human Capital Matter? A Meta-Analysis of the relationship between human Capital and firm performance". *Journal of Applied Psychology*, 96(3): 443-456.

Davies, S. and Guppy, N. (1997). "Fields of Study, College Selectivity, and student inequalities in higher education". *Social forces*, 75, 1417-1438.

Dryler H. (1998). "Parental role models, gender and educational choice". *British Journal of Sociology*, 49(3): 375-398.

Elias, P., Jones, P. and McWhinnie, S. (2006).Representation of Ethnic Groups in Chemistry and Physics. Report for the Royal Society of Chemistry and the Institute of Physics.

Government of Kenya (1964). *Kenya Education Commission Report Part II.*

Government of Kenya (1968). *The Education Act (Cap 211).* Nairobi: Government Printer.

Government of Kenya (1983). *The Industrial Training Act (Cap 237).* Nairobi: Government Printer.

Government of Kenya (1988). *Sessional Paper No.6.Presidential Working Party on Education and Manpower Training.* Nairobi: Government Printer.

Government of Kenya (2003). *Report of Ministerial Committee on problems facing National Polytechnics and Technical Training Institutions.* Nairobi: MOEST.

Government of Kenya (2005). *Sessional Paper No.1.* Nairobi: Ministry of Education

Government of Kenya (2012). *Economic Survey 2012: Kenya National Bureau of Statistics.* Nairobi: Government Printer.

Iminza, B. S. (2006). "An Empirical Analysis of factors affecting enrolment in secondary schools in Kenya". Unpublished M.A Research Paper, University of Nairobi.

Karen, L, Williams, M. L. and Waldauer, C. (2011). "Impact of Parental occupation and socioeconomic status on choice of college major". *Journal of Family and Economic issues*, Vol. 22(4).373- 392,

Kothari, C. R. (2005). *Research Methodology. Methods and Techniques*, 2nd Edition. India: New Delhi: New age International publishers.

Krejcie, R. V. and Morgan, D. (1970). "Determining sample size for research activities." *Educational and Psychological Measurement*, 30(3), p. 608.

Long, J. S. (1997).*Regression Models for Categorical and Limited Dependent Variables.* California: Sage Publications.

Mark, S. (2003). *Research methods for business students*, 3rded. England: Pearsons Education Ltd.

McConnell, C. and Brue, S. (1989). *Contemporary Labour Economics*, New York: McGraw Hill.

Modood, T. (1997). Ethnic Minorities in Britain: Diversity and Disadvantage. Policy Studies Institute, London.

Montmarquette, C. K. Cannings, and S. Mahseredjian (2002). "How do Young People Choose College Majors?" *Economics of Education Review*, 21(6), 543-556.

Mugenda, M.O. & Mugenda, A. G. (2003).*Research methods, quantitative & qualitative approaches*, Revised Ed. Nairobi: Acts Press.

Odumbe, C. O. (1983). "*The Post-Secondary Career and Training Decision in Kenya.* Unpublished M.A Research Paper, University of Nairobi.

Oosterbeek, H. and Webbink, D. (1997). "Is There a Hidden Technical Potential?" *De Economist*, 145(2), 159-177.

Osborne*et al.* (2003). "Attitudes towards science: A review of the literature and its implications". *Research in Science & Technological Education*, 25(9).

Owen D., Green A., Pitcher J. and Maguire M. (2003). "Minority ethnic participation and achievements in education, training and the labour market" *DfES Research report 225.*London: DfES.

Patton, M. Q. (2002). *Quantitative and Qualitative Research Approaches.* London: Prentice Hall.

Payne, J. (2003). ."Choice at the end of compulsory schooling: A research review" *DfES Research Report RR414.*London: DfES.

Ramirez, J. V. (2001). *Age and Schooling Vintage effects on wage profiles in Switzerland,* Mimeo: University of Geneva.

Rochat, D. and Demeulemeester, J. L. (2001). "Rational Choice Under Unequal Constraints: The Example of Belgian Higher Education", *Economics of Education Review*, 20(1), 15-26.

Rodeiro, Carmen L. Vidal (2007). *A Level Subject Choice in England: Patterns of Uptake and Factors Affecting Subject Preferences.* Cambridge: University of Cambridge.

Russell, M. L., and Atwater, M. M. (2005). "Travelling the Road to Success: A Discourse on Persistence throughout the Science Pipeline with African American Students at a Predominantly White Institution". *Journal of Research in Science Teaching*, 42(6), 691-715.

