FACTORS INFLUENCING THE ADOPTION OF FLEXIBLE TEACHING APPROACHES IN TECHNICAL TRAINING INSTITUTIONS IN KENYA

BY

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DECLARATION

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I dedicate this work to my dear wife Betty and sons Adan and Asaph.

ABSTRACT

The goal of training in technical training institutions is to produce technicians with competencies to handle various challenges in technology oriented fields. The continuing need to improve the quality of education in TVET is ever present. Therefore, effective teaching at these institutions is important to enhance quality of its graduates. Currently, flexible open and distance learning approaches are being used to enhance quality and access to programs around the world. The aim of this study therefore was to determine the factors influencing the adoption of flexible approaches to teaching in technical training institutions in Kenya. The specific objectives were to: establish how the syllabus content influences the adoption of flexible approaches to teaching; determine how the availability of teaching materials influence the adoption of flexible approaches to teaching; evaluate how institutional factors influence the adoption flexible approaches to teaching and establish how the perception of the instructors influence the adoption of flexible approaches to teaching in technical training institutions in Kenya. The study was guided by a conceptual framework developed by the author. This study was conducted through descriptive research design. Data were collected from seven technical training colleges in Western Kenya. The method of data collection was through open and closed-ended structured questionnaires, interview schedules and document analysis. Collected data were coded in SPSS 17.0, (2008) and analysed using descriptive statistics. The study established that institutional managers had no authority to develop their own courses tailor made to suit specific needs in the market. The teaching resources that influence the adoption of flexible learning and teaching were also found to be unavailable in classrooms. Most institutions however had put in place strategic objectives to improve the quality of learning and teaching. The perception of the teachers on the adoption of flexible learning process was positive. There is no doubt that the current technical teacher is willing to adopt a more innovative and flexible approach to teaching. Outputs from this study are expected to enhance the adoption of flexible learning in technical training institutions. In light of the findings of the study, it was recommended that the government of Kenya should establish a clear policy aimed at greater adaptability to flexibility. Institutions need to be granted authority to develop or reorganise syllabi for provision of industry specific solutions while being regulated to meet set international standards.

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LIST OF ABBREVIATIONS, ACRONYMS AND SYMBOLS

COL	Commonwealth of Learning
EFA	Education for All
FaB	Flexible and Blended Approaches
GoK	Government of Kenya
HOD	Head of Department
ICT	Information and Communication Technology
ILO	International Labour Organization
KNEC	Kenya National Examinations Council
LMS	Learner Management System
LRC	Learner Resource Centre
MDGs	Millennium Development Goals
MoEST	Ministry of Education, Science and Technology
MoHEST	Ministry of Higher Education Science and Technology
ODL	Open and Distance learning
OER	Open Educational Resources
PC	Personal Computer
RoK	Republic of Kenya
SPSS	Statistical Package for Social Sciences Version 17.0, released 2008.
TTIs	Technical Training Institutes
TVE	Technical and Vocational Education
TVET	Technical Vocational Education and Training
UN	United Nations
UNESCO	United National Educational Scientific and Cultural Organization

UNEVOC United Nations International Centre for Technical and Vocational Education and Training

UPE Universal Primary Education

OPERATIONAL DEFINITION OF TERMS

Adoption: Application or use of methods of teaching.

Flexible teaching approach: A teaching method that apply with little or no constraint of location, time and methods.

Flexible and Blended Approach (FaB): Integrating flexible approaches with existing teaching methods. Involves minimal additions of enabling factors (ICT is just one of them) in teaching.

Institutional factors: Issues to do with infrastructural establishment and management.

Management Staff: Respondents in the level of policy making and implementation. Mostly they are in charge of overall administration of their institutions.

Moodle: One of the many types of leaner management systems. Currently it is the most widely adopted by most modern educational institutions. Short form for Modular Object Oriented Dynamic Learning Environment.

Technical Training Institutions: Tertiary institutions that train students on technical courses after secondary or primary schools levels of education

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CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Education is acknowledged as a means for transforming and empowering communities. The youth, especially gain skills, knowledge and attitudes to enable them become productive members of the society. Education contributes to sustainable development, and is recognized as a priority area of development intervention as is reflected in policy documents. In a rapidly changing and competitive global economy, a holistic approach is increasingly recognized as essential to realizing the promises of education for the development of social and human capital innovation (Cummings & Williams, 2008).

As an objective policy, a majority of young economies have been putting in place technical and vocational education training programs at different levels with the anticipated result of producing skilled human resources for both formal and informal sectors of their economies. Though their mode of implementation and operation may vary from nation to nation, the primary objective of technical and vocational training is to train a skilled labour force that can adapt to the requirements of the labour market (Ferej, 1996). Improving productivity requires not only investment in physical capital, but also investment in education and training. The United Nations Educational, Scientific and Cultural Organization (UNESCO) has asserted that in view of the changes in the labour market, the objectives of technical and vocational education have become more diverse; they are no longer simply economic, but also social, including the fight against poverty and the integration of young people into the world of work as well as the promotion of peace (UNESCO, 1998). It is probably for

this reason that (Khan, 2005) advises that it is always important to identify appropriate methods to enhance learning.

In Africa, there is fresh awareness among policy makers and the international donor community that Technical and Vocational Education and Training (TVET) has a critical role in national development (International Labour Office, 1998). Technical skills have also enhanced man power in many parts of the world, including in the Sub-Saharan Africa and therefore the demand for technical and vocation training has been on the rise. There are a number of potential benefits behind the push for TVET.

First, up-to-date knowledge and skills contribute to higher productivity (McGrath, 2009). Related to this, is that skills acquired by one individual can have positive spill over effects on the productivity of other individuals, so that social benefits of training exceed private benefits (Ziderman, 2003) and (Kimenyi, 2006). Failure by stakeholders to take this into account results in under-investment in training. Second, TVET programmes are attractive because training may complement investments in physical capital. For example, skilled labour attracts foreign direct investment and enhances competitiveness and innovative capacity of an economy (UNESCO , 2002). Availability of skilled workers is also essential, especially in changing the production environment. Third, high quality TVET can complement entrepreneurship development programmes that aim at promoting self-employment. Finally, deficient training could adversely affect the quality of goods and services produced. Where goods and services are for export markets, poor quality can adversely affect their competitiveness.

Given the potential of economic benefits from investment in training, it is not surprising that TVET is being given increased attention in Africa. This is because of the realization that the benefits would go a long way in improving productivity and standards of living for millions of Africans. The goal of policy makers and international development organizations is to build relevant, effective and efficient national training systems to meet the skill needs of individuals, firms and the national economy. TVET programmes should be flexible, such that they can be delivered at any level of complexity and be responsive to industry and individual needs. They are also popular because of their orientation towards the world of work.

In Kenya, TVET cuts across post-primary, secondary and tertiary levels of education and training. The Government of Kenya considers investments in TVET a way of reducing unemployment and poverty. It is committed to reforming the sector so as to ensure the programmes offered are relevant, and there is adequate supply of critical skills and competencies for local and global labour markets as identified in the Kenya Vision 2030 (Republic of Kenya, 2007),and Sessional Paper No. 1 of 2005 on Education and Training Policy Framework (Republic of Kenya, 2005).

Over the decades since gaining Independence in 1963, TVET in Kenya has experienced both structural and curricular changes that have had an impact on graduates. TVET is fundamental to the world of work. For most people, finding a job is the anticipated outcome of their education and it is through their work that people achieve self-fulfilment. (International Labour Organization , 2003) have noted that one of the major issues relating to the world of work, where TVET must play a major role in providing solutions, is the question of what changes should be made to school

curricula at all levels so that young people become more work oriented and acquire the basic skills needed to perform productive work.

According to the Ministry of Higher Education science and Technology and the Kenya Institute of Education, the national TVET strategy underscores the importance of the curriculum in the provision of skilled human resource as a key driver of economic take off and employment creation (MoEST & KIE, 2010). The overall thrust of the strategy is to diversify and provide quality and relevant skills. The TVET curriculum is therefore expected to enrich learning experiences, establish a culture of excellence and work ethics, and inculcate diligence, precision, entrepreneurship, innovation, social integration, nationhood, integrity, continued lifelong learning, global competiveness, efficiency, good leadership and governance, equity of training, inclusive curricula, democracy of admission and management training. The TVET strategy paper further goes on to note thus "The recommended strategies provide for a shift from the current rigid, standard based curriculum design to a broad based flexible model to facilitate access to flexible training through different experiences by exploring and providing menu type options to cater for different learning needs of students in accordance to their own individual contexts" (MoEST & KIE, 2010, p. 2). However, adopting flexible teaching approaches as envisaged in the strategy paper may remain a challenge.

The classical face-to-face lecture, exemplified by the now-clichéd phrase "the sage on the stage", is undergoing dramatic challenges to its ubiquitous place in tertiary education. Pedagogically, it is doubtful that the lecture has ever been a good medium for teaching (Lynch & Collins, 2001). In terms of the three different forms of learner

interaction, it relies entirely on learner and instructor interaction, and normally the interaction in lectures is mostly one-way (Moore M. G., 2013). Students face the continual battle of maintaining a waking state, while trying to take notes from the board or screen used by the instructor. Khan, (2007) argues that with the increasing use of a variety of approaches of learning in the information age, learners are moving away from wanting to be taught in lectures or direct training sessions.

Whilst tutorials and laboratory sessions are often used to supplement lectures, the advent of the World Wide Web has enabled other forms of teaching and delivery, and thereby interaction and learning, to come to the fore. It is now commonplace for course materials to be available on the Web, though often in a relatively unsophisticated format, such as Word documents or PowerPoint slides. This, at least, enables a slightly greater variety of learner-content interaction to take place. Email lists and discussion groups are often used to enable much greater learner-instructor interaction, and also to provide facilities for learner-learner interaction, though more often than not this form of interaction is merely enabled, rather than being encouraged as an integral component of the learning process. Lately, there has been a tremendous improvement that includes developments of sophisticated Learner Management Systems (LMS), such as Moodle, currently adopted as a platform of choice for provision of online learning in most developed institutions. The Commonwealth of Learning (COL) has been at the forefront in promoting the switch from traditional approaches of teaching to what they call Flexible and Blended (FaB) approaches, especially through targeted workshops in parts of Africa, and through their webpage dubbed the community learning network (CLN).

"COL's Flexible Skills Development initiative continues to help technical and vocational education and training (TVET) institutions in Africa extend the reach of their training through flexible approaches to learning" (Commonwealth of Learning, 2012). Institutional visits by COL consultants and staff have been to help partners pursue their strategic objectives and develop new courses. This includes: "Staff development in Kenya: training in materials development, learning theory and teaching practical subjects at the Kenya Technical Teachers College, the Coast Institute of Technology and the Mombasa Technical Training Institute in Kenya" (Commonwealth of Learning, 2012, p. 6). In view of the foregoing, it was necessary to determine the factors influencing the adoption of flexible approaches to teaching in technical training institutions in Kenya.

1.2 Statement of the problem

Some of the resolutions of the World Conference on Education for All were to universalize primary education and massively reduce illiteracy by the end of the decade (UNESCO, 2012). From this conference, the World Declaration on Education for All (EFA) was adopted, which stressed that education is a fundamental human right and pushed countries to strengthen their efforts to improve education in order to ensure the basic learning needs for all were met. The Dakar framework for Action on Education for All adopted by governments in Senegal in 2000 set six broad goals and a number of specific targets to meet by 2015. The framework was given the subtitle "Education for All: meeting our collective commitments" (UNESCO, 2012).The six goals were, Goal 1: Early childhood care and education; Goal 2: Universal primary education; Goal 3: Youth and adult learning needs; Goal 4: Improving levels of adult

literacy; Goal 5: Assessing gender parity and equality in education and Goal 6: The quality of education.

Indeed in 2003, the Ministry of Education in Kenya, embarked on a series of reforms geared towards achieving the education related Millennium development goals (MDGs) and EFA. The Kenya government in 2003 implemented the Free Primary Education (FPE) policy (Republic of Kenya, 2003). Short medium and long term sector targets which included the attainment of Universal primary Education (UPE) and EFA were outlined. Among many others, the following specific targets were set: A primary school Net Enrolment Rate (NER) of 100% by 2015, a completion rate of 100% by 2010, Achievement of a transition rate of 70% from primary to secondary school level, Gender parity at primary and secondary level by 2015, development of a national training strategy by TVET by 2005, and expansion of public universities to have a intake capacity of at least 5000 students per year by 2015 (Ministry of Education, 2012;MoEST & KIE, 2010).

As a consequence of implementing FPE, Kenya has witnessed increased enrolments in primary education as well as secondary education (Ministry of Education, 2009). However, every year, thousands of students leave regular formal educational institutions in Kenya, but they cannot progress to higher levels of formal education due to a variety of reasons. Empirical studies indicate declining enrolments in TVET institutions over the years (Simiyu, 2007). While close to 40% of the students fail to transit to secondary level, only about 10% of the students proceed to college level from secondary level. The TVET sub-sector offers programmes that give a variety of options to students who exit from most of the levels of education. In this way, they

too can acquire skills and competencies for engagement in wage employment or self-employment. However, for many years, the planning and financing of TVET programmes in Kenya have not been well articulated, which may affect the quality and access to teaching and learning in these institutions.

In the *Policy Framework on Education*, the Ministry of Education itself admits that "although the country is on track towards attaining the access targets at a national level, there are regional inequalities which will constrain the country from attaining the EFA, MDGs and the Kenya Vision 2030 goals" (Ministry of Education, 2012, p. 33). Many technical training institutions aim at achieving the best technical training for their students, training objectives that are usually tailored towards producing technical staff with specific market oriented students. A primary objective of most formal training institutions in developing economies is the training of a labour force that is adaptive to the prevailing labour market conditions Ferej, Kitainge, & Ooko, (2012).

With unemployment becoming a chronic problem UNESCO, (2012), technical training institutions are increasingly being called upon to produce graduates who are market compliant and that are expected to make a tangible difference in the labour force. Such endeavours and indeed the goals of EFA are likely to be achieved through flexible learning approaches. In Kenya, the flexible approaches to learning are currently being envisaged by many learning institutions but still at a low level. However, for most formal training programs, no data was available to show whether such approaches were being used. For this study therefore, the big question was: why aren't flexible approaches to teaching being adopted? It is therefore on the basis of the

foregoing, that the current study was designed to determine the factors influencing the adoption of flexible approaches to teaching and learning in technical training institutions in Kenya.

1.3 Justification of the study

The justification of this study lies in the fact that trainees in TTI's are expected to acquire skills that should enable them to compete effectively in the labour market. Since in the labour market the skills requirement is continuously changing, the same should also happen in the training institutions. This research is therefore likely to provide data on the factors that influence adoption of flexible learning approaches in TVET in Kenya. Based on the study findings, it will be possible for the government, institution managers and industrial employers of technicians to base their decisions, actions and rules on knowledge of issues in educational planning supported by research findings. Recommendations from this study will help to improve the internal efficiencies of the technical training institutions and in turn deliver quality education and training in Kenya and help re-invent TTI's as centres of excellence in theoretical and practical training.

The researcher hopes that the study will form the basis for establishing the ways of enhancing quality of education among the instructors of the technical training institutions whose outputs the country yearns to help her in the technological advancement and industrialization process that would help in reduction of poverty in Kenya. This should lead to the generation of new ideas, resulting to proper, better and more efficient management of education and training in Kenya and the rest of the world.

