TRANSFER OF LEARNING FROM TRAINING TO PRACTICE FOR NUTRITIONISTS FROM TVET; CHALLENGES AND OPPORTUNITIES: A CASE OF UASIN GISHU COUNTY OF KENYA

MUHUHA CLARE

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DECLARATION

DECLARATION BY THE CANDIDATE

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MUHUHA, CLARE

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EDU/DPHIL/P/005/2012 **Date**

DECLARATION BY SUPERVISORS

This Thesis has been submitted with our approval as University Supervisors.

_____ _____

PROF. DAVID AYUKU Date
School of Medicine
Department of Behavioral Sciences
Moi University, Kenya

_____ _____

PROF. KISILU KITAINGE Date
School of Education
Department of Technology Education
University of Eldoret, Kenya

DEDICATION

I dedicate this study to the memory of my late mother Priscilah and late father Enock, both educationists, who contributed to the incept of this study, my nutrition students who provided quality interactive training experience and family who make my heart to sing.

ABSTRACT

Nutrition related Non Communicable Diseases, NCDs, also known as lifestyle diseases have risen to the top of policy and program agendas in many countries thereby providing a compelling mandate for a multi-strategy action. (Steyn, Nel, Whadi-ah, Rosemary, & Mbithe, 2010). There is a widespread collective decisiveness that action is needed urgently and that it should be comprehensive, sustained and, that it should be evidence based. The training program provided by TVET for nutritionists has failed in its mandate for providing for a high impact intervention means of tranfering training in dealing with NCDs. This study was a Sequential, Mixed Methods of Explanatory Research employing a cross-sectional survey along with qualitative inquiry tools of in depth interviews that investigated the transfer of learning from the training component to practice of nutritionists from TVET. To measure the transfer of learning from the training component to practice, a survey was conducted on the target industry for nutritionists in which clinical and community nutritionists within Uasin Gishu County responded to a questionnaire that sought to establish the perceived transfer of learning from training to practice by nutritionists. In addition, an in depth interview with key informers comprising one community nutrition administrator and four senior nutritionists working in a teaching and referral hospital within the county were engaged to corroborate the data collected from the survey and measure the transfer of learning from the training component. SPSS software package was used to compute quantitative data. Transcriptional analysis was engaged to analyze qualitative data. This study established that; the training of nutrtionists in TVET tertiary institutions bears a number of anomalies that ought not to be ignored. Key issue highlighted is failing to effectively practice what is taught during training. This failure of the transfer of learning is observable at the skills level, attitude level as well as at the knowledge level. Causes of the gap between training and performance point to learner characteristics, intervention design and delivery that reveal gaps in performance specifications and content relevance that include instructional strategies, methods,practice feedback and technological surport. The training component needs to be readjusted at the three domains of learning to facilitate more effectively the transfer of learning from training to practice; Technical surport, facilitated by training institutions, need regular exposure to a wide scope of challenges experienced during the practice of nutrition for effective, relevant, responsive and quality curriculum implementation. There is a need for TVETA to carry out a regular matching of resources used in training nutritionists in Kenya with the emerging lifestyle needs of the job market; There is need for regulation and uniformity in the organization and supervision of attachment for Nutrition trainees across all TVET tertiary institutions to avoid differences in the quality of nutritionists graduating from these institutions. Including stake holders in designing training, practice and timely feedback, needs analysis will help the transfer of learning from training to practice and it should be deliberate, sustained and evidence based..