Sutton Trust (2007).*University admissions by individual school*. London: The Sutton Trust.

Van de Werfhorst, H. G., de Graaf, N. D. and Kraaykamp, G. (2001). "Intergenerational Resemblence in Field of Study in the Netherlands", *European Sociological Review*, 17(3), 275-293.

Van de Werfhorst, H. G., Sullivan, A. and Cheung, S. Y. (2003). "Social Class, Ability and Choice of Subject in Secondary and Tertiary Education in Britain", *British Educational Research Journal*, 29(1), 41-62.

Woolnough, Brian E. (1994). "Factors affecting students' choice of science and engineering". *Research in Science & Technological Education*, 16(6).

APPENDICES

APPENDIX I: INTRODUCTION **LETTER**

Juma Beatrice Jedidah,
P.O Box 52428-00200
Tel. 0722 784 370
NAIROBI
October 2014

To
DVC academic Research Students
Technical University of Kenya

Dear Sir

RE: Data Collection for Academic Research Project on Factors Affecting Choice of Fields of Study of Diploma Students in Kenya

I am a student at the University of Nairobi (UON) taking a Masters Degree in Economics. In line with the university policies, in order to graduate, I am required to write a project as part of the completion of my studies. It is for this reason that I seek your assistance in filling this questionnaire. My topic of study is "Factors affecting the Technical University of Kenya Diploma students' choice of areas of study" with the aim of assisting college administrators and the government in policy formulation.

All information will consequently be treated with utmost confidentiality and names avoided in line with research ethics. Please fill the questionnaire provided below honestly by providing relevant information. Your responses will be handled with utmost confidentiality and privacy and will be used only for the purpose of this study.

Thank you.

Yours faithfully,

……

Juma Beatrice Jedidah

Appendix II: Variables Description

Gender	Male	If male 1, 0 otherwise
Age	Below20	If age is below 20, 1; 0 otherwise
	abv21be30	If age is between 21 and 30, 1; 0 otherwise
	abv30	If age is above 30, 1; 0 otherwise
Grades	B and above	If grades are above B, "1", "0" otherwise
	C and below	If grades are below C, "1", "0" otherwise
Upbringing place	Rural	1 if brought up in a rural area, 0 otherwise
	Urban	1 if brought up in an urban area, 0 otherwise
Secondary School	Private	1 if went to a private school, 0 otherwise
	Public	1 if went to a public school, 0 otherwise
Tribe	Kikuyu	If tribe is kikuyu 1, 0 otherwise
	Kalenjin	If tribe is Kalenjin 1, 0 otherwise
	Luhya	If tribe is Luhya 1, 0 otherwise
	Luo	If tribe is Luo 1, 0 otherwise
	Kamba	If tribe is Kamba 1, 0 otherwise
	Kisii	If tribe is Kisii 1, 0 otherwise
	Swahili	If tribe is Swahili 1, 0 otherwise
	Others	If from other ethnicity 1, 0 otherwise
Family type	Single parent	1 if family is of a single parent, 0 otherwise
	Parent partner	1 if family is of parent and partner, 0 otherwise
	Two parent	1 if family is of both parents, 0 otherwise
	Other family type	1 if family type is different e.g foster home, 0 otherwise

Family size	Small family	1 if family has less than 4 children, 0 otherwise
	Midsize family	1 if family has 5 to 8 children, 0 otherwise
	Large family	1 if family has more than 8 children, 0 otherwise
Family Income	Below25k	1 if family income is below Ksh. 25,000 ; 0 otherwise
	Betwn25n50k	1 if family income is between 25 and 50,000; 0 otherwise
	Above50k	1 if family income is above Ksh. 50,000; 0 otherwise
Parents' Employment	F employed	If father is employed, 1 ; 0 otherwise
	F unemployed	If father is unemployed 1 ; 0 otherwise
	M employed	If mother is employed 1; 0 otherwise
	M unemployed	If mother is unemployed 1 ; 0 otherwise
Parents' Education	F edu higher	1 if father has college or university education, 0 otherwise
	F edu basic	1 if father has secondary or primary education, 0 otherwise
	F edu none	1 if father has no education, 0 otherwise
	M edu higher	1 if mother has college or university education, 0 otherwise
	M edu basic	1 if mother has secondary or primary education, 0 otherwise
	M edu none	1 if mother has no education, 0 otherwise

APPENDIX III: QUESTIONNAIRE FOR STUDENTS

This questionnaire has been set in line with the objectives of the study on the factors affecting Diploma students' choice of areas of study. Kindly read the questions carefully and answer them as honestly as possible by ticking, rating, specifying or writing the correct answers in the spaces provided.