Therefore, the findings of this study are geared towards helping inculcate proper knowledge of the factors that would improve the productivity of the trained technicians. Such proper knowledge base will help in dissemination of the right kind of information to the intended beneficiaries who are more at risk of rejection by the potential employer in the industrial use of their skills in the industry. If such objectives are achieved then wastage currently witnessed in the current system of education, and in TVET in particular will be minimized. Access to programs will be expanded and relevance will no doubt be assured.

1.4 Purpose of the study

The purpose of this study was to determine the factors influencing the adoption of flexible approaches to teaching in technical training institutions in Kenya.

1.5 Objectives of the Study

The objectives of this study were to:

1. Establish how the syllabus influences the adoption of flexible approaches to teaching in technical training institutions in Kenya.
2. Determine how teaching resources influence the adoption of flexible approaches to teaching in technical training institutions in Kenya.
3. Determine how institutional factors' influence the adoption of flexible approaches to teaching in technical training institutions in Kenya.
4. Determine how perceptions influence the adoption of flexible approaches to teaching in technical training institutions in Kenya.

1.6 Research Questions

The research questions of this study were derived from the objectives of the study and they include the following:

1. How does the syllabus content influence the adoption of flexible approaches to teaching in technical training institutions in Kenya?
2. What is the influence of the availability of teaching resources on adoption of flexible approaches to teaching in technical training institutions in Kenya?
3. How do institutional factors influence the adoption flexible approaches to teaching in technical training institutions in Kenya?
4. What is the influence of respondent's perceptions on the adoption of flexible approaches to teaching in technical training institutions in Kenya?

1.7 Significance of the study

Kenya is among the countries that signed on to achieve the objective of Education for All (EFA) by 2015, a goal that will lead to vastly increased numbers of young people attaining self-reliance through TVET. "There has been undeniable progress towards the six EFA goals. However progress towards some goals is faltering. The number of children out of school has stagnated, and quality of education still demands faster progress". (UNESCO, 2012, p. i). In light of this, technical institutions must determine ways of increasing enrolments in their programmes. Exploring ways of enhancing flexible learning approaches will allow TVET to reach out to many young people and adults by preparing them for the real possibilities of frequent career changes, including alternating periods of employment and unemployment. The study yielded findings that could be used as examples of good practices for improving the learning approaches in TVET institutions. Thus, examining how an exemplary TVET

institution is run may provide insights into the effective running of other institutions. The recommendations of the study are expected to contribute to existing knowledge about exemplary TVET institutions and also to prepare the ground for identifying the best ways of enhancing teaching in TVET institutions.

1.8 Conceptual framework

This study was formulated on a conceptual framework based on the research objectives, and the possible best case scenario outcomes in cognisance of the moderating factors. The conceptual framework depicted in Figure 2.1 was therefore generated by the researcher. In the framework the researcher intended to determine factors influencing the adoption of flexible approaches of teaching in technical training institutions.

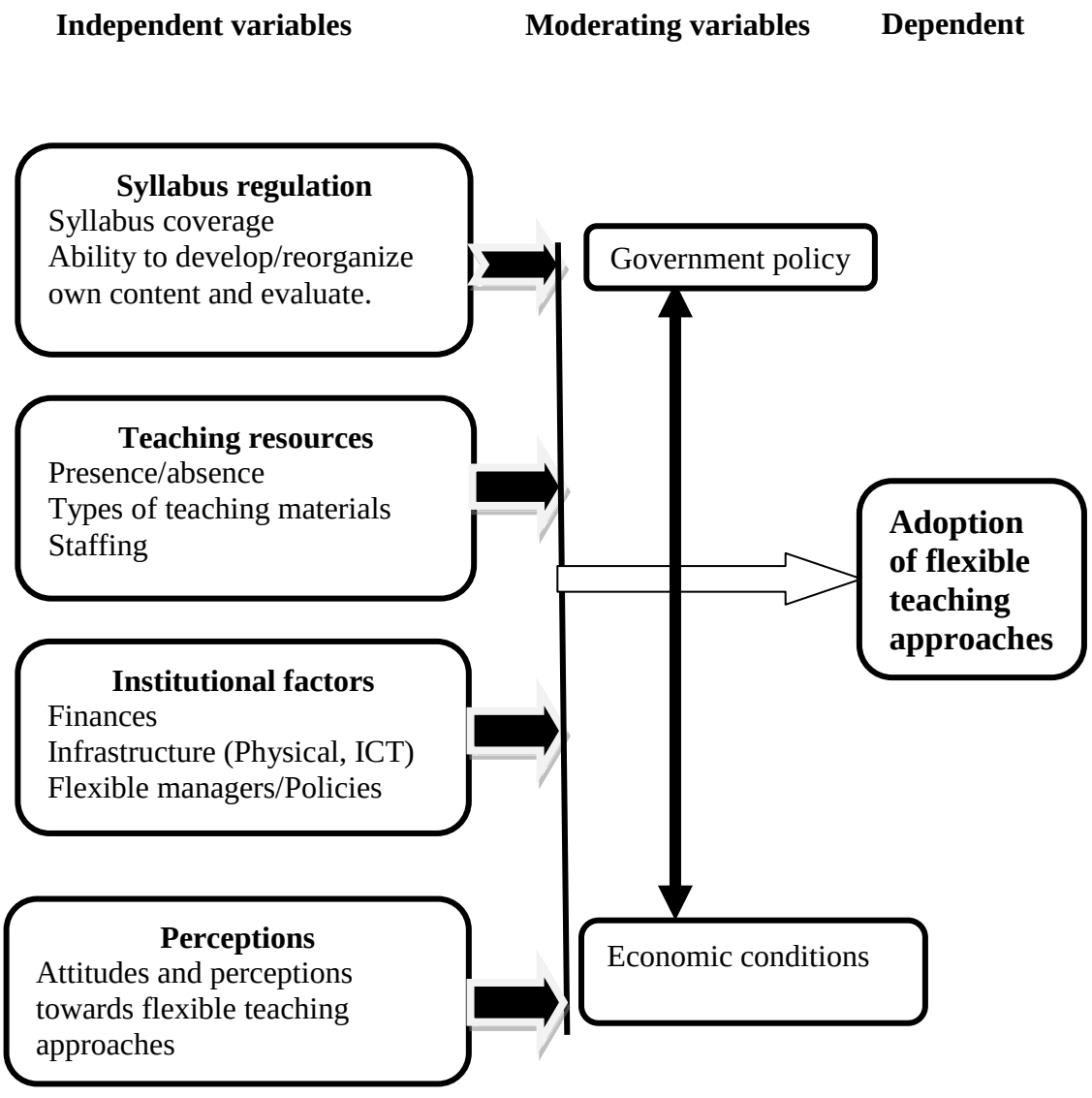

Figure 2.1: Conceptual framework of the study

Source: Author (2015)

1.9 Scope of the study

Geographically, this study covered technical training institutions in western parts of Kenya. This included counties in the north rift valley region, and the former western and Nyanza provinces. The study sought to establish factors influencing the adoption of flexible approaches to teaching in technical training institutions in Kenya. Finally this study was done in a time of six months from November 2012 to April 2013.

1.10 Limitations of the study

The study was affected by a number of limitations as had been anticipated.

It is believed that some of the respondents may not have provided honest or informed answers thus the researcher used two instruments a questionnaire and an interview schedule to get more information.

The scope of questionnaire as the research technique to be mostly used in this research has some limitations. For instance, the answers have to be accepted as final and there was no opportunity to probe beyond the given answer or to clarify ambiguous answers where interviews were not used.

1.11 Assumptions of the study

The study was based on the following assumptions:

(i) The participants were cooperative and able to give the required information without any reservations.

(ii) The institutions kept accurate records of the content of teaching and learning materials and literature

(iii) Responses that were given by the respondents were true reflections of the situation as it is on the ground.

(iv) All the responses given through the instruments used were honest.

CHAPTER TWO

LITERATURE REVIEW

2.1 Chapter Overview

This chapter discusses the literature that is related to the study. First, there is a general overview across all the themes of the study followed by literature that is related to specific themes. The researcher explored literature from textbooks, journals, seminar papers, thesis reports, and web publications.

This section is organized under the following general themes:

(1) General background literature review

(2) Empirical literature on the factors influencing effective teaching

To accomplish the objectives, research and literature were identified and reviewed. Literature was reviewed in areas of general aspects of vocational and technical education, vocational and technical education in developing countries, and vocational and technical education in Kenya.

2.2.1 Overview of Vocational and Technical Education and Training

Kerre (1999), suggested that from a global perspective the framework for technology education for any given nation must be drawn from within: a widely recognized and acceptable national conceptualization of the role of technology and national development, the need to compete favourably in an international market, the elements of technology education curriculum and the emphasis to be given in the school curriculum. A clearly defined and articulated vocational and technical training system that responds to the needs of society, industry and individuals requires a clearly defined national policy framework that has legislative backing. It identifies and encourages the development of appropriate technologies which will enable the nation

to meet its national development needs as well as remain competitive in a technological international market (Moore, 2013). It also supports comprehensive and continuing vocational technical training, and encourages and stimulates employment creation through self-employment in both the formal and non-formal sectors of the national economy.

Kerre (1995) specified three types of structures that could be used to implement such a policy. One was the traditional approach where TVE is offered as a separate system in its own separate TVE institutions. Another type has TVE being offered alongside general education in the same institutions but still on a separate trajectory. The third type was an integrated one where TVE curriculum is a requirement for all learners at certain levels and an option at higher levels. He argues for the latter as it offers the widest opportunities possible for learners to pursue either general education or TVE, the demarcation between general and vocational education was minimized as learners experience the interrelationships between theory and practice, and it is feasible to focus on general aspects of education at the lower level with an increasing amount of vocationalization or training as the learner moves to higher levels. This final point was reiterated in greater detail in (Kerre, 2001).

In most African countries TVET was widely perceived as ‘dead-end’ stream but positive steps have been taken to reduce the segmentation of education and training and to address institutional barriers that restricted TVET learners’ options and choices, (Marope, Holmes, Chakroun, & UNESCO, 2015). The argument is also consistent with that made by Young (1993), who argued for a unified system that does not separate academic and vocational routes but recognizes that to fulfil the aims of a

highly qualified workforce, a wide range of different combinations of academic and vocational studies need to be possible. Young (1993), outlined four conditions for achieving a unified system as a wide professional consensus in the education community, strategic thinking on the part of industrial leaders and trade unionists, political will on the part of the national government, and a high value placed on education within the culture as a whole. Much of the developing world, in particular, has discovered this.

Kenya's move into a new vocationalized curriculum appears to have borne little fruit, in part because the government did not anticipate the costs of the changes. As a result, over ten years later, almost no schools were equipped to offer the required practical components of the curriculum in vocational and technical areas at the primary and secondary levels (Government of Kenya, 2008).

2.2.2 Vocational and Technical Education in Africa

In (Maclean & Wilson, 2009), B. W Kerre & A. Hollander say “Most education systems in place in Africa today are either adoptions or adaptations of education systems found in the former metropolitan countries”. They note that the quality of educations remains a challenge in Africa and that there was need to ensure that whatever resources were available are used most effectively. In a synthesis of twelve case studies based on both English and French speaking nations of Africa, Kerre (1995), concluded that most countries in Africa generally support the general objectives of vocational and technical education as follows: “To provide, alongside general education, knowledge and skills in technical and vocational fields in order to meet national manpower requirements in agriculture, business, industry and other

technical services" (p.15). He went on to list 10 specific objectives consistent with the Kenya government's master plan on education (Republic of Kenya , 1998).

These objectives were related to exposure to a wide range of practical activities at the basic education level; interpretation, application, and translation of basic knowledge and understanding of fundamental facts and principles of scientific process and techniques to be able to produce and use tools and labour saving devices; and inculcation of an appreciation of human labour as an invaluable resource. The objectives also include equipping the students with relevant productive and entrepreneurial skills; the provision of skilled labour; the refinement of indigenous artistic and technological skills; the acquisition of skills to protect, utilize, and conserve the environment; and increasing scientific and technological literacy among youth. Finally, the objectives include encouraging equal access and participation of girls and women in technical and vocational education and the provision of a sound foundation for further education and training.

2.2.3 Vocational and Technical Education in Kenya.

TVET as an art and science began in Kenya long before the arrival of the Europeans. Kenyans knew how to build their own houses, make agricultural implements, spears, knives, hoes, axes, cooking utensils and pottery. Traditionally, these skills were passed on from parents to offspring within the family or clan through an apprenticeship system (Okaka, 2001). The coming of the Europeans and the decision to build the Kenya-Uganda railway attracted Indian traders and laborers. The traders and laborers were instrumental in the training of artisans and craftsmen at among other places the Kabete Industrial Training Depot. Christian missionaries brought in

technicians and made an effort to train Kenyans in different skills to assist in the maintenance of tools, equipment and services for the railway.

The Second World War brought a greater influx of people, more sophisticated equipment and machinery, and a greater need for training. There was a need for drivers, motor mechanics, builders, electricians, welders, carpenters and clerks. The early 1950s saw industrial depots being upgraded to vocational schools and, by the early 1960s, they were further converted into secondary vocational schools. A major breakthrough for TVET in Kenya was the setting up of a Commission for Higher Education in 1954, whose main recommendation was the establishment of the Royal Technical College in Nairobi. This institution later became the Nairobi Royal College and, subsequently, the University of Nairobi.

The Mombasa Institute of Muslim Education was already in existence, having been established in 1948 to provide technical and vocational education to Muslim students in East Africa. It was converted into the Mombasa Technical Institute and later became the Mombasa Polytechnic in 1972 (currently the Technical University of Mombasa). In 1961, the Kenya Polytechnic was established to provide basic craft courses, which were phased out after 1966 following the introduction of similar courses in technical and vocational schools. Currently, there are two polytechnic universities and two national polytechnics and a host of other colleges across the country. Since independence, there has been a tremendous growth and development of TVET as a result of direct government intervention and involvement, as well as through community participation.

2.2 The Jua Kali (informal Sector Business) in Kenya

In jua kali (informal business, often set up on the side of the road) arrangements, training is only a by-product of the production process. The informal economy in Kenya, and the rest of Africa also, emerged originally as small enterprise activities in response to the problems of survival associated with rapid urbanization and urban poverty, (Hope, 2012). It is generally observed that masters mostly pass on their skills and knowledge to apprentices, but they rarely create new knowledge. The absence of any formal instruction favours acquisition of practical skills vital to production and management, but limits theoretical understanding (Republic of Kenya , 1996 b). Apprentices learn enough for commercial survival, but not enough for significant improvement in productivity. The impact of apprenticeships on the economy is limited by the number of masters willing to take on apprentices (Sifuna, 1992). In his study of the informal sector, (King & Palmer, 2006) asserted that even youth polytechnics are not accessible to the poor, and they have weak links to the informal sector.

Twoli and Maundu (1993) explained the process of training within the jua kali sector to be step wise, starting with simple tasks, such as painting and cutting, and progressively handling more advanced and difficult tasks like welding and soldering. With this system of master teaching apprentice in the way that he (usually) was taught, there has been little infusion of new technology and new designs into the jua kalis (Ng'ethe & Ndua, 1992). Finally, a common finding in the research done on this informal sector is that those involved in the sector have little background or understanding about how to do business (Ng'ethe & Ndua, 1992; Twoli & Maundu, 1993).