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LIST OF ABBREVIATIONS, ACRONYMS, AND SYMBOLS

CBET	Competency Based Education Training system
DNM	Diploma in Nutrition Management
GOK	Government of Kenya
KICD	Kenya Institute of Curriculum Development
KMTC	Kenya Medical Training College
KNDI	Kenya Nutritionists and Dietician Institute
MTN	Medical Nutrition Therapy
NACOSTI	National Commission for Science and Technology
NCDs	Chronic Non Communicable Diseases
NGO	Non-Governmental Organizations
TF	Task Force
TPB	Theory of Planned Behavior
TVET	Technical and Vocational Education and Training
TVETA	Technical and Vocational Education and Training Authority
WHO	World Health Organization

NON ENGLISH WORDS

Strategos	Greek word meaning “the thinking of a general”

OPERATIONAL DEFINITION OF TERMS

Attachment	Industrial exposure facilitated by training institutions for students undertaking technical courses in tertiary institutions for hands on experience.
Competencies	Broad functional statements of skills supporting knowledge and professional values necessary to begin independent professional practice.
Curriculum	The outlined intentions for learning in TVET as encapsulated within the syllabus for the training of nutritionists. It is further inclusive of the actions, interactions and processes elicited and directed from these intentions; and the actual learning that emanates from the prevailing context.
Industry	Trade or business engaged by Nutritionists.
Life style	The living conditions, interests, opinions, behaviors and behavioral orientations of an individual, group or culture that are typical of them or chosen by them
Nutritionists	Graduates from TVET at the level of a diploma and above in nutrition and dietetic studies.
Trainees	Learners under the nutrition training program in TVET
Trainers	Teachers within the TVET who train nutritionists.
Training	Teaching in terms of the transfer of skills from one individual to another in a formal setup. Also inclusive of a mindset that may hinder or promote transformation.

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CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter provides history of the study, statement of the problem, the cause of the study, targets of the study, research questions and justifications of the study. Significance of the study, assumption of the study, the scope and quandary of the study, theoretical framework of the study, conceptual framework of the study, definitions of operational terms and summary of the chapter are additionally included.

1.2 Background of the Study

The impetus for this study came from the experience of training nutritionists, receiving feedback from the hospitals about trainees' performance during attachment as well as after being employment, and personal firsthand experience with a nutritional related case of a close relative who doubles as a member of the community. This personal journey of having to grapple with the intrigues of a lifestyle nutrition related complication brought to the fore the need to reflect on how acquired knowledge during the course of training is transferred during lives' experience. Personal experience particularly relates with this current study based on the fact that the researcher, though a trained nutritionist was at pains to translate knowledge from own training to the circumstances that led to the premature death at 66 of a close relative that originated from a stroke, a Non Communicable Disease, NCD that is lifestyle related (WHO, 2014). The researcher opted to go on a journey to find out why knowledge from the class was not easily transferred in practice.

The present day lifestyle coupled with advancement in technology brings with it an array of realities that include a load of sometimes preventable human suffering that stems from nutrition related practices. The training of nutritionists is ideally meant to underscore the equipping of these trainees as change agents who are well versed with skills, attitudes and knowledge. This knowledge, as reiterated by a number of scholars, is meant to help understand how to drive positive nutritional practices that are focused on addressing nutritional related challenges in Africa and beyond (Amuna & Zotor, 2006; Delisle, 2012; Steyn & Mbhenyane, 2012; Holi, 2003; Skipper & Lewis, 2006; Ganiyu, Mabuza, Malete, Indiran & Ogunbanjo, 2013; Dickson, McCarthy, Howe, Schipper & Katz, 2012.)

Industrialization coupled with movement from rural to urban centers as well as economic development along with market globalization have escalated over the past ten years, which is significantlty affecting the health and nutritional status of populations (WHO, 2003; Steyn, Nel, Whad-iah, Rosemary & Mbithe, 2012). Studies from populations throughout the world have demonstrated a strong association between obesity and chronic NCDs, especially Type 2 Diabetes and cardiovascular diseases with their risk factors that ultimately result in the increased mortality, morbidity, and impaired functioning associated with chronic NCDs. Given that technological advancement that favors sedentary lifestyles is ongoing, it is envisioned that the trend in increasing cases of obesity will continue to escalate until about 2030, (Steyn, Nel, Whadi-ah, Rosemary, & Mbithe, 2012). This is backed by widely observable blossoming of high end fast foods businesses within the developing economies with Kenya not exempted. This is exemplified by popularization of fast food joints that are gaining ground at an all-time high note in most major towns as a matter of fact to all and sundry. As the understanding of links between lifestyle and

inevitable consequences of choices become entrenched within the society, so ought the goals of training, health workers and governments in developing countries to follow with due serious confounding actions.