Part A: Demographic Information

Please provide the following information about yourself.

1. In which Faculty are you?

    1. Faculty of Applied Sciences &Technology?☐
    2. Faculty of Engineering and Built Environment☐
    3. Faculty of Social Sciences and Technology☐

2. In which School are you?

    1. School of Pure and Applied Sciences☐
    2. School of Engineering Science and Technology ☐
    3. School of Business and Management Studies ☐

3. Area of Study (Diploma course that you are studying): …….…

PART B –Items on Factors Affecting Diploma Students' Choice of Areas of Study

4. What is your age in years?

    1. Below 20 ☐
    2. 20-30☐
    3. 31-40 ☐
    4. 41-50 ☐
    5. 50>☐

5. What is you gender :

1. Male ☐
2. Female ☐
3. Other ☐

6. What was your KCSE Mean Grade :

1. A ☐
2. A^- ☐
3. B^+ ☐
4. B ☐
5. B^- ☐
6. C^+ ☐
7. C ☐
8. C^- ☐
9. D^+ ☐
10. D ☐

7. What would you say is your type of Family?

1. Single parent ☐
2. Parent-partner ☐
3. Two parent family ☐
4. Total orphans ☐
5. Adopted children ☐

8. What is the number of Children in your family?

1. Below 4 ☐
2. 4 – 8 ☐
3. Above 8 ☐

9. What is your family's average Monthly Income in Ksh.?

1. Below 25,000 ☐
2. 25,000-50,000 ☐
3. 51,000-100,000 ☐
4. Above 100,000 ☐

10. a) Is your Father/Male Guardian currently employed?

1. Yes ☐
2. No ☐
3. Retired ☐

b) If Yes or Retired indicate his occupation

1. Wage employee ☐
2. Farmer ☐
3. Self-employed ☐

11. a) Is your Mother/Female Guardian currently employed?

1. Yes ☐
2. No ☐
3. Retired ☐

b) If Yes or Retired indicate her occupation

1. Wage employee☐
2. Farmer☐
3. Self-employed☐

12. Please tick the highest Education Level of your Father/Male Guardian

1. PhD ☐
2. Masters ☐
3. Undergraduate ☐
4. Higher Diploma/Diploma ☐
5. College Certificate ☐
6. Secondary ☐
7. Primary ☐
8. None ☐

13. Please tick the highest Education Level of your Mother/Female Guardian

1. PhD ☐
2. Masters ☐
3. Undergraduate ☐
4. Higher Diploma/Diploma ☐
5. College Certificate ☐
6. Secondary ☐
7. Primary ☐
8. None ☐