Twoli and Maundu (1994) recommended that a forum be developed to assist jua kali artisans in such skills as "general record-keeping skills, sales and accounting skills" (p.62). In general, (UNESCO, 2011) found that in the informal sector there were a number of approaches to indigenous apprenticeship systems which include the extension model, day release at formal vocational training institutions, and community development. UNESCO had recommended that member states should "establish a criteria and standards, subject to periodic review and evaluation, applying to all aspects of TVET including to the greatest extent possible non formal education for all forms of recognition of achievement and consequent qualifications. (UNESCO , 2002)

2.3 Flexible learning approaches

In the researchers' view, the three tests for flexibility in learning processes can be exemplified by the following questions. *Can trainees learn from remote locations*? Thankfully, the answer to this is often yes, at least for those courses made available online, with substantial materials on the Web, and an email discussion list. *Can trainees learn at times of their own choosing?* The answer in the Kenyan situation is not quite so clear-cut yet (Harry, 2002) asked "why wouldn't we adopt teaching methods which free up the time place mode and pace of learning?"

Providing materials are on the Web, students are no longer restricted to set lecture times, and (theoretically at least) can choose to study at weekends or during the early hours of the morning – providing the relevant technology is operational at these times. However, times are still confined to certain periods during the year, when the course

"is available". Students rarely have freedom of choice with regard to the starting or ending dates of their learning. *Can trainees learn by a variety of methods?* If a course has been labelled flexible purely because the lecture notes have been made available online, then the answer is clearly no, Shurville, O'Grady, & Mayall, (2008). For a definitive "yes" answer, it is a necessary, but still insufficient, requirement that a variety of resources should be provided, such as lecture slides, audio and/or video recordings of past lectures, still images and animations, worked examples, and so on. The provision of such resources is clearly invaluable to students. Such resources can often be used for multiple course offerings, thus cost may not be such as to be prohibitive, Reif, (2013). Even where a variety of resources is provided, such provision may still be insufficient to ensure a variety of learning methods are available. Horton (2000), for example, provides a variety of interactive activities such as drill-and-practice exercises, virtual laboratories, case studies, guided research, and others, all of which can be used in flexible learning approaches.

Literature indicates little agreement about the meaning of flexible learning as a general concept. Flexible learning is commonly used with various other terms including flexible delivery, open learning, resource based learning, distance learning, independent learning and self-managed learning, informal sector courses etc. (Harper et al, 2000). In other words, it is essentially learner cantered learning aimed at improving access, giving learners control and choice over what and how they learn, helping them to take responsibility for their learning and providing support appropriate to the individual's needs. A majority of previous studies do not explore the streghths inherent in methodologies in curriculum implementation; they are either purely qualitative (Daudau, 2010); (Simiyu J. W., 2009) or purely quantitative

(Dasmani, 2011) (Hooker, et al., 2011). An analysis of some of the related studies revealed that the studies focused more on issues of management of and investment in TVET (Simiyu J. W., 2009).

Conceptually, flexible learning is generally cited within the open learning field: "the concept of open education is ill defined but has to do with matters relating to access, freedom from constraints of time and place, means, structure, dialogue and the presence of support services" Tucker, (2013). Openness in terms of means would imply the presence of choice between distance and continuous modes as well as choice between specific media. Most of these features relate to educational policy and philosophy rather than the modality of teaching. Moore, (2013) argues that the emphasis in open learning needs to move from one of access to that of mainstreaming, creating new opportunities for learning and the development of independent learners.

Indeed studies have shown that the nature of course offerings in different settings is attributed to disparities in enrolments in training institutions (UNESCO, 2011). Ellington (1997), notes that flexible learning began to be used as a term in the UK in the early 1980s. Wade (1994) also defines flexible learning as "an approach to education which provides learners with the opportunity to take greater responsibility for their learning and to be engaged in learning activities and opportunities that meet their own individual needs" (p.12). "There is confusion in the minds of practitioners between the terms open, distance, flexible and resource based learning, which the literature compounds. Often they are used interchangeably, sometimes one subsumes the other" (Hudson, Maslin, & Oates, 2013).

The Commonwealth of Learning (COL) reported in their newsletter (*Connections*) that it commissioned a study about national policy and implementation of open and Distance learning (ODL) and use of information and communication technology in TVET in the pacific. Conducted by the open polytechnic of New Zealand, the study examined opportunities for flexible learning approaches to TVET in nine Commonwealth pacific Countries. While almost all countries identified TVET as an important part of their education, and there are regional policies about open and flexible TVET in the region, there seemed to be little activity related to these policies, the study found (Commonwealth of Learning, 2012).

While it is clear from the literature that flexible learning can occur in the absence of technology, there is now either an explicit or implicit recognition that ICT is a key enabler for flexibility. (Terry, 2000), describes that the term 'flexible' is used to refer to practices which utilize the capacities for learner-learner and teacher-learner interaction made possible through recent developments in communication and information technology to provide increased 'openness' in both on and off-campus delivery of educational programmes. The Collis, et.al, (2012) model of flexible learning in tertiary education comprises four elements – institution, implementation, pedagogy and technology i.e. ICT. They stress that this is an integrated system where technology should never be separated from the rest of the model especially the pedagogical component. From their work, they identify 19 dimensions of flexibility and then discuss ways in which institutions can introduce technology to provide increased flexibility along a "fixed/less flexible/more flexible continuum" (p.11).

Lack of agreement about flexible learning conceptually means that policy and practice in tertiary education institutions is valuable for providing further depth of meaning. The notable trend here is a convergence of different modes of course offerings and consequently, in a wider variety of learning modes for learners. Townsend and Bates, (2007) wrote about convergence as the end of the distinction between distance education and on campus education which they ascribe to the impact of technology. This same point was made by (Khan, 2007). This has resulted in the emergence of mixed mode institutions which offer a variety of courses for learners, for example, both on campus and distance courses and programmes which comprise both 'distance' and on-campus learners (Trindale, Carino, & Bidarra, 2000).

Collis, et.al, (2012) note that concept of distance itself is "losing its meaningfulness" (p.42) as distance learners attend on campus sessions, attend local study centres, and use ICT for communication and interaction. King (2001) agrees and says there is no longer a special distance learner constituency, so it is difficult for distance programmes to differentiate themselves. In a collection of international cases on the subject, Cochran-Smith (2004) makes reference to a phenomenon of hybridisation worldwide, which he describes as the use of ICT by conventional universities to enhance on campus learning and create new courses for distance learners.

In their study, Ling et al (2001) looked at how non-metropolitan universities in Australia conceptualise and practise flexible provision. This study found a new integration i.e. no clear demarcation between distance and on campus learning. While there were a huge variety of rationales and approaches, varying from "educational to instrumental" (p.50), that, whatever the intent, learners got choices. This would seem

to be a consistent theme throughout much of the literature, for example, (Shurville, O'Grady, & Mayall, 2008) argue similarly in their assertion that flexible education expands upon the ethos of distance learning by providing "students with flexible access to learning experiences in terms of at least one of the following: time, place, learning style, content, assessment and pathways".

Tucker, (2013), also wrote about the blending of ICT and face-to-face learning for on campus learners. Collis, et.al, (2012), distinguish between 'pedagogical extension' where there is very little change to the course itself, but technology is used to increase flexibility (e.g. Internet access to course contents) and 'pedagogical technical field' where the course is significantly redesigned and uses a wider range of technology (e.g. asynchronous discussions) to develop active collaborative learners. In their experience, these two concepts also support a staged and comfortably managed transition to flexible learning and provide a strong foundation for investigating new kinds of learning designs. Other examples of this kind of convergence have been reported, including Logan Campus, Griffith College, and Ipswich Campus at College of Queensland, both in Australia (Ling et al, 2001). More recently, in the UK, this approach has come to be referred to as blended learning, for example, Aspden et al, (2003) who reports an evaluation of e-Learning for on campus learners.

Kavanagh, Marjanovic, and Brown, (2001) have argued that flexible delivery is simply another didactic approach where ICT is used to transmit content through the "electronic repackaging of materials" (p.2), and they advocate that it should be used to support dialogue, interaction reflection and collaborative knowledge construction. In a research study, Lynch and Collins (2001) found that participants used words like flexible learning, flexible delivery and online learning interchangeably. Participant's

views about the use of ICT in teaching did not focus on flexibility and few talked about promoting interaction, collaboration, learner centeredness or constructivist approaches.

The discussion about flexible learning with technology is marked with debate about the fundamental role of the technology itself in flexible learning. Ling et al, (2001), note that there are "many agendas" for introducing flexible learning and they are not associated with improving the quality of learning (p.11). ICT based flexible learning is attractive to universities as they grapple with increasing participation with reduced funds and various policy constraints Edwards (1997), and other factors like accountability, increased competition and the move from a 'semi-mass' to a 'semi-elite' system (Reeves, 2002).

Universities are at a strategic academic crossroads and must choose between using technology in an administrative fashion to manage learning or using it in an invention and intelligence driven approach to improve the learners' experience and produce graduates that can solve world problems (Privateer, 1999). He argues against a focus solely on improving efficiency by keeping the "replication [transmission] model" with its continuing emphasis on content and using computers to automate learning (p.7). His concern is that this approach will not only hamper the development of new technologies but may also make universities and their qualifications increasingly irrelevant. He envisages that technology could be used instead to support real world, constructivist, collaborative, problem solving learning experiences.

Privateer's argument is also supported by (Garrison & Vaughen, 2008). They argue that ICT is a disruptive influence in tertiary education, which can have stronger or

weaker influences. This same point was made by (Allen, 2003) commonly considered the father of modern interactive learning who raises concerns about misuses of technology, missed opportunities, and money wasted on boring, ineffective e-learning. They advocate for a stronger influence for technology because it has the ability to be transformational i.e. to "fundamentally alter the teaching and learning relationship by providing the opportunity and means to approach teaching in a facilitative and collaborative manner… towards the development of deep and meaningful learning outcomes" (p.27).

The use of technology in a 'weaker' way would simply enhance current practice which is essentially often transmission based. (Latchem & Hanna, 2002) also view technology similarly, and argue that in order to ensure that they aren't displaced by other providers, universities must change and need transformational leaders to achieve this i.e. those that see ICT as an opportunity for developing a new learning that is "collaborative, applications-driven and constructivist" (p.209).

The advent of ICT has resulted, in practice, in the convergence of distance and campus based learning and a blend of e-learning and face-to-face learning for on campus students (Khan, 2007). This has produced a wide range of flexibilities depending on the strategic intent of a given institution. While current trainees may adapt to the special characteristics of e-learning, the online environment itself is a new challenge for learners, some other matters like motivation, independent learning and time management simply present themselves in a new context. The challenge for flexible learning with technology then is to maintain a kind of valuable learning relationship.

2.4 Chapter Summary

This section has focused on reviewing the literature related to the study. This review indicates that on average there is no broad based agreement and understanding of what flexible approaches to curriculum delivery actually entails. What is in agreement however, is that there is an increasingly inadequate resource pull to cater for the rising costs of training to meet the fast changing needs of the industrial world. There is an urgent need therefore for change in the methods of delivery of the programs in higher education institutions. At a Summit on Higher Education the Massachusetts Institute of Technology (MIT) President, Rafael L. Reif said "Digital learning technologies offer a second advantage, which is harder to quantify but is deeply appealing to both students and faculty: flexibility" (Reif, 2013).

Just as a college traditionally requires four years at the same academic address, traditional courses require large groups of students to regularly gather at the same time and place. By making it possible to break the course content into dozens of small conceptual modules of instruction and testing, it allows students to engage the material anytime, any day, as often as they need to, anywhere in the world. A student can now spend a year immersed in remote field research on an important problem while staying in sync with the courses in her major. A team of students working on a project can now reach for a new concept just at the moment they need it to solve a problem—the most powerful learning incentive of all. This is in agreement with meeting the training needs of a graduate student, (Adelman, 2006). Reif goes on to ask "Should we develop a new kind of blended education that combines the best of online and in-person learning? Would this lead to a new more customized and valuable model of residential education—and what changes should we make to

maximize that value?" In conclusion he quipped "If you're wondering how much these options will cost, a better question might be, How much will these options be worth?" (Reif, 2013)

It is not in dispute then that technology is fast changing; generations have never been more contrasting in their worldview. Flexibility then will help the current higher education teacher to deliver acceptable quality affordably. This study provides the information that can bridge the gap in knowledge about the challenges that are currently facing technical training institutions in Kenya in their quest to adopt flexible approaches to teaching.

CHAPTER THREE

METHODOLOGY

3.1 Chapter Overview

Methodology refers to the system of methods or procedures used in sampling and collecting data required for a particular research. It is also the application of the principles of data collection methods and procedures in any field of knowledge. This section describes research design, target population, sampling design and sample size, data collection methods, validity and reliability of research instruments and data analysis technique.

3.2 Research design

A research design is the plan of action of moving from 'here' to 'there'. Here is a problem situation and there is the solution situation (Yin, 2002). Design encompasses all issues that are planned to enable research to achieve the desired ends. Design informs the arrangement of the conditions for the collections and analysis of the data in a manner that aims to combine relevance to the research purpose (Kothari, 2004). This study adopted a descriptive survey method. This was preferred because it is efficient in collecting large amounts of information within a short time and it does not permit manipulation of the variables. Cross-sectional studies are carried out at one time point or over a short period without manipulating the research variables (Creswell, 2008).

The present study sought to ascertain factors that influence the adoption of flexible teaching approaches at sampled TVET institutions in Kenya. A cross-sectional study design was also deemed appropriate since it allows researchers to compare many

different variables at the same time. Descriptive survey method was combined with the cross sectional design to allow the researcher to ask questions in order to gather information about what they think are factors that influence the adoption of flexible approaches in TVET institutions. Cohen and Manion (2003), state that the intention of survey research is to gather data at a particular point in time and use it to describe the nature of existing conditions. Besides, a descriptive survey research copes up with a technically distinctive situation in which there are many variables of interest rather than data points, and as a result it relies on multiple sources of evidence.

3.3 Study population

This study was conducted in Kenyan TVET institutions in the Western region of Kenya. At the time of research there were 13 technical training institutions in Western Kenya with a total student population of approximately nine thousand five hundred. Since all the institutions could be accessed they formed the study population from where study samples were drawn. Consequently a total of 210 students, 35 teachers and 7 management staff were sampled to participate in the study.

3.4 Sample Size

In light of limitations of time and resources to conduct the study, it was not possible to undertake a study of the whole study population. As such, it was necessary to determine a sample for the study. The sample for the study was selected using stage sampling procedure, whereby a sample was first drawn from among the institutions, and then samples were further drawn from among the students, lecturers and members of management in the sampled institutions. Half (50%) of the institutions were selected to participate in the study. This choice was based on the recommendation of

Mugenda and Mugenda (1999) that at least half of the population should be selected when the sampling frame is lower than 1000. Therefore, the desired sample size was 7 out of the 13 TTIs in Western Kenya. From each of the seven institutions, students, teaching staff and members of the management were chosen randomly as respondents. A total of 210 (30 from each institution) students, 35 (5 from each institution) teachers and 7 (1 from each institution) management staff were selected to participate in the study with a response rate of 93.3 (196), 85.7% (30) and 100% (7) respectively. Demographic information of respondents is further presented in details in section 4.2 of this thesis.

3.5 Instruments of data collection

Since the study used survey method, the researcher used questionnaires, interviews, observation, and document analysis as the main instruments for data collection. The selection of the instruments was guided by the nature of the data to be collected, the time available as well as the objectives of the study.

3.5.1 Questionnaires

Three separate questionnaires were designed and used to obtain information from students, teaching and management staff. This was attributed mainly to the fact that to understand technical field as a profession, questions should target different groups in the field who would provide varied responses. The questionnaires were justified on the basis that they would enable the coverage of wide area and extensive contents within a short period of time (Kothari, 2004; Leedy, 2003).