Training strategies of nutritionists as pressing issue demanding great concern and requiring serious action would be an important consideration that is necessary for capacity building in order to reduce the impact of an inevitable nutritional transition.

The dearth of research in training transfer among nutrition professionals has resulted into poor nutrition program planning, implementation and evaluation leading to variance of nutritionist's capacity building with emerging nutrition related challenges. The obvious and urgent consideration for capacity building of nutrition professionals world over, as one of the most cost-effective veritable tools to enhance national progress has been pointed out by a number of scholars (Oyewole & Amosu , 2013; Julio,Chen,Zulfiqar, Cohen, Crisp & Evans, 2010; Lenders, Deen, Bistrian, Edwards, Seidner &Mc Mahon,2014; DiMaria-Ghalili, Mirtallo, Tobin, Lisa, Van Horn &Carole, 2014; Kris-Etherton, Akabes, Bales &Edwards, 2014).

Strategy in ensuring that knowledge acquired in class during training of nutritionists is is transferred in the tackling of the underlying causes of NCDs, especially cancers in developing countries may provide some solutions to the problems confronting Africa. However, empirical data on the training transfer of nutritionists that is responsive to the worldwide trend of the consequences of dietary choices has not been documented. This has also been echoed by Julio, Chen, Zulfiqar, Cohen, Crisp & Evans (2010) who acknowledge the laudable efforts that many educational institutions globally have launched by initiating innovations, yet theren is little to show about the effectiveness of such reform. It was hoped that this research will

contribute knowledge to the understanding of effective training transfer strategies for nutritionists.

The literature suggests that there is a strong need for reinvigorating training in nutrition as related to NCD prevention through, encouraging a team approach to prevention, and going in for more community-oriented services (Keller, 2004). This stance has been reiterated as espoused by African Union pertaining to Africa in general where community capacity to handle nutritional related challenges has been compromised by the burden of curative services at the expense of preventive strategies (AfricanUnion, 2014). Other studies that echoed the same concern include Delislie 2012; Amuna, Paul, Zotor, Francis 2006; Steyn & Mbhenyane, 2008).

A common trend seen in low- and middle-income countries around the globe is a scenario in which economic development is soon followed by obesity with its related range of diseases, with disparities by socioeconomic status, (Gordon-Larsen, Wang, and Popkin, 2014). Could NCDs be treated from a multidisciplinary perspective by involving a range of stake holders to drive efforts towards a training of nutritionists that is responsive with emerging threats to the health security of all? If so, would such a multi-disciplinary tactic bring about better returns from the schooling component? We hoped through this research to provide answers to these questions.

A nutritional intervention by stake-holders in the prevention and management of NCDs has been proven as a viable approach as is the case in the North Karelia project (Puska, 2002). The North Karelia project involved health and other services namely, schools, NGO's, Innovative media campaigns, local media, supermarkets, food industry, agriculture etc. The specific health service referred in the North Karelia project majorly points at the profession of nutritionists. In the same stride, a number

of studies support the effectiveness of deliberate actions in both the prevention and management of NCDs (Shebka, Miri, Noormohammedpour & Rahim, 2018; Sarafzadegan, Baghaei, Sadri, Kelishadi, Malekefzali, 2006; (Sarafzadegan, 2018) Beaglehole, Bonita, Horton, Adams, 2011).