14. What is the place of upbringing?

1. Rural☐

2. Urban☐

15. Which type of Secondary School did you attend?

1. Community☐

2. District☐

3. Provincial☐

4. National☐

5. Faith-based☐

6. NGO ☐

7. Private/Individual☐

16. What is your community of belongingness/ethnicity

1. Kikuyu☐

2. Kalenjin☐

3. Luhya☐

4. Luo☐

5. Kamba☐

6. Kisii☐

7. Swahili☐

8. Others☐

17. Kindly State the extent at which you agree with the following statements in the table below

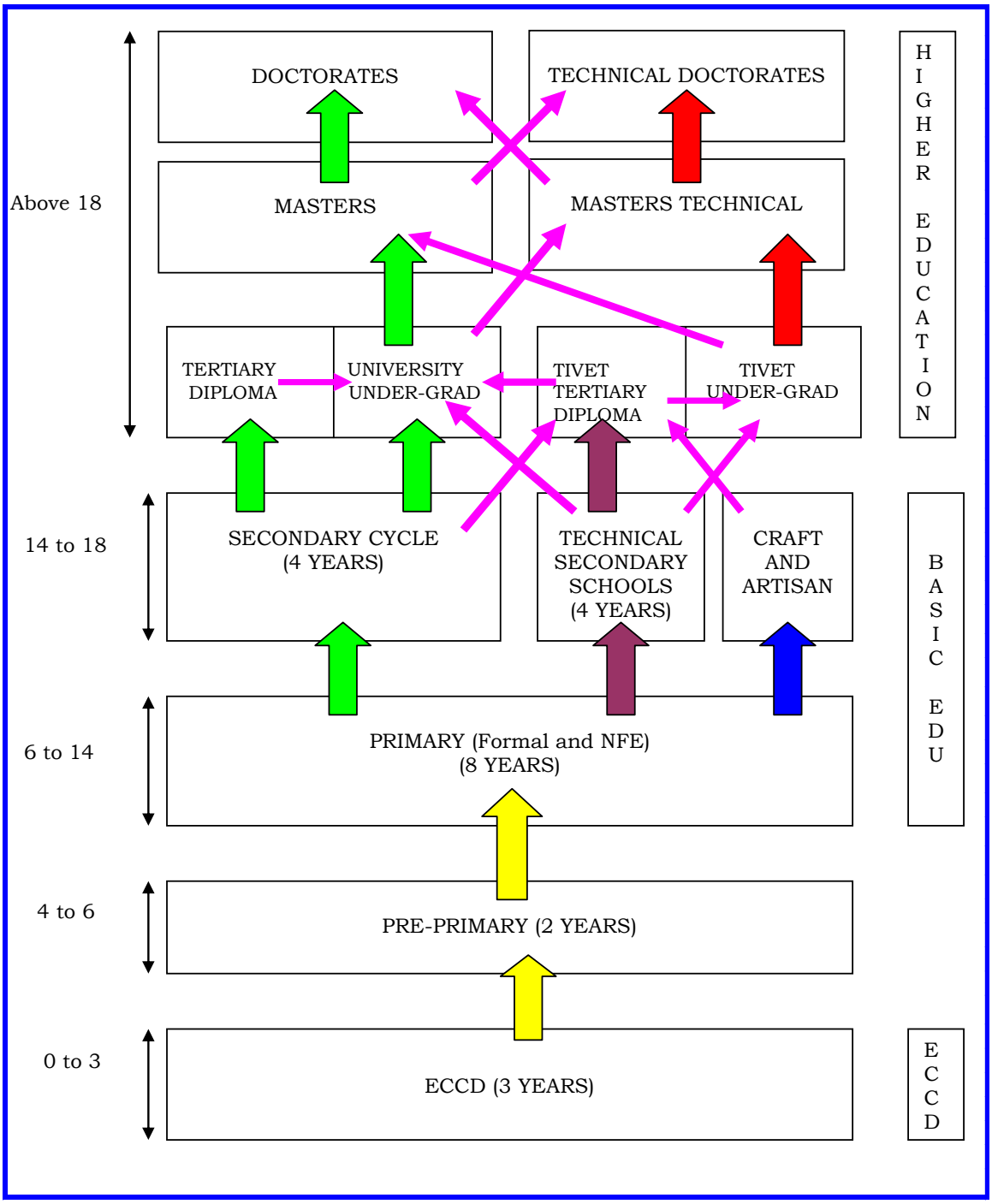
	Statement	Strongly agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly disagree (5)
a.	I chose this course due to my KCSE grade					
b.	I chose this course because of employability					
c.	I chose this course because of expected earnings after graduation					
d.	I chose this course because most of my friends chose it					
e.	I chose this course because it is what my family's resources could afford					
f.	I chose this course so as to complete faster					
g.	I chose this course because I was advised to do so					
h.	I chose this course because I am good at it					
i.	I chose this course because I was assured of educational funding					
j.	I chose this course because a person in our family network assured me/my parents of employment on completion					
k.	I chose this course because it is fit for my gender					
l.	Any other reason (Specify)……..					

Thank you for your time and cooperation

APPENDIX IV: KREJCIE AND MORGAN TABLE

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	373
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	225	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

APPENDIX V: STRUCTURE AND ORGANIZATION OF EDUCATION AND TRAINING IN KENYA



Source: Government of Kenya(2005)

APPENDIX VI: RESEARCH BUDGET

Item	**Cost in Ksh.**
Stationery	4, 000
Printing	5, 000
Photocopy and binding	4, 000
Computer services	5, 000
Traveling for Resource Materials	8, 000
Internet consultation	3, 000
Books and Resource materials	16, 000
Consultancy	10, 000
TOTAL	**55, 000**

APPENDIX VII: WORK PLAN

Activity	**Time**															
Month	**July**				**August/Sept**				**October**				**November**			
Week	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Meeting with Supervisor																
Draft Proposal Writing																
Working on corrections from Supervisors																
Proposal School Defense																
Corrections on Panel Comments																
Data Collection																
Data Analysis and Report Writing																
Final Draft and Submission																