The questionnaires were distributed by the researcher with the help of one research assistant in various parts of the country aforementioned. The respondents were asked to complete the questionnaires and the researcher and the research assistant collected the filled questionnaires at a future date.

3.5.2 Interviews

The researcher employed interviews on occasions where questionnaires did not provide satisfactory responses. Interviews were also used to strengthen the information from the questionnaires. Interviews were mostly used to provide information from the management of the institution. Most of the questions captured in the questionnaires were used in the interview schedule.

3.5.3 Observation

Observation focused on the school environment, especially the technical training facilities. Of specific interest in the observation were institutions' instructional areas where practical learning goes on and teachers' use (if any) of flexible methods of teaching commonly accessible to them, for instance evening classes, overhead projectors, smart boards, Learning Management Systems, and other ICT infrastructure. Information obtained by way of observation was used to complement information provided in the questionnaires.

3.5.4 Document analysis

The research also attempted to seek information from records on the issues of general concern within the TTIs. Various reports and policy documents from the line

Ministries and departments were reviewed keenly with a view to establishing relevance to this research.

3.6 Pilot study

The researcher undertook preliminary survey before data collection to access the type of response expected from the field. Preceding the main study, a pilot study was done in two TVET institutions not included in this study. Two teachers and two students were chosen to respond to the questionnaires. The pilot study was useful to standardize data collection methodologies as well as other measurements. In particular, the study was used to test the understanding of questions, to get an impression of the possible answers and to help identify problems likely to occur during the study, which may not have been envisaged during the planning stage.

3.7 Validity

Sound measurement must meet the tests of validity and reliability. Validity refers to the extent to which a test measures what was actually meant to be measured (Kothari, 2004). In the present study, instruments were provided to persons with technical knowledge on TVET to check validity and their expert judgement sought before deciding which ones to adopt. The characteristics of a measuring instrument can be judged in terms of economy, convenience and interpretability.

The instruments adopted were economical to the researcher, convenient and interpretable. Data collection using research assistants was also economical. Convenience in data collection was attained by ensuring that the research instruments used a simple layout. The questionnaires had clear instructions to make it much effective and easier to complete. Interpretability is important when persons other than

the designer are to interpret results. In an endeavour to make the measuring instrument interpretable, it was supplemented with instructions for administering the tests, scoring keys and guides for using the test and for interpreting results. Suffice to say two types of validity tests were considered in this study.

Content validity: this is the extent to which a measuring instrument provides adequate coverage of the topic under study. Its determination is primarily judgmental and intuitive, but it can also be determined by using a panel of persons who shall judge how well the measuring instrument meets the standards. It has no numerical judgemental value. The contents of the questionnaire for this research were validated in various ways as follows

Literature was extensively reviewed on the construction of different types of questions that go into formulating a comprehensive questionnaire.

Suggestions were sought from the two supervisors, and technical experts.

Piloting the total instrument in two TVET institutions not included in this study.

The researcher, being intuitively judgemental, concluded that the questionnaire was satisfactory after several revisions.

External validity: This is the generalizability of results to other similar situations (Mugenda & Mugenda, 1999). External validity is mainly concerned with statistical sampling as the basis for generalizing. In inferential statistics, generalizability from the sample to the sampling frame and the population is considered. This research used population samples that covered the sampling frame adequately. They were well distributed throughout the western region of the country. External validity also requires that the samples size should be as large as is practicable. Therefore, if the two

criteria (content and external validity) are met, it can be stated that the measuring instrument is valid and will result in correct measurement (Kothari, 2004).

3.8 Reliability

A measuring instrument is said to be reliable if it provides consistent results, i.e. 'repeatability'. A reliable instrument may not always be valid, whereas a valid instrument is always reliable (Kothari, 2004). In order to improve the reliability of results in this study, this researcher used only one standard, meticulously revised questionnaire for all respondents in different institutions. This method provides a good measure of reliability because holding other factors constant, the more similar the test content and conditions are, the greater the internal consistency reliability (Mugenda & Mugenda, 1999). The respondents were allowed adequate time to return completed questionnaires. This would enable them to fill the questionnaires at their own pace, free will and free time after work. If this was effective, the study can be replicated and so results are reliable and suitable for generalizing.

3.9 Ethical considerations

According to Trochim and Donnelly (2001), a researcher needs to recognize that social research always occurs in a social context. It is a human endeavour. Therefore, it's important to consider the critical ethical issues that affect the researcher, research participants, and the research effort generally. Therefore, scientists have a moral obligation to search for truth and knowledge but not be at the expense of the rights of individuals in society (Mouton, 2001).

In this study, the researcher first sought for a research permit from the National Council for Science and Technology (NCST), currently the National Commission for

Science Technology and Innovation (NACOSTI), through the University of Eldoret. It is only upon authorization that the researcher embarked on data collection using approved instruments as per University guidelines. In this study the researcher also adapted the acceptable research ethics as articulated in the literature of (Johnson & Christensen, 2008). All the respondents in the study were assured of confidentiality. All information would be used for the purpose of the study only. The participants were assured of anonymity and were asked to feel free to withdraw from the study at any time they wished. No names of participating institutions and individuals were reflected on the questionnaires. The participants were also assured of honesty and accurate disclosure of research findings and finally access to the thesis if they so wished.

3.10 Data processing and analysis

Data analysis was facilitated by use of SPSS 17.0, (2008). Descriptive statistics such as frequency distribution and percentages were calculated Bryman & Cramer, (2011). The data are presented in using tables and charts.

3.11 Chapter Summary

This section has focused on discussing the research design adopted for this study, target population, sampling design and sample size, data collection methods, validity and reliability of research instruments and data analysis technique as well as the ethical considerations observed. This study adopted a descriptive survey method. The population was drawn from Kenyan TVET institutions in the Western region of Kenya. Instruments of data collection were carefully chosen and reliability and

validity ensured. Ethical issues were well considered and observed. Results from this study are therefore reliable and suitable for generalizing.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Chapter overview

The purpose of this study was to look into factors that influence the adoption of flexible approaches to teaching in technical training institutions in Kenya. The study specifically sought to attain the following objectives: (1) to establish how the syllabus influences the adoption of flexible approaches to teaching in technical training institutions in Kenya, (2) to determine how teaching resources influence the adoption of flexible approaches to teaching in technical training institutions in Kenya, (3) to determine how institutional factors influence the adoption flexible approaches to teaching in technical training institutions in Kenya, and (4) to determine how perceptions influenced the adoption of flexible approaches to teaching in technical training institutions in Kenya.

In this chapter, data is presented, analysed and interpreted. This section is divided into sub-sections as follows. The Section 4.2 presents the socio-demographic characteristics of the participants for this study. The information presented are on gender, age and, levels of education. Data relevant to area of study including specific course area, personal computer ownership and reasons for the use of technology by respondents was also captured. Section 4.3 provides information concerning syllabus regulations' influence on the adoption of flexible approaches to teaching in technical training institutions in Kenya. The influence of teaching resources on the adoption of flexible approaches to teaching in technical training institutions in Kenya is covered in section 4.4. Section 4.5 provides the findings and discussion concerning institutional factors' influence on the adoption flexible approaches to teaching in

technical training institutions in Kenya. The final section 4.6 discusses respondent's perceptions on the influences of the adoption of flexible approaches to teaching in technical training institutions in Kenya.

4.2. Socio-demographic characteristics of the respondents

A total of 210 students, 35 teachers and 7 management staff were selected to participate in the study with a response rate of 93.3 (196), 85.7% (30) and 100% (7) respectively. From the demographic information, a greater percentage of the students who participated in the study were male. From a total of 196 student respondents, 52.6% were male while 47.4% were female. The information also indicates that there were more male teachers (73.3%) than females 26.7%). Similarly, a higher percentage of members of the management staff were male. Up to 71.4% of the management staff were males compared to 28.6% females. These results indicate that most of the higher learning institutions are still dominated by males even though the ratio of the male to female students was not too large in favour of one gender. Table 4.1 summarises demographic data of the respondents.

Table 4.1: Socio-Demographic characteristics of the respondents

Demographic		Characteristics	Frequency	% Frequency
Gender	Students	Male	103	52.6
		Female	93	47.4
	Teachers	Male	22	73.3
		Female	8	26.7
	Management staff	Male	5	71.4
		Female	2	28.6
Age	Students	<18	24	12.2
		18-20	124	63.3
		> 20	48	24.5
	Teachers	<25	2	6.7
		25-35	8	26.7
		36-55	16	53.3
		> 55	4	13.3
	Management staff	<25	0	0.0
		25-35	2	28.6
		36-55	4	57.1
		> 55	1	14.3
Highest level of education	Teachers	Bachelors degree	21	70.0
		Master Degree	6	20.0
		Certificate	3	10.0
	Management staff	Diploma	2	28.6
		Bachelors degree	5	71.4

Most of the students were aged 18-20 years (63.3%) followed by those aged over 20 years (24.5%) while those aged below 18 years were few (12.2%). The majority of teachers were aged 36-55 years (53.3%) followed by those aged 25-35 years (26.7%) while those aged over 55 years and also those aged below 25 years were few among the respondents. The age distribution of the management staff mirrored that of the teachers where the majority were aged 36-55 years (57.1%) followed by those aged 25-35 years (28.6%) while the least number of management staff were aged over 55

years, (14.3%). This therefore indicates that most of the teachers in the colleges are aged above 35 years.

Seventy percent (70%) of the teachers had a bachelors degree course (70%) compared to those with Masters level degree (20%) and certificates (10%). On the other hand, the management staff mostly had attained bachelors' degree (71.4%), while the rest had a diploma (28.6%).

Information was also sought from the students and teachers concerning the subjects or courses they undertake or teach at the technical institutions (Fig. 4.1). The respondents were found to have enrolled in up to 16 courses from where the majority were learning ICT related studies (10.2%), Applied Biology (9.2%), Human resource management and Automotive Engineering (8.2%). Few numbers of students were studying foreign languages (1.0%), Chemical Engineering (2.6%) and Mechanical Engineering and Building/ Civil Engineering (5.1%).

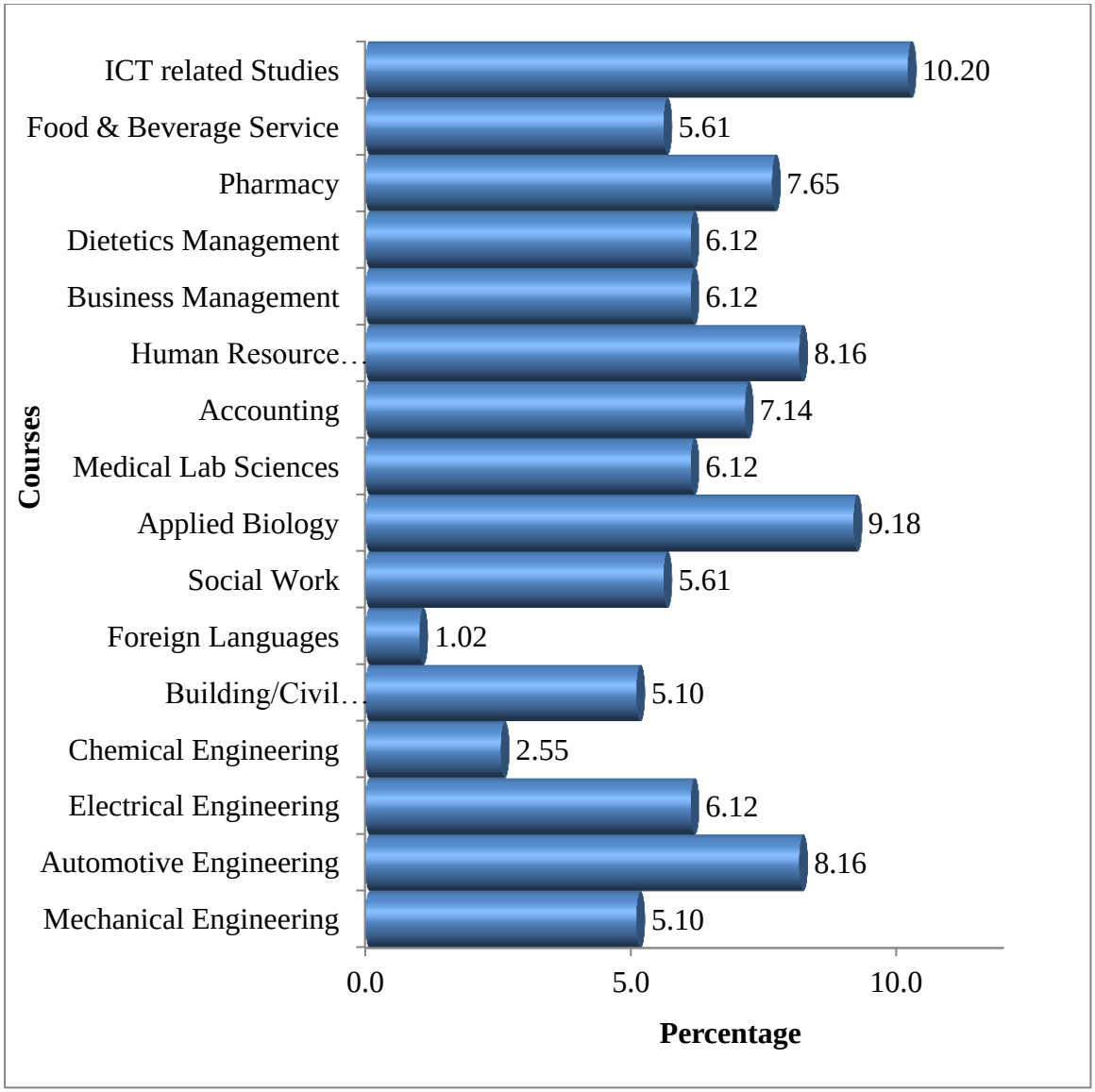

Figure 4.1: Course/subjects taken by students at the Technical Institutions.

The computer is one of the key tools used to facilitate flexible and blended approaches to learning. As such, information regarding whether respondents owned a personal computer was also sought. Figure 4.2 below depicts the responses to this question.

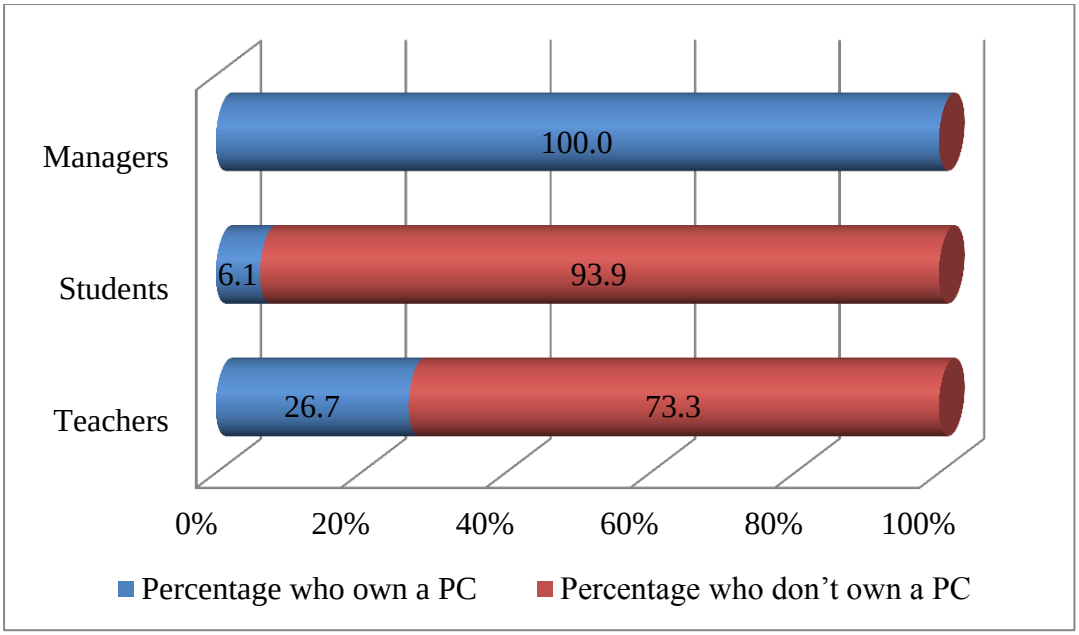

Figure 4.2: Personal Computer (PC) ownership

This information suggests that a majority (73.3%) of teachers in technical training institutions do not own a personal computer. The same is true and even worse for the students of whom 93.9% indicated that they do not own a PC. However, all of the institutional mangers who participated in the survey owned a PC. Regarding the various reasons each respondent use any form of technology, the following information in Figure 4.3 was captured.