On account of such evidence of successful interventions, opportunity for learning abound. Professional education seems to be one step toward the right direction on this. Yet reflective training has not kept pace with these fresh health challenges, largely because of fragmented, outdated, and static curricula that produce ill-equipped graduates, (Julio, Chen, Zulfiqar, Cohen, Crisp, & Evans, 2010). A number of roots to these problems which include the fact that the problems are systemic:

> mismatch of competencies to patient and population needs; as well as narrow technical focus without broader contextual understanding; predominant hospital orientation at the expense of primary care; quantitative and qualitative imbalances in the professional labor market; and weak leadership to improve health-system performance. Laudable efforts to address these deficiencies have mostly floundered, partly because of the so-called prejudice of the professions—ie, the tendency of the various professions to act in isolation from or even in competition with each other (Julio et al.,2002, pp.111-112)

Generally, upon such considerations, it follows that there is a need to progressively seek out means for harmony towards dealing with such issues that have far reaching public implications such as the case may be with any substantiated gaps in training.

Education and Training and Health are among the eight key social sectors that are considered in the Kenyan blue print for transformation towards attaining equitable social development that is to bring about a nation that is globally competitive and prosperous with a high quality of life (Government Of the Republic of Kenya, 2013). Under education and training, Kenya is to provide a globally competitive and quality education, training and research that will be achieved through such avenues as

addressing the gap between training and practice and revising the curriculum for university and technical institutes to include more science and technology in order to meet market demands.(GOK, Sessional paper No 10 of 2012 on Vision 2030, 2012).

Links between education and other social subsectors such as the labor market, public and private sector partnerships, to name a few, have been proposed as being a viable outlook towards the realization of vision 2030. One such link is between education and health in which the health subsector aims at incorporating basic (preventive & promotional health) in school curricula and continued human resource training for health. This has also been a point of consideration in other places, (Beaglehole, Bonita, Horton, Adams, 2011; WHO, 2014; 55; UN General Assembly, 2011.)

If Kenya is to acquire an education that is responsive, need for capacity improvement to suit market needs is an important case in point. The hassle and mismatch between the capabilities imparted as well as transfered through training system must be corrected in order to meet the needs of the new economy. The Report by the Task force (TF)(2011) appointed through the then Education Minister Prof. Sam Ongeri in January 2011 to realign the schooling region to Vision 2030 and the new Constitution recognized a good range of challenges, gaps and worries which led to a pertinent question: “Is the Kenyan Education System and its institutions and programs match for the purpose?” Specific problems identified pointed to issues regarding relevance with regard to content and delivery; adequate flexibility to adapt to the altering socio-economic needs and to healthy global competitiveness and to addressing of challenges of the 21st century (Ministry of Health, 2015; Ministry of Education, 2012; Tivet act 2013; The charter of Kenya, 2010).

One such challenge mentioned on a world scale is that of the incidence of severa chronic illnesses such as hypertension, kind 2 diabetes, obesity, coronary coronary heart disease, stroke, colon and breast cancers and depression which are known as Non Communicable Diseases (NCDs). Working to reduce these NCDs once human beings turn out to be sick has demonstrated a costly alternative in which governments are pressured to spend past what is reasonable especially in the growing world. However, it is noteworthy that prevention of the onset of these diseases as well as low accounts of the same can be attained without drugs or steeply-priced scientific facilities (World Bank, 2006)

The workforce in diet is a vital determinant of a population's capability to tackle public health problems (Palermo & McCall, 2008). Efforts to upgrade the nutrition group of workers potential must discover a range of techniques including the repackaging of nutritionists' education to adapt to the situations that lead to dietary behaviors that tend to bring about the undesirable consequences of NCDs.

The training of Nutrition Technicians from Technical and Vocational Education Training Institutions (TVET) as well as the transfer of this training, is a major consideration in this study. This is based on the researcher's experience as a trainer within a TVET Institution, specifically training Nutrition Technicians who graduate with Diplomas in Nutrition Management. They then join the industry which mostly places them within the hospitals where they work along with other health professionals as clinical nutritionists, helping patients/clients with their nutrition related matters. Some get to work within the communities in nutrition related fields such as School Feeding Programs, Research Organizations, Sport Nutrition

Counselors, Community Nutrition and Educational Outreaches and in Non-governmental Organizations (NGOs).