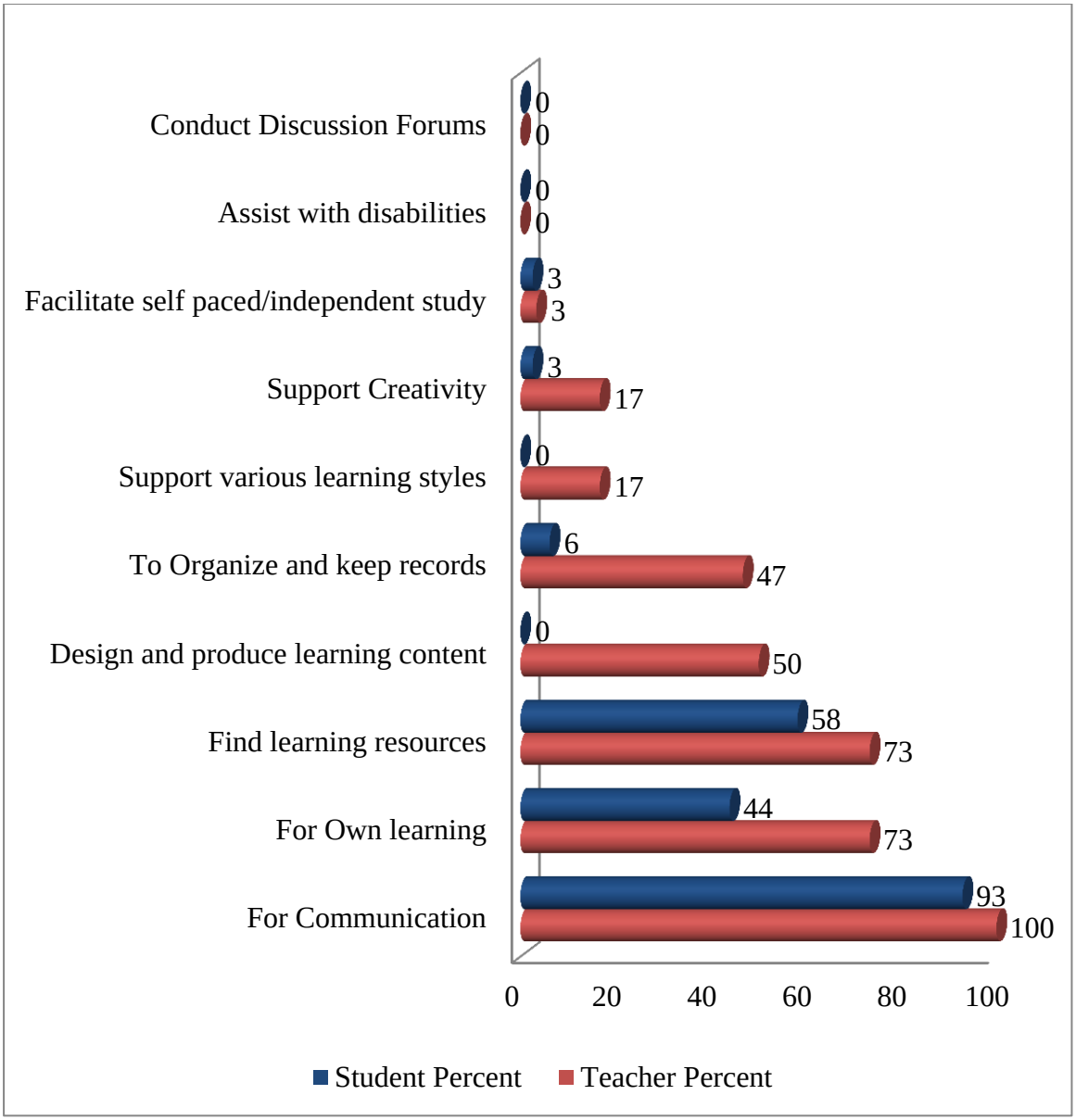

Figure 4.3: Reasons for IT use by both students and teachers

Current flexible and blended approaches may leverage IT for learning (Tucker, 2013; Sharma & Barrett, 2007; Thorne, 2003). As such, the study sought to establish the extent to which teachers and learners use technology for learning purposes. The data presented in Figure 4.3 indicate that a majority of teachers and students alike mostly used technology for personal communication (100% teachers; 92.9% students). The second most common use of technology among teachers was its use to find learning

resources and for personal learning. Similarly, the second most common use of technology among students was to find learning resources, closely followed by the use of technology for own learning. Very few respondents use technology to support any form of creativity or worse still to support non-classroom based learning. None of the respondents made use of technology to assist with disabilities and to conduct discussion forums. This finding is in line with others which have established that generally, technology is still used primarily for communication purposes and teachers are yet to fully harness technology for pedagogical use (Allen, 2003).

4.3 Influence of the Syllabus on Adoption of Flexible Approaches

The first objective of the study was to establish how the critical issue of the syllabus, organization of its content and content delivery influences the adoption of flexible approaches to teaching in technical training institutions in Kenya. Information was therefore sought by the researcher concerning the crucial issue of authority to reorganize the content and content delivery. Institutional managers were asked whether they had this authority, and Figure 4.4 below illustrates information obtained.

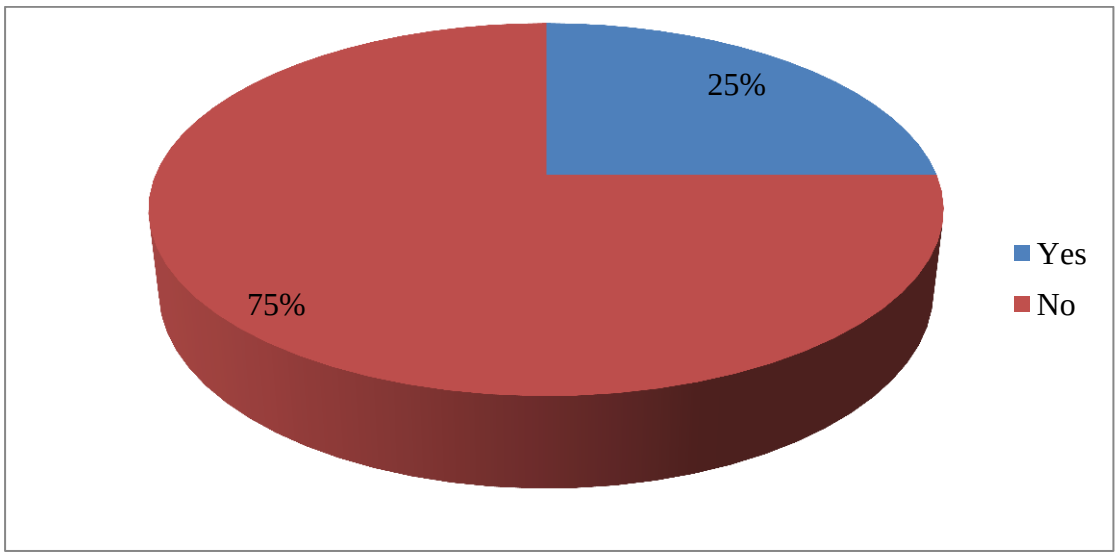

Figure 4.4: Authority to Reorganize Syllabus Content

From the interview, 75% of them said they had no authority to reorganize syllabus. They said the function of curriculum development largely rests with the Kenya Institute of Curriculum Development (KICD), (formerly Kenya Institute of Education). In the information obtained using interviews, the institutional managers added that even if they were to reorganize the syllabus, certification would be an issue since this would eventually affect the examination. They indicated that most Kenyans believed only in certificates from the Kenya National Examinations Council (KNEC) and as such most institutions and their teachers stick to the KICD syllabus, which covers content that is tested by KNEC. Further information was gathered from the students and the teachers on the influence of the syllabus on the choice of flexible approaches. The following figure 4.5 illustrates results attained.

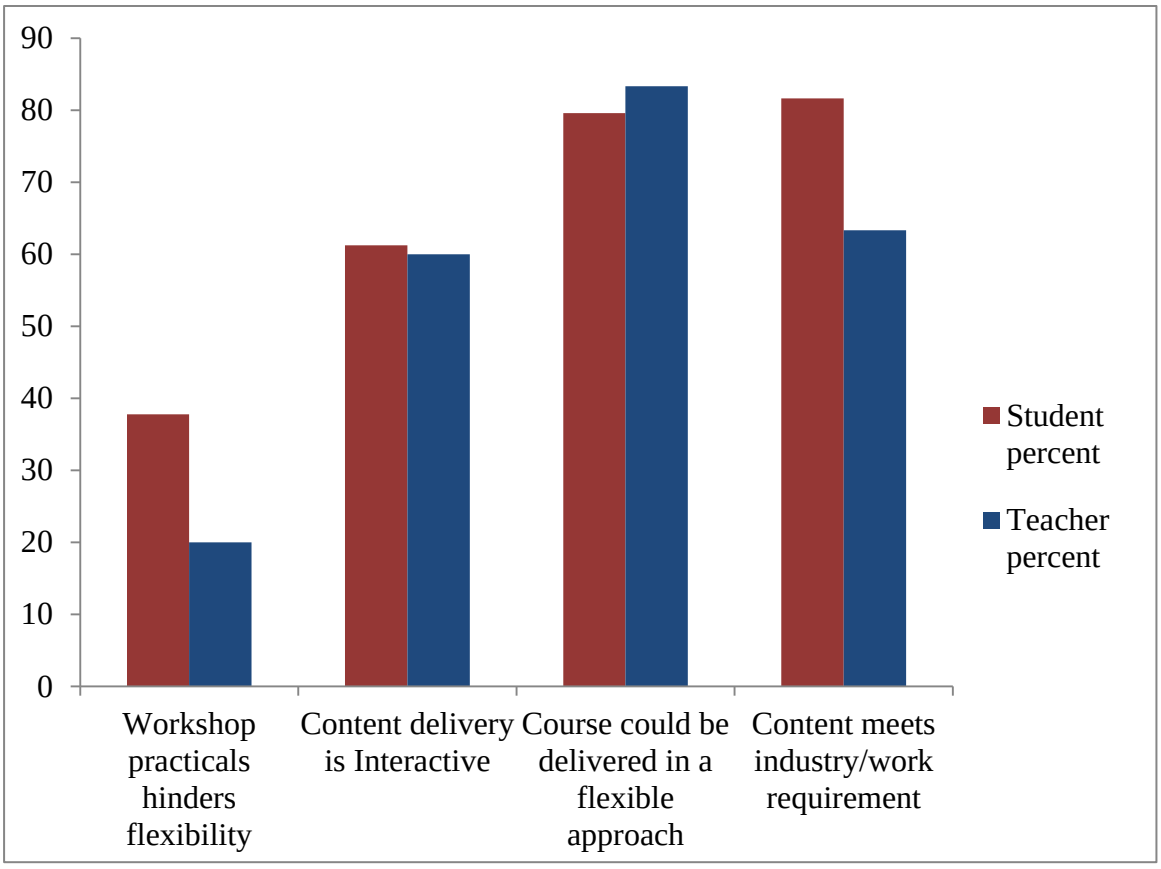

Figure 4.5: Influence of the Syllabus on some aspects of flexibility

Questions were posed to both the students and teachers seeking the influence of the syllabus on some aspects thought to affect the implementation of flexible approaches in teaching. Thirty eight percent (38%) and (20%) of the teachers and students respectively responded that the syllabus needed a lot of workshop practice sessions that it tended to restrict any form of flexibility in terms of place. They seemed to suggest that trainees must just attend practical sessions hence any attempt to introduce evening classes or any other form of flexible delivery would not be possible. However, 80% of the respondents held the view that the syllabus content could indeed be delivered in a more flexible approach. When asked about how interactive they found content delivery to be, 61% of respondents indicated that content delivery was interactive. These findings indicate that in the respondents' view, the aspects of the syllabus under research do not influence flexibility in delivery of content.

4.4 Resources and its Influence on the Adoption of Flexible Approaches

The second objective of the study was to determine whether teaching resources influence the adoption of flexible approaches to teaching in technical training institutions in Kenya. To meet this objective, the following research question, was formulated: "*What is the influence of the availability of teaching resources on adoption of flexible approaches to teaching in technical training institutions in Kenya*?" In order to answer this question, a list of resources necessary for use in innovative and flexible formats was drawn up. Respondents were then asked to indicate if those resources were available for their use in their respective institutions. Table 4.2 illustrates the results.

Table 4.2: Availability of selected innovative teaching resources

(Availability) Resource	In none of the classes	In some classes	In all classes	Upon request
Computer	8	2	0	22
Smart board	22	1	0	7
Video	20	3	0	14
Photo Camera	23	2	0	20
Animations	12	5	0	18
Cartoons	30	0	0	0
Picture puzzles	30	0	0	0
Mobile phones	0	14	12	0
Projection System	0	21	1	22
E-library	30	0	0	0
LMS	30	0	0	0
OER/LRC	30	0	0	0
Technical Support	0	25	2	12

The findings in Table 4.2 indicate that few teachers confirmed the availability of most teaching resources in all classrooms. Only the Mobile phone had a significant indication of availability in all classrooms. On a closer look however, it was found that the mobile phones were mostly personal and although they could be put to use in direct teaching, very few of the teachers used it as such. Some teaching resources, notably overhead projectors, camera, video animations, computers, smart board, as well as technical support were indicated as available upon request.

Of significance also is the high indication of unavailability of some resources in all classrooms. Resources that most respondents indicated in large numbers were not available included the smart board, cartoons, picture puzzles, e-library, LMS, and

OER/LRC. The findings suggest that a lot more needs to be done towards availing ICT and other resources if technical institutions are to offer courses using flexible and blended approaches. Researchers and scholars in this field have suggested that appropriate infrastructure is necessary. Studies undertaken on ICT uptake in education in the Netherlands, United Kingdom, South Africa and Malaysia have demonstrated that school educators require facilitation with appropriate computer facilities and related infrastructure to optimize the application of ICT in their teaching and learning (Makewa et al 2013; Visscher et al, 2003; Garrick & Jakupec, 2005)).

The teacher is a very vital resource as far as learning for the trainee is concerned (Garrick & Jakupec, 2005). The researcher therefore sought to know from the teachers their levels of comfort with ICT resource use in the classroom. The following Figure 4.6 illustrates the results.