Those who work in hospitals, are engaged at clinical practice of nutrition which includes being involved with planning for patients feeding, administering feeding using special feeding methods, and counseling of patients with nutrition related NCDs in the outpatient section of the hospitals. Some specific areas range from diabetes clinics, dealing with hypertensions patients and cancer patients among others.

However, it is indeed noteworthy that the training of nutritionists in Kenya tends to be reductionist, emphasizing the individual patients rather than population approaches. It also offers little on structural policy and broader public health approaches. Nutrition trainees, who on completion of training become practitioners not only have to address the complications brought about by the illnesses, but also deal with the emotional and psychological components of their clients. Yet the curriculum is structured to bear a mostly clinical approach in which causes of illnesses are studied, symptoms and nutritional management of the same. Although Module II offers general psychology that is combined with computer studies during grading, yet this psychology course which the researcher has taught over the years is purely theoretical and is usually taught by trainers who may not be conversant with current and emerging nutritional related interventions in NCDs. It therefore imparts little in terms of transfer of learning, thus poking holes in curriculum implementation (KICD 2004 Syllabus for Diploma in Nutrition Management).

Competency development as an aspect of curriculum implementation, as a key element of workforce development has been defined by Palermo and McCall (2008) as the attainment of a set of knowledge, skills and attitudes that enable effective

performance in the work place (Palermo & McCall, 2008). A competency development approach to training has been embraced elsewhere as being necessary to indicate eligibility for entry into a professional job. It is in this regard that professional development for nutritionists requires statutory regulation and professionalization that must meet the test of public protection (Landman & Wootton, 2007). If the training of nutritionists in Kenya continues to bear a limited utility for the clinical practice, how useful then is the training in addressing the NCDs condition at the preventive level within the community and during outpatient educational teaching at the hospital?

The standard for training nutritionists in Kenya is stipulated by Kenya Nutritionists and Dietician Institute KNDI. Some of the broad objectives for the training program include the following areas:

> Participation in the application of basic and social sciences principles used in the management and prevention of nutritional disorders; Recognize food choices for individuals or communities to promote healthy eating, prevent malnutrition and manage diet related conditions; Participate in nutrition communication/health education, and nutrition counseling to individuals, groups and communities; Help in the generation of national and international nutrition and dietetics policy (KNDI, 2004,pp.2-3).

In a nutshell, these standards actually bear an application focus, yet this has not been reflected in the curriculum, capacity of trainers, training tools and equipment as well as the organization of attachment, a gap that requires to be filled.

Changing food choices, a major responsibility of nutritionists, may sound easy, but it has proven to be a very complex problem that require more than a theoretical, reductionist approach to training. Successful nutrition counseling requires that nutrition technicians acquire multidisciplinary competencies in areas such as

psychology to understand the reasons why clients eat the way they do and transfer this knowledge to develop appropriate interventions. The goal of nutrition counseling and education is to help individuals transformation towards better healthful choices with their food and eating behaviors (Holi, Calabrese, & Millet, 2003). In order to be effective change agents nutrition professionals need a solid foundation of counseling and education principles to practice new skills and knowledge of evaluation methodology (Bauer, Liou, & Sokolik, 2012).

In the same context that edges towards embracing psychology in training, eating is considered as a learned activity (Domjan, 2014;Bennet, Elaine, & E, 2000;M, & J, 2012;Ogden, 2011). Children early experiences contribute to their food preferences later in life. Eating is also a social activity that brings family and friends together during meal times; siblings, parents and others serve as role models (Holi et al, 2003). Hence theories of social psychology will provide the conceptual frame work for this study as well.