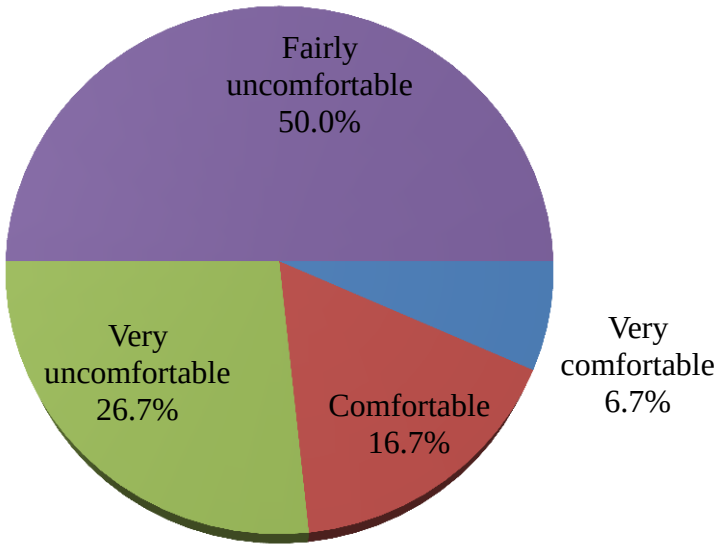

Figure 4.6: Teachers' Level of Comfort with Technology

The results as depicted in Figure 4.6 indicate that fairly high numbers of teachers are uncomfortable using technology in the classroom (26.7% very uncomfortable; 50% fairly uncomfortable). Less than a quarter of the teachers are comfortable using technology in the classroom (6.7% indicated that they were very comfortable; 16.7% that they were comfortable). This finding agrees with other researchers whose studies established that a critical mass of teachers is uncomfortable using technology in the classroom (Mingaine, 2013; Kinyua & Gathigia, 2013). For instance, an ICT baseline survey in TIVET undertaken in 2011, in Kenya, indicated that "HODs considered that 62% of lecturers are not comfortable using ICT while 40% of lecturers indicated that they were uncomfortable" (Hooker, et al., 2011, p. 52).

In the literature review, it has been demonstrated that both e-learning and distance learning are vital to the use of flexible approaches to teaching (Commonwealth of Learning, 2012; Collis & et al, 2012). The study therefore further sought to find out whether any of the teachers in technical training institutions have ever received any form of training on these subjects. The following chart (Figure 4.7) illustrates the finding on this.

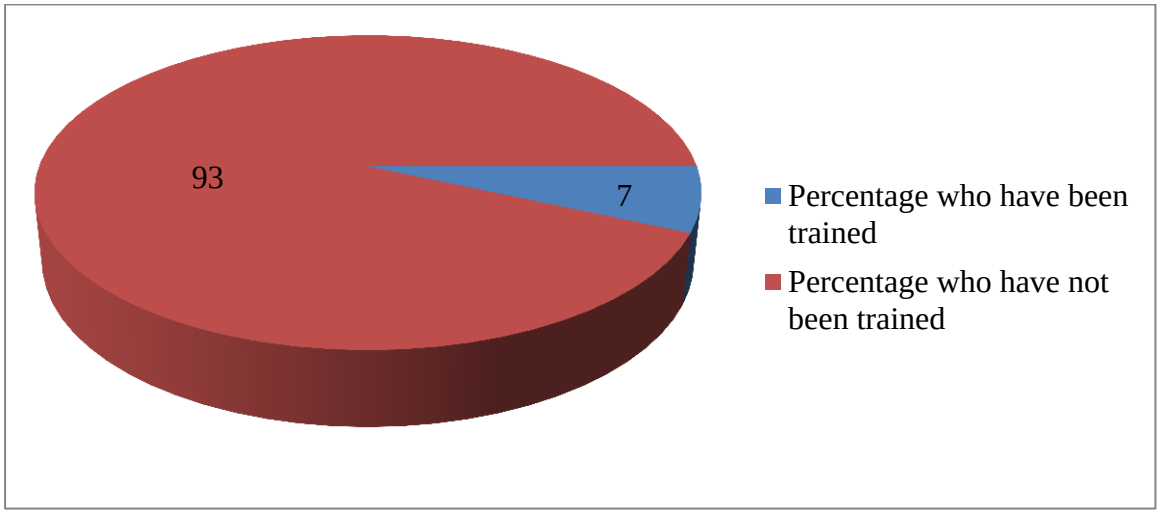

Figure 4.7: Training on E-learning/ Distance Learning

The results obtained indicated that only 7% of the teachers had received any form of training on the use of e-learning and distance education

4.5 Institutional Factors and Adoption of Flexible Approaches

The third objective of the study was to determine how institutional factors influence the adoption of flexible approaches to teaching in technical training institutions in Kenya. This was formulated into a research question seeking institutional factors that influence the adoption of flexible approaches to teaching in technical training institutions in Kenya. This was premised on the stance that institutions that are strategically placed to adopt flexible teaching approaches have certain strategic characteristics, as demonstrated in the literature review. Indeed adopting flexible education results in substantial changes to both individual practice and organisational culture, which must be resourced and managed (Shurville, O'Grady, & Mayall, 2008). This research therefore sought to find out what policies were in place that could support adoption of flexible teaching approaches in technical training institutions. The following table 4.3 shows the results.

Table 4.3: Policies on Adoption of Flexible Approaches

Relevant Policies	Percent	Frequency
Academic policy	100.0	7
Internet/network acceptable use policy	57.1	4
ICT Policy	57.1	4
Recognition of prior learning policy	57.1	4
Quality policy	42.9	3
Distance learning policy	28.6	2
Recognition of teachers using FaB	0.0	0

These results indicate that only the academic policy is available in most institutions. All respondents (100%) indicated its availability, while slightly more than half of the respondents affirmed the existence of an internet or network acceptable use policy, an ICT policy and recognition of prior learning policy. A further 28.6% of the respondents indicated availability of a distance or e-learning policy. On the other hand none of the respondents indicated availability of flexible teacher recognition policy.

The researcher also sought to find out, especially from institutional managers, whether some characteristics affecting adoption of flexible approaches are present in technical training institutions in Kenya. The following table 4.4 illustrates the results found.

Table 4.4: Characteristics Affecting Adoption of Flexible Learning

Institutional characteristics	Frequency	Percent
ICT technical support available for teachers	7	100.0
Strategic plan has objectives to improve learning	7	100.0
Broadband access to the Internet available	5	71.4
Computer purchase schemes available	2	28.6
Students have access to e-library	1	14.3
e- library available	1	14.3
LRC available	0	0.0
Moodle Available	0	0.0

The results tabulated in Table 4.4 indicate that most institutions have access to internet broadband, have technical support for ICT use and have a strategic plan in place that includes objectives to improve learning. Computer purchase schemes for teachers on the other hand was lacking in most institutions (only 2 respondents indicated they had one), whereas a learning resource centre, and a Moodle server and

software were completely lacking in all institutions. Although most institutions reported having technical support for ICT use, the researcher further sought to find out the quality of this technical support. The findings are tabled below.

Table 4.5: Quality of technical support in technical training institutions

Quality of ICT Support	%
Poor	46.3
Mediocre	32.1
Good	15.4
Very good	6.2

The result in table 4.5 indicates that majority of institutions 46.3% have poor quality of ICT support. Only 6.2% of all technical training institutions have very good quality of ICT technical support.

4.6 Individual Perceptions and Adoption of Flexible Approaches

The fourth objective of this study was to determine how perceptions influence the adoption of flexible approaches to teaching in technical training institutions in Kenya. This was captured through formulation of a research question *what is the influence of instructors' perception on the adoption of flexible approaches to teaching in technical training institutions in Kenya?* The study sought to find out what level of importance the respondents placed on certain suggestions that may improve adoption of flexible approaches to teaching. The figure 4.8 and figure 4.9 illustrates results obtained.

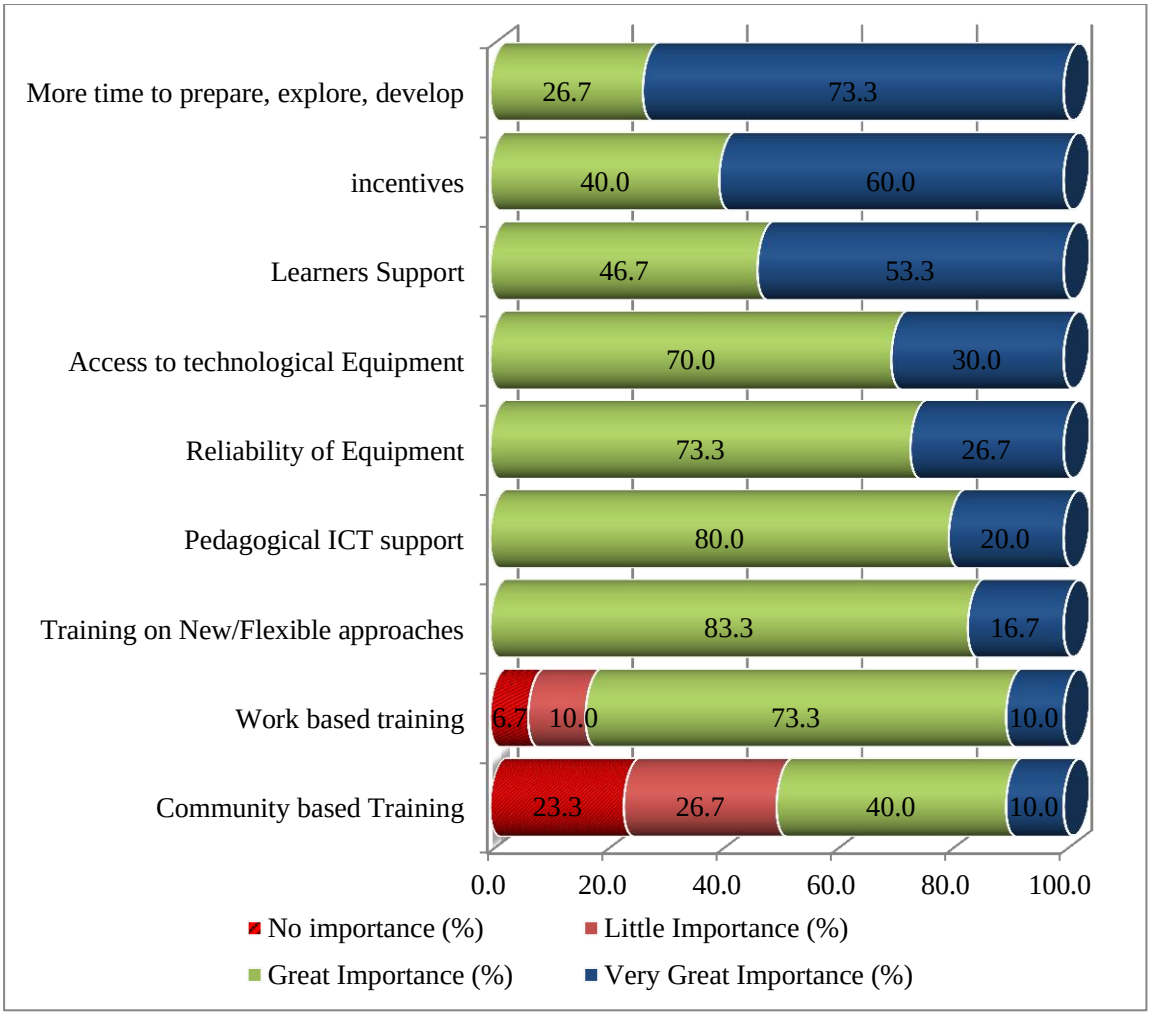

Figure 4.8: Improving Adoption of Flexible Approaches

When asked to point out the perceived relative importance of suggestions to help teachers increase the integration of flexible approaches in their courses, the teacher respondents indicated that all the suggestions that had been supplied were relevant. However, a higher percentage of the respondents indicated that of great importance was more time to prepare pertinent materials. This was closely followed by the suggestion to provide incentives and support for learners. The suggestion that received the least support in terms of importance was community based training.

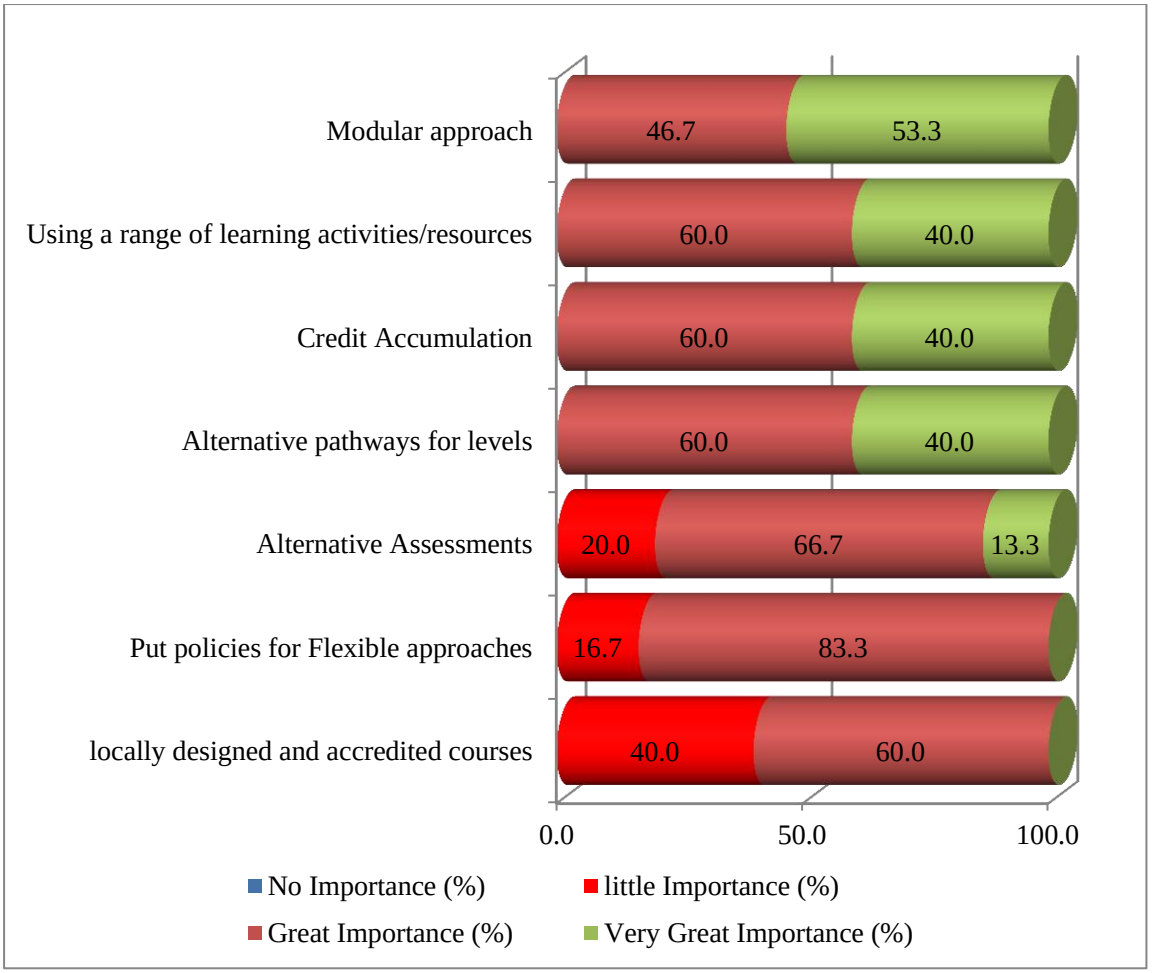

Figure 4.9: Improving Adoption of Flexible Approaches (continued)

There was also a high indication of approval of several suggestions that would improve adoption of the flexible approaches, with the modular approach having gained the highest approval, followed by the use of a range of learning activities or resources, credit accumulation, alternative pathways for levels and alternative assessments. A comparably higher percentage of respondents (40%) indicated that the adoption of locally designed and accredited courses was of little importance as a suggestion to improve the adoption of flexible approaches.