Educational psychology as a discipline is thus particularly well situated in forming collaboration with the field of nutrition. This is because it advances the concept of learning which is understood to describe an enduring change of behavior involving specific stimuli and/or response that results from prior experience with those or similar stimuli & response as a result of experience (Domjan, 2014). In this case the behavior of concern is that which relates to dietary and lifestyle behaviors that influence the incidence of NCDs. If this is done, it brings to the fore what Stokols (2006) points out as the scientific and societal value of translating psychological research into community problem-solving strategies by embracing Trans disciplinary approach as a useful approach in training.

Albert Bandura in his transformative theory asserts the influential role of modelling, self-regulation and consequential outcomes in the acquisition of psychosocial patterns of behavior which is motivated and regulated by the complex interplay of contextual, incentive and self-regulatory influences (Bandura, 2004) Different studies have shown that knowledge and environment influences attitudes regarding nutritional behaviors and envisioned that, future studies shift the consideration of adopting new approaches such as focusing on changing the school food environment (Prelip, Kinsler, Erausquin & Slusser, 2012).

Self-care in relation to heart failure as well as maintenance, confidence and management have been found to be influenced by cultural beliefs. Following which it has been concluded that research to develop and test culturally inclined strategies is needed. Community-based interventions that provide culturally acceptable resources to facilitate self-care adds yet another feather into the interdisciplinary interplay and should be explored (Dickson, McCarthy, Howe, Judith, & Katz, 2012).

The present training approach in Kenya whereby NCDs are mainly treated via symptomatic medical interventions may alleviate the symptoms without addressing the fundamental cause of the illnesses. According to Campbell (2006), NCDs such as diabetes and obesity are merely symptoms of poor health which demand a shift in thinking toward a broader perspective of health that includes a proper understanding and use of nutrition. In a different study in which cultural attitudes towards weight, diet and physical activity among overweight African American girls were examined, it was found out that perception of weight and health lifestyle behaviors are largely determined by environmental and personal influences (Byington & Carter, 2008). Further, diets alone have been proven not to be beneficial in weight loss as the weight

lost was found to be regained soon after the end of dieting programs (Mann & Tomiyama, 2007). What this seem to suggest is the fact that interventions may need to go beyond the relying on narrow approaches towards the consideration of breaching the gap between training and practice in training strategies.

1.3 Statement of the Problem

The training of nutritionists in TVET in Kenya is not adequate to impart skills for effective performance with diet and nutrition-related issues of patients (Ellahi, Annan, Sakar, Amuna, & Jackson, 2015) Feedback on service delivery expressed by nutrition supervisors within the Uasin Gishu county of Kenya indicates frustration at the glaring gap in practical skills among nutritionists exiting TVET and entering the job market. This need has been spelt out first of all by the Kenya National Strategy for the Prevention and Control of NCDs 2015-2020 in which the need for a multidisciplinary approach in NCDs interventions has been clearly stated as one of the guiding principles for the strategy and that mechanisms need to be put in place to ensure that there is coordinated, multi-stakeholder engagement and multisectoral action (MinistryofHealth, 2015). Secondly Nutritionist supervisors in service delivery have decried the lack of a wide range of practical skills among Nutritionists exiting TVET and expressed the same to the researcher through informal feedback. Thirdly, the researcher being a trained nutritionist was driven by curiosity as to why transfer of own learning has not been easily tapped into during times of need!

Unless this gap between training and service delivery is addressed, the current situation in Kenya in which over 50% of all hospital deaths and admissions have their origin in dietary behaviors envisioned to contribute to over 60% of the total national mortality by 2030 will be most certain and unfortunately so (Ministry of Public

Health, 2010). Deaths related to NCDs are premature as well as preventable and affecting people below the age of 70 (WHO, 2014). Further these illnesses are now spreading fast among the poor who have little capacity and financial muscle to manage them (Mbogo, 2014). Cumulative economic losses due to NCDs in low- and middle-income countries have been estimated at US$ 7 trillion which far outweighs the annual US$ 11.2 billion cost of implementing a set of high-impact interventions to reduce the NCD burden (WHO, 2014).