The study also sought to find out the overall attitudes of the respondents towards the adoption of flexible approaches to teaching in technical training institutions in Kenya. The findings are shown in Figure 4.10.

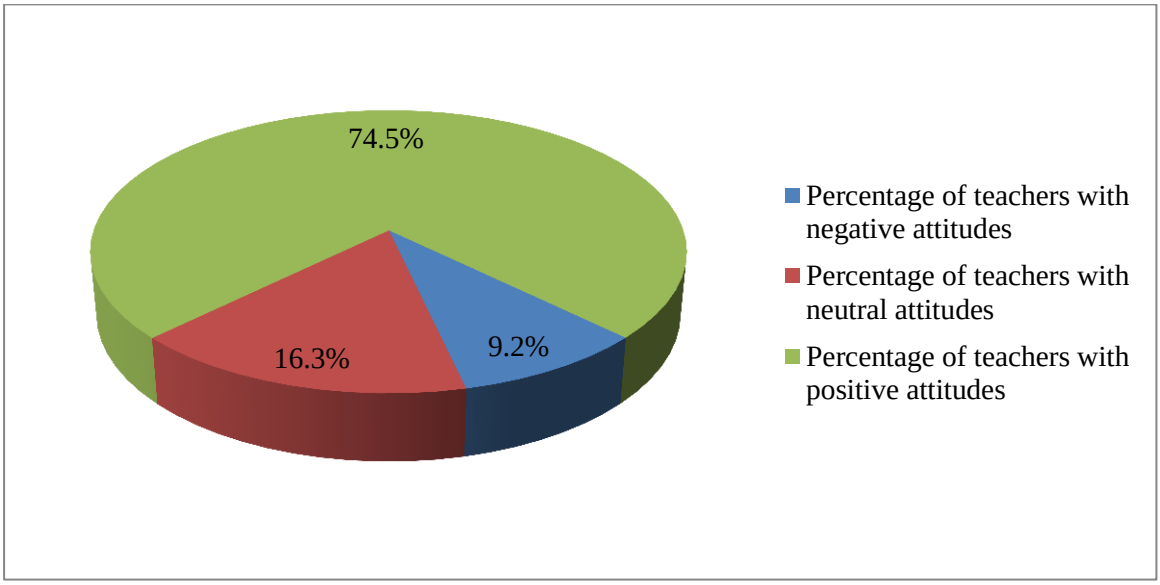

Figure 4.10: Attitudes towards adoption of flexible approaches

The findings (Figure 4.10) indicate that most teachers (75%) have a positive attitude towards the adoption of flexible approaches to teaching in technical training institution in Kenya.

4.7 Chapter Summary

The purpose of this study was to look into factors that influence the adoption of flexible approaches to teaching in technical training institutions in Kenya. Data has been presented, analysed and interpreted in this chapter. This section was divided into six sub-sections. The Section 4.2 presented the socio-demographic characteristics of the participants for this study. Section 4.3 provided information concerning syllabus

regulations' influence on the adoption of flexible approaches. The influence of teaching resources on the adoption of flexible has been covered in section 4.4. Section 4.5 provided the findings and discussion concerning institutional factors' influence on the adoption flexible approaches. The final section 4.6 discussed respondent's perceptions on the influences of the adoption of flexible approaches to teaching in technical training institutions in Kenya.

CHAPTER FIVE

DISCUSSIONS

5.1 Chapter overview

By way of summary, this study sought to determine the factors that influence the adoption of flexible approaches to teaching in technical training institutions in Kenya. The study was guided by four objectives that sought to examine the influence of the following variables on the adoption of flexible approaches in TTIs in Kenya: (1) issues pertaining to the syllabus, (2) teaching resources, (3) institutional factors, and (4) teachers' perceptions. In this chapter, the major findings of the study are highlighted and conclusions drawn from the study. In addition, the implications and policy recommendations derived from the research findings are aptly stated. In addition, this chapter also presents suggestions for further research.

5.2. Discussion of Findings

5.2.1 Influence of the Syllabus on Adoption of Flexible Approaches

This study sought to determine how the syllabus influences adoption of flexible approaches to teaching in technical training institutions in Kenya. From the respondents' socio demographic data, the study found that syllabi in the following main areas were covered in technical training institutions: Engineering, Business, ICT and Medical. Most of the trainees reported to be pursuing either a three year or a two year course that generally followed a set full time schedule. This indicates that TTIs mostly offer courses that require the physical presence of learners in their institutions, and that there is little or no uptake of other courses especially the short courses that can be offered on a more flexible work-based schedule and those generally geared towards the informal sector. Three quarters (75%) of the respondents said they had no

authority to develop their own courses tailor-made to suit a specific need in the market or even reorganise existing syllabi. This essentially confirms that institutions have to depend on national level curriculum developers, notably the Kenya Institute of Curriculum Development.

The problem arising out of this scenario is that learners are forced to pursue only pre-determined course patterns. Examples include fixed term dates, fixed content delivery methods, fixed evaluation and certification. This therefore allows for little or no flexibility as far as the learners' choice of time, place and mode of study is concerned. This is despite the fact that both learners and teachers alike agreed to a greater extent to the fact that contents of the syllabi they currently used could be delivered in a flexible approach. However, the respondents felt that the current syllabus offered opportunities for adoption of flexible formats of learning (83% of teachers and 80% of learners indicated that their courses could be delivered in a flexible approach. The syllabus therefore is though a key hindrance not a barrier to overall adoption of flexible approaches to teaching in technical training institutions in Kenya.

5.2.2 Teaching Resource and its influence on Adoption of Flexible Approaches

Literature affirms that the computer is an important ICT tool that can be harnessed for teaching. An examination of the findings on ownership of a personal computer among the respondents indicates that they may not be ready for the adoption of flexible formats of learning. Out of the 30 teachers who participated in the study, 22 did not own a personal computer, while the same is true for 184 out of 196 students. This is despite of the fact that a personal computer though not necessarily a must, is a key enabler of delivering flexibility in teaching and learning. Even in cases where

respondents had access to the computer and technology in general, they use them primarily for personal communication (100% of the teachers and 93% of the students) rather than for learning. Very few respondents reported to be using technology to support any form of creativity or to support various learning styles.

Teachers themselves are a vital resource, (Garrick & Jakupec, 2005). They use a variety of teaching materials and techniques in their daily practice, which may be traditional or modern even flexible methods of instruction (Laurillard, 2002). Therefore, the second objective of the study was to determine how teaching resources influence the adoption of flexible approaches to teaching in technical training institutions in Kenya.

The study determined that few teachers indicated most teaching resource being available in all classrooms. The one teaching resource that influences adoption of flexible learning and teaching that was indicated as widely available was the mobile phone. They were however mostly personal and doubtful as to whether they were being used for active learning in the current set up. Some teaching resources were indicated as available on request. With over 60% chance, the computer, photo camera, animations and a projection system were available upon request. Of significance also was the high indication of unavailability of some resources in the institutions' classrooms. Such resources included the smart board, cartoons, picture puzzles, e-library, LMS, OER/LRC, and the Moodle software. This implies that teachers still adopt the traditional passive view of teaching, which involves situations where material is delivered to students using a lecture-based instructional format (Pryor & Ampiah, 2003).

In contrast, a modern view of learning is constructivism, where students are expected to be active in the learning process by participating in discussion and or collaborative activities (Wallace, 2003). According to (Latchem & Lockwood, 2005), when a teacher goes to the classroom to teach, there are various things that he or she has to bear in mind: among them, the learner's age, what the learner knows prior to instruction, the goals that instruction aims at accomplishing, and the relevant stimuli to expose to the learner, in order to achieve his or her goal. He continues to state that learning will take place, if the learners' condition after being exposed to the stimuli shows that he or she has acquired more knowledge. Maughan, Teeman and Wilson (2012 p. 7), puts it this way

We know that nothing matters more in improving education that giving every child access to the best possible teaching. The teachers' role is to gain control of the external environment of the learner in order to produce change in the learners' internal conditions, in other words, to stimulate learning to occur.

In order to attain this, teachers need to employ a variety of student centred instructional methods and keeping with the suggestions of (Behncke & McNaught, 2001) in seeing the bigger picture. Collis et al (2012, p. 96) however argues that "it is important not to expect too much too soon from an instructor". Indeed studies on teaching and learning strategies have shown high teacher preference to teaching theoretical over practical aspects of the TVET subjects. For instance, the study by (Ferej, Kitainge, & Ooko, 2012) established that majority of TVET teachers had inadequate work experience. Nonetheless, student centred instructional methods render themselves well for adoption of flexible methods of teaching and learning. In fact the need for flexible learning approaches arose out of a need to shift away from

traditional learning patterns and to the adoption of greater flexibility. “Many changes have been introduced with the aim of improving the quality of learning experiences and being more responsive to student needs” (Hudson, Maslin, & Oates, 2013).

Prevailing attitudes of teachers in technical training institutions may be another obstacle to adoption to flexible approaches to teaching. Latchem & Lockwood, (2005) indicated that management of teacher attitudes and expectations has a great bearing on the adoption of any new innovative methods of teaching. With only 6.7% having reported being very comfortable in the use of technology for teaching in any classroom, this is indicative of a worrying situation. This result on attitudes could easily be related to training as a factor since it is consistent with the one obtained from respondents of whom (7%) indicated that had been trained on either e-learning or distance learning. Studies on teacher related factors have shown that such factors are an integral component of any educational intervention strategies (Townsend & Bates, 2007; Fullan, 2003; Cochran-Smith, 2004). All of the discussions point to the need for further training or retraining of teachers, especially on the options that are offered by flexible formats of learning.

5.2.3 Institutional factors and Adoption Flexible Approaches

There are several administrative challenges that the training institutions face in their operations. The report on rapid appraisal on the status of TVET in Kenya showed that job prospects of TVET graduates were hampered to a large extent by inadequate and lack of relevant essential skills for job performance in the industry (MoEST, 2003). Indeed TVET institutions have been noted to face a myriad of challenges in their endeavour to train high quality graduates (Educational Development Center, 2009). In

Kenya, there is also a longstanding awareness that resources are ever scarce. Donor funding is becoming more and more difficult to get and yet teacher shortage for example is at an all-time high owing to population increase. This perhaps is the major factor that has limited the success of these institutions in provision of quality technical training to the students. This study therefore sought to find out specifically what institutions have put in place in terms of preparedness to adoption of flexibility in teaching and learning.

Artfield, et al (2013, p. 6) asserts "institutions need to make a major commitment to make sure that flexible learning is embedded in their structures" It was encouraging to note that most institutions have set up in place the necessary backbone infrastructure and technical support for ICT. Over 70% of respondents indicated that their institutions have broadband access to the internet. This is in agreement with (Stredwick & Ellis, 2005) who say that 70% of senior professionals and managers now use the internet as part of their work. The study results also indicate that all institutions have strategic objectives to improve learning. This means that there is generally a realization that adoption of new methods of training is inevitable. Whether the initial change is small scale or part of the whole institutional strategy, it will challenge assumptions and practices that may have been there for some time (Artfield, et al., 2013). There is need however to improve the technical support considering that only 6.2% of the respondents reported that its quality was very good.

5.2.4 Individual Perceptions' and Adoption of Flexible

Perceptions are the learned predisposition to respond positively or negatively to certain objects, situations, institutions or persons. As such, perceptions constitute the

cognitive, affective and performance components (Fishbein & Ajzen, 2011). From the study the researcher found out that to a large extent (about 74%) most teachers had a positive attitude towards adoption flexible approaches to teaching in technical training institutions. This was consistent with the attachment of great importance to several suggestions that could improve adoption of flexible approaches to teaching. Suggestions that obtained above 60% respondent rating on this category included putting in place policies on flexible approaches, creating alternative pathways to cover the various levels of education, credit accumulation opportunities, adopting locally designed and accredited courses. Further opinions were heavily skewed to suggestions to improve teacher incentives, more time for preparation, development of community based and work based training centres.There is no doubt therefore that the current technical teacher is willing and positive towards adoption a more innovative and flexible approach to teaching. It is also not in doubt that the current learner is more technology savvy and more adaptable than ever before.

5.3 Chapter Summary

Major findings of this study have been highlighted in this chapter. The study specifically sought to attain the following objectives: (1) to establish how the syllabus influences the adoption of flexible approaches to teaching in technical training institutions in Kenya, (2) to determine how teaching resources influence the adoption of flexible approaches to teaching in technical training institutions in Kenya, (3) to determine how institutional factors influence the adoption flexible approaches to teaching in technical training institutions in Kenya, and (4) to determine how perceptions influenced the adoption of flexible approaches to teaching in technical training institutions in Kenya.

On the first objective, the study found out that the syllabus is a key hindrance but not necessarily a barrier to overall adoption of flexible approaches to teaching in technical training institutions in Kenya. On the issue of availability of teaching resources, the study determined that few teachers indicated most teaching resources that influence adoption of flexible approaches were not always available in the classroom. The one teaching resource that influences adoption of flexible learning and teaching that was indicated as widely available was the mobile phone. They were however mostly personal and doubtful as to whether they were being used for active learning.

It was encouraging to note that most institutions have set up in place the necessary backbone infrastructure and technical support for ICT. Most of respondents indicated that their institutions have broadband access to the internet. The study results also indicated that all institutions have strategic objectives to improve learning consistent with a guide to flexible teaching fr quality learning in (Bird & Dunn, 2003). Finally this research has determined that the attitudes of most TVET teachers are positive towards adoption of flexible approaches to teaching. Therefore the purpose for which this study was formulated i.e. the factors that influence the adoption of flexible approaches to teaching in technical training institutions in Kenya has been determined.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

This study sought to investigate factors that influence the adoption of flexible approaches to teaching in technical training institutes in Kenya. This chapter therefore wraps up the study by making conclusions and recommendations in light of the findings presented in chapter four and discussed in chapter five.

The study specifically sought to establish how the syllabus influences the adoption of flexible approaches to teaching in technical training institutions in Kenya as a first objective. In this regard the researcher concludes that institutions need to be accorded more autonomy, and granted some level of authority to develop custom made syllabi geared towards provision of industry specific solutions. Some degree of regulation must however be instituted to guard against unscrupulous practitioners in the field.

As a second objective, this study sought to determine how teaching resources influence the adoption of flexible approaches to teaching in technical training institutions in Kenya. There is a serious challenge with teaching resources that support adoption of flexible approaches to teaching and learning. There is a learner population that is continually being exposed to modern effects of technology but technical training institutions have not been able to put in place the necessary resources for use in classrooms. Even in situations where the teacher – the most vital teaching resource – has access to technology, its use in the classroom remains minimal. Interpersonal communication remains the biggest use for available technologies so far.

The third objective of the study was to determine how institutional factors influence the adoption flexible approaches to teaching in technical training institutions in Kenya. As a conclusion the researcher notes that most institutions have the necessary strategies and objectives to improve its quality of learning environments albeit sometimes only in theory.

The fourth and final objective of this study was to determine how perceptions influenced the adoption of flexible approaches to teaching in technical training institutions in Kenya. From the discussion in preceding chapters, concussions can be drawn that the influence of perceptions of the teachers on the adoption of flexible teaching approaches was positive.