Previous research in the area of nutrition has focused on aspects such as urbanization and nutrition transition without considering the training of Nutritionists as an intervention in ameliorating the NCD situation in Kenya (e.g. Steyn, Nel, Parker, Mbithe & Ayah 2012). Most other studies have addressed themselves to training in reference to malnutrition and poor child nutrition capacity (eg Ellahi, Annan, Sakar, Amuna& Jackson, 2015).While other studies on training have dealt with the region in general such as the Sub Saharan Africa, Ghana, South Africa without getting to address the Kenyan scenario specifically. Inadequate studies have been done on the role of training transfer into effective practice strategies directed towads alleviating the NCD scourge yet it is acknowledged that technical, human and fiscal resource constraints are major impediments to the establishment of effective control programmes (Alwan Ala, 2011)

The question that begs for inquiry then is, “What is the gap that exists between training of nutritionists and transfer of this learning to actual service delivery?” Application of effective training strategies of nutritionists as an intervention measure in ameliorating the NCD situation in Kenya has not been given substantial multidisciplinary involvement towards this end. This study is an inquiry into the gaps

in the training of nutritionists and how this contributes to the type of service delivery of nutritionists exiting TVET institutions in Kenya. While a call for new approaches in NCD interventions has been made, the need for diverse disciplines to accomplish this goal is of utmost importance. Conversely, interdisciplinary models that channel holistic care inclusive of professionals such as psychologists, nutritionists, educationists along with the traditionally acknowledged nurses, doctors and pharmacists will help to better strategize the training of nutritionists more comprehensively as opposed to narrowly designed models. It is in this regard that this research has delved into the examination of what gaps exist in training transfer and how these gaps may be filled.

By inquiring into the training of nutritionists in Kenya using a mixed methods approach and involving nutritionists already in the service delivery as participant researchers, we can better understand the gaps between training and transfer of learnig to practice that show up. With these insights researchers can better identify variables and develop multidisciplinary models that are more adequately responsive to the dynamism presented during service delivery. Administrators and trainers can plan for curriculum implementation that in co-operates concepts from multiple and diverse disciplines towards the enhancing of training in nutrition at TVET institutions in Kenya.

1.4 Purpose of the study

The purpose of this study was to examine how transfer of learning during operationalization of curriculum contributes to the final service delivery of nutritionists exiting TVET in Kenya. It was envisioned that these would help understand relevance of training strategies in dealing with NCDs not only during the

management or secondary level but also before the onset of the NCDs at the primary or prevention level to go with the general consensus that ‘prevention is better than cure’.

1.5 Objectives of the study

1.5.1 Main objective

The main objective of this study was to examine learning transfer from training component to the type of service delivery of nutritionists practicing in Uasin Gishu County.

1.5.2 Specific Objectives

1. To examine how content relevance of training in TVET impacts transfer of learning in addressing the NCD problem during service delivery of nutritionists in the Uasin Gishu County of Kenya.

2. To examine how instructional strategies and methods within TVET contribute to the transfer of learning during service delivery of Nutritionists working in Uasin Gishu county of Kenya.

3. To establish how exposure to relevant recources and surport influences training transfer during practice of nutritionists in TVET in Uasin Gishu county of Kenya.

4. To examine how supervisory surport of trainees’ industrial attachment impacts transfer of learning on the type of service delivery of nutritionists in TVET in Uasin Gishu county of Kenya.