6.2 Recommendations

Most technical training institutes in Kenya offer either a 3-year diploma or a 2-year certificate programme. They produce middle-level skilled manpower for the industrial sector. There is need to build on the successes of the current situation in TTI's. The study indicates that for greater adaptability of the institutions to flexible approaches to teaching, they need to be accorded more autonomy, and granted authority to develop custom made syllabi geared towards provision of industry specific solutions. Institutional support for other factors that help should also be provided. They include computer purchase schemes for teachers, training on relevant areas, developing and using policies on distance learning and recognition of prior learning and the flexible teacher.

Based on the foregoing discussion of the findings and conclusion, the following additional implications and recommendations are offered.

The curriculum in the TVET sector is so dynamic. There needs to be a more inclusive and equally dynamic approach to its development. The TVET Authority and TVET Curriculum Development, Assessment and Certification Council created by the (Republic of Kenya, 2013) should be formed with all stakeholder representation. The Council ought to consider flexible formats of learning as a viable way of offering TVET courses. This way, every course offering will not be forced into the two or a three year course cycle as currently is. Flexible, industry specific courses can then gain root and focus.

i). The government should set aside a given percentage of the funds to each college to improve teaching resource infrastructure. The answer to improving access to more school leavers, improving the completion rate and also improving quality lies not in developing more TVET colleges, but improving the current ones. A flexible approach focused college can hold over 50, 000 students through various modes of study – others online, on campus, weekend, evening, home-based, work-based, distance, informal programmes - the list is endless!

ii). The overall capacity of the training institutions to train should be enhanced. Staff upgrading and training on innovative course offering solutions should be done. Training on use of open educational resources, e-learning and distance learning for example should be done.

iii). Teacher training colleges must expand their training to include studies in innovative course methodologies. It is not enough to only include ICT as a subject in college.

iv). Advantage should be taken of the current technology-savvy generation and the positive attitude of teachers to adopting flexible innovative teaching approaches to

start off even in the current curriculum design. Local courses could be hosted on a Learner Management System like Moodle, an e-library could be established, local populations could be reached through the mobile phone to offer courses on the M-learning platform and the list could be endless.

6.3 Recommendations for Further Research

To bring more light into the issue investigated in this study, the following studies could be conducted.

1. Future research to establish from the TVET teacher training colleges the place of flexible approaches to teaching in initial teacher training.
2. A similar study involving decisions of other interest groups not covered in this study such as parents and industrialists. This will enable acquisition of more information on factors influencing adoption of flexible approaches to teaching in technical training institutions in Kenya.

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APPENDICES

Appendix I: Introduction letter

Dear Respondent

I am a student at University of Eldoret pursuing a Masters degree in Education Technology carrying out a research on "*Factors influencing the adoption of flexible approaches to teaching in technical training institutions in Kenya*". For purposes of this study Flexible approaches is taken to mean the kind of teaching that would apply with little or no constraint of location, time and methods. They may include such as home based, work based, evening, online, distance learning just to mention a few.

I am requesting for your assistance in this regard. Please fill in the questionnaire provided. The information will help me accomplish the research objectives. All responses will be treated with total confidentiality.

Thank you

Yours faithfully,

Tiony Abdi Kirwa

Appendix II: Students questionnaire

Introduction

Dear Sir/madam,

Below are some questions addressed to you. You are kindly requested to respond to them as genuinely as possible. There are no wrong answers or right answers. Your cooperation in answering these questions will be highly appreciated. Note that the answers you will give will be kept confidential and they will be used for the purpose of this research only. Do not indicate your name anywhere on this questionnaire.

Tick in the provided boxes if you are in agreement with the statement. You may pick as many items as appropriate under a given question.

Thank you for taking time!

1. What course/subject area(s) do you undertake in college? *Check all that apply*

Technical/Engineering related (please specify) [ ]

Foreign language (please specify) [ ]

Social studies (please specify) [ ]

Science related (please specify) [ ]

Business related (please specify) [ ]

Medical related (please specify) [ ]

Hospitality/ Dietetics related (please specify) [ ]

ICT related (please specify) [ ]

2. Do you find that the units/subjects in your course adequately prepare you for your future world of work?

Yes [ ] No [ ]

3. Do your teachers deliver the content of the course in an interactive way?

Yes [ ] No [ ]

4. Do you think the course could be delivered in a more flexible approach?

Yes [ ] No [ ]

5. Do you think your course is too practical to restrict flexibility?

Yes [ ] No [ ]

6. Do you have your own computer?

Yes [ ] No [ ]

7. Could you please estimate the time you use ICT for your studies (including classes)? *Hours/week*

8. Is there ICT support available for students at your institution?

Yes [ ] No [ ]

(If "Yes")

9. How would you rate the quality of the technological support?

Poor [ ] Mediocre [ ] Good [ ] Very good [ ]

10. To what extent has the use of ICT based technology or other new and/or innovative or flexible approaches as described below been present in the courses you have taken?

(please turn over to use the table)

	Never	Rarely	Less than half the time	About half the time	More than half the time	Almost always
Use of technology for communication and/or networking.						
Use of technology for your own learning						
Use of technology as a tool for organising your work and keep records.						
Use of technology for finding learning resources						
Use of technology for designing and producing own learning resources						
Use of technology to support your various learning styles.						
Use of technology to facilitate teaching students with disabilities (cognitive, physical, behavioural)						
Use of technology to support creativity						
Use of technology to provide non-classroom based teaching/Mentoring						
Use of technology to provide self-paced , independent study						
Use of technology to conduct discussion forums						

Appendix III: Teachers' questionnaire

Introduction

Dear Sir/madam,

Below are some questions addressed to you. You are kindly requested to respond to them as genuinely as possible. There are no wrong answers or right answers. Your cooperation in answering these questions will be highly appreciated. Note that the answers you will give will be kept confidential and they will be used for the purpose of this research only. Do not indicate your name anywhere on this questionnaire.

Tick in the provided boxes if you are in agreement with the statement. You can pick as many items as appropriate under a given question.

Thank you for taking time!

1. What subject area(s) do you teach in college? *Check all that apply*

Technical/Engineering related (please specify) [ ]
Foreign language (please specify) [ ]
Social studies (please specify) [ ]
Science related (please specify) [ ]
Business related (please specify) [ ]
Medical related (please specify) [ ]
Hospitality/ Dietetics related (please specify) [ ]
ICT related (please specify) [ ]

2. Do you find that the extent of content/syllabus coverage in your subject area prepares trainees well for the job market?

Yes [ ] No [ ]

3. Do you think the course could be delivered in a more flexible and interactive approach?

Yes [ ] No [ ]

4. Do you have/own your own computer?

Yes [ ] No [ ]

5. Is there ICT support available for teachers at your institution?

No, not provided at all [ ]
Yes, but very limited [ ]
Yes, during office hours [ ]
Yes, provided for all 24x7 [ ]

(If No, go to Question No. 7)

If yes,

6. How would you rate the quality of the technological support?

Poor [ ] Mediocre [ ] Good [ ] Very good [ ]

7. What best describes your level of technology (ICT) expertise in your classroom?

I'm very uncomfortable using technology in my classroom [ ]

I'm fairly uncomfortable using technology in my classroom [ ]

I'm fairly comfortable using technology in my classroom [ ]

I'm very comfortable using technology in my classroom [ ]

8. Have you been trained in offering distance or e-learning programmes?

Yes [ ] No [ ]

9. Are you aware of a policy in your academic department to foster and sustain ICT-based and other innovations in course teaching?

Yes [ ] No [ ]

10. Is there support available for teachers regarding pedagogical use of ICT based or other new and/or innovative or flexible approaches at your institution?

Yes [ ] No [ ]

If your answer is "Yes")

11. How would you rate the quality of the pedagogical ICT support?

Poor [ ] Mediocre [ ] Good [ ] Very good [ ]

12. What kind of ICT based or other new and/or innovative or flexible approach assistive resource is available for your use?

I use	In **no** classroom	In **some** classrooms	In **all** classrooms	Upon request
Personal computers	[ ]	[ ]	[ ]	[ ]
Interactive smart boards	[ ]	[ ]	[ ]	[ ]
Video conferencing systems	[ ]	[ ]	[ ]	[ ]
Audio equipment + software	[ ]	[ ]	[ ]	[ ]
Digital photo cameras + software	[ ]	[ ]	[ ]	[ ]
Digital video cameras + software	[ ]	[ ]	[ ]	[ ]
Animations	[ ]	[ ]	[ ]	[ ]
Cartoons	[ ]	[ ]	[ ]	[ ]
Picture Puzzles	[ ]	[ ]	[ ]	[ ]
Mobile phones	[ ]	[ ]	[ ]	[ ]

Projection system	[ ]	[ ]	[ ]	[ ]
E-library	[ ]	[ ]	[ ]	[ ]
Learner Management System (LMS)	[ ]	[ ]	[ ]	[ ]
Open Educational Resources (OER)	[ ]	[ ]	[ ]	[ ]
Learner Resource centre (LRC)	[ ]	[ ]	[ ]	[ ]
Moodle Server	[ ]	[ ]	[ ]	[ ]
Internet Broadband	[ ]	[ ]	[ ]	[ ]
Other (please specify below)	[ ]	[ ]	[ ]	[ ]

13. The following table contains some suggested uses of IT. Which ones closely describe what you often apply in the courses you have taught? *Check all that apply.*

	About half the time	Rarely
Use of technology for communication and/or networking.	[ ]	[ ]
Use of technology for your own learning	[ ]	[ ]
Use of technology as a tool for organising your work and keep records.	[ ]	[ ]
Use of technology for finding learning resources	[ ]	[ ]
Use of technology for designing and producing own digital learning resources	[ ]	[ ]
Use of technology to support your various learning styles.	[ ]	[ ]
Use of technology to facilitate teaching students with disabilities (cognitive, physical, behavioural)	[ ]	[ ]
Use of technology to support creativity	[ ]	[ ]
Use of technology to provide non-classroom based teaching/Mentoring	[ ]	[ ]
Use of technology to provide self-paced , independent study	[ ]	[ ]
Use of technology to conduct discussion forums	[ ]	[ ]

14. What best describes your attitude towards adoption of flexible approaches to teaching in your area of specialty?

I'm positive about adopting flexible approaches [ ]

I'm opposed/negative about adopting flexible approaches [ ]

I'm neutral/fair towards adopting flexible approaches [ ]

15**.** What importance do you attach to the following suggestions to help teachers increase the integration of flexible approaches in their courses?

	No importance	**Little** importance	**Great** importance	**Very great** importance
Better access to technological equipment	[ ]	[ ]	[ ]	[ ]
Reliability of the equipment	[ ]	[ ]	[ ]	[ ]
Training/courses in pedagogical use of ICT based or other new and/or innovative or flexible approaches	[ ]	[ ]	[ ]	[ ]
Pedagogical ICT-support (e.g. "hotline")	[ ]	[ ]	[ ]	[ ]
Policies on using ICT based or other new and/or innovative or flexible approaches across curriculum	[ ]	[ ]	[ ]	[ ]
Creating alternative pathways to various levels of accreditation	[ ]	[ ]	[ ]	[ ]
Credit accumulation opportunities	[ ]	[ ]	[ ]	[ ]
Developing alternative approaches to assessment and examination	[ ]	[ ]	[ ]	[ ]
Locally designed and accredited short course curriculum	[ ]	[ ]	[ ]	[ ]
Modular approaches to curriculum design	[ ]	[ ]	[ ]	[ ]
Using a range of learning activities (e.g. role play, simulation, reading, listening, presentations, group work, discussion, out-of-class projects.)	[ ]	[ ]	[ ]	[ ]
Providing workplace training and	[ ]	[ ]	[ ]	[ ]

work-based projects				
Running community based courses (outreach)	[ ]	[ ]	[ ]	[ ]
More Time to prepare, explore and develop classroom content	[ ]	[ ]	[ ]	[ ]
Task related incentives (e.g. salary, promotion.)	[ ]	[ ]	[ ]	[ ]
Other (please specify)	[ ]	[ ]	[ ]	[ ]

Appendix IV: Management questionnaire

Introduction

Dear Sir/madam,

Below are some questions addressed to you. You are kindly requested to respond to them as genuinely as possible. There are no wrong answers or right answers. Your cooperation in answering these questions will be highly appreciated. Note that the answers you will give will be kept confidential and they will be used for the purpose of this research only. Do not indicate your name anywhere on this questionnaire.

Institutional factors influencing adoption of flexible approaches.

Tick in the provided boxes if you are in agreement with the statement. You can pick as many items as appropriate under a given question.

Thank you for taking time!

1. Are you able to develop your own syllabus for a given programme of your choice?

Yes [ ] No [ ]

If yes please give an example of a program(s) you have developed

2. Do you have a scheme to support teachers' purchase of personal, laptops, or tablet computers?

Yes [ ] No [ ]

3. Do you have either an e- library or a learning resource centre (LRC)?

Yes [ ] No [ ]

4. Does the institution have a Learning management system (LMS), Virtual learning environment (VLE), e-portfolio system or equivalent?

Yes [ ] No [ ]

(If the answer is "No", go to question no 8))

5. What percentage of training courses currently has resources in that platform? *Please include an estimate*.

6. What percentage of teachers is using that platform at least weekly? *Please include an estimate*.

7. Does the institution provide free Internet access?

Yes [ ] No [ ]

8. Does the institution have broadband access to the Internet?

Yes [ ] No [ ]

9. Does the institution have a Wi-Fi network?

Yes [ ] No [ ]

10. Do your students have access to your e-library or LRC during weekends and evenings?

Yes [ ] No [ ]

Strategic factors from institutional strategic plan

11. Does your institutional strategic plan include objectives to improve learning and teaching approaches

Yes [ ] No [ ]

If yes, what are the performance indicators?

12. Does your strategic plan include objectives to increase programme delivery options to include those with less constraints of time, distance and methods (flexible approaches)?

Yes [ ] No [ ]

If yes, what are the performance indicators?

13. Please indicate whether the following institutional policies are in place.

Internet/network Acceptable use policy	Yes [ ]	No [ ]
(ICT) Policy	Yes [ ]	No [ ]
Academic policy	Yes [ ]	No [ ]
Recognition of prior learning policy	Yes [ ]	No [ ]
Quality policy	Yes [ ]	No [ ]
Distance learning policy	Yes [ ]	No [ ]
Flexible Teacher Recognition	Yes [ ]	No [ ]

14. What best describes your attitude towards adoption of flexible approaches to teaching in your institution?

I'm positive about adopting flexible approaches	[ ]
I'm opposed/negative about adopting flexible approaches	[ ]
I'm neutral/fair about adopting flexible approaches	[ ]

15. Any other information on factors affecting flexible delivery approaches to your academic programmes.

Appendix V: Names of technical training institutes (TTI'S)

1. Bumbe Technical Training Institute
2. Kabete Technical Training Institute
3. Kaiboi Technical Training Institute
4. PC Kinyanjui Technical Training Institute
5. Kitale Technical Training Institute
6. Machakos Technical Training Institute
7. Masai Technical Training Institute
8. Mawego Technical Training Institute
9. Meru Technical Training Institute
10. Michuki Technical Training Institute
11. Mombasa Technical Training Institute
12. Nairobi Technical Training Institute
13. Nkabune Technical Training Institute
14. Nyeri Technical Training Institute
15. Ol'lessos Technical Training Institute
16. Rift Valley Technical Training Institute
17. Sigalagala Technical Training Institute
18. Thika Technical Training Institute
19. North Eastern Technical Training Institute
20. Wote Technical Training Institute
21. Kiirua Technical Training Institute
22. Bushiangala Technical Training Institute
23. Keroka Technical Training Institute
24. Matili Technical Training Institute
25. Shamberere Technical Training Institute
26. Kisiwa Technical Training Institute