1.6 Research Questions

1. How does content relevance during training in TVET impact learning transfer in addressing the NCD problem during service delivery of nutritionists in the Uasin Gishu County of Kenya?
2. How do instructional strategies and methods used within the TVET institutions contribute to transfer of learning from classroom to practice of nutritionists exiting TVET institutions in Uasin Gishu county of Kenya?
3. How does access to Resources/Equipment in the training of nutritionists impact transfer of learning from class to practice in Uasin Gishu county of Kenya?
4. What is the role of the supervision and organization of industrial attachment on transfer of learning for Nutritionists during their practice in Uasin Gishu county of Kenya

1.7 Rationale

Statistics exhibit that NCDs contribute to 60% of submitted deaths in the world out of which 80% are from Africa (WHO, 2003). In Kenya over 50% of all health facility deaths and admissions have their origin in dietary behaviors and will make a contribution to over 60% of the total countrywide mortality by 2030. This implies that the leading causese of deaths are due to NCDs that include cardiovascular diseases (13%), cancers (7%) and diabetes (4%) (Ministry of Public Health, 2010). In addition nowadays health data exhibit that approximately 14 percent of all Kenyans are obese Ziraba, Fortso, &Ochako (2009), which is a predominant predisposing factor in the direction of the onset of NCDs. Equally findings revealed by Ziraba et al (2009) goes on to show that amongst Kenyan workplace employees, the weight problem rate may also be as high as 50 percent and recent evidence indicates that obese and obesity are increasing in sub-Saharan Africa, including Kenya, at a rate of 5% per year on

average. Further these illnesses are now spreading quickly among the poor who have little capacity and economic muscle to manipulate them (Mbogo, 2014). Though the burden of NCDs in low-income and middle-income countries is increasing, yet potential for prevention and control is inadequate. Technical, human, and fiscal constraints are fundamental impediments to the establishment of well placed prevention and managment programmes (Beaglehole & Horton, 2011)

An epidemic of such a magnitude calls for concerted efforts aimed at curbing it. The medical care mentality in Kenya seems to choose a secondary approach in which the scenario is being dealt with after the onset of these ailments by way of clinical treatment. However, prevention of these diseases is truly a better and more cost effective alternative. The coaching of nutritionists is key if this exchange is to be realized for the reason that they are ideally supposed to act as a conduit for nutritional expertise and capabilities for the community.

1.8 The significance of the study

This study has led to expansion of the frontiers of knowledge that may be useful at various levels. First and foremost it has exposed the gaps that do exist between the training of Nutritionists and service delivery. Such knowledge is useful for the Technical and Vocational Education and Training Authority, TVETA in addressing what the second medium term plan 2013 -2017 of vision 2030 proposes of TVET institutions to provide quality and relevant human resources in middle level cadre.

Secondly, the study has clarified performance specifictions otherwise called type of skills that are necessary in addressing the modern day challenge of increasing NCDs. This too is useful for TVETA in improving the curriculum as well as making it more

adequate. Thirdly policy makers, TVETA specifically may learn about the professional development required by trainers to produce skilled nutritionists. This should lead to the exploration the possibility for interdisciplinary collaboration to help complement clinical skills with qualitative ones. Fourthly, this study has generated knowledge that will contribute to equipping nutrition trainees with skills that work with NCDs at the prevention level. This should ultimately reduce on human suffering experienced when people finally become ill with preventable illnesses. Apart from preventing pain, when skills are appropriately employed at the primary level, reducing the incidences of illnesses will be achieved thereby cutting down on what government spends as well as institutions such as insurance and individuals. Furthermore, recommendations for further research have been made, thereby, contributing to more knowledge base.

1.9 Assumptions of the study

First of all, it is assumed that the curriculum used for the training of nutritionists within the TVET has been crafted with unquestionable expertise and with the best interest of the end users in mind.

Secondly, honesty on the part of the research participants was assumed. It was also assumed that key informants would find time for interviews and would be sincere and open in information giving.

Thirdly, it was assumed that trainees possessed self-driven attributes that drive the learning and retention of knowledge, skills and attitudes from training. Fourthly, it was assumed that challenges of limited resources and equipment in training institutions may not change immediately.

1.10 Scope and limitations of the study

Key informants who hold administrative positions were relied upon to provide information about service delivery of nutritionists along with serving nutritionists who participated in the study. These individuals were the best placed to speak about the intrigues of the practice of nutrition in reasonable detail. This means that the data collected was drawn entirely from the perspective of the research participants. Any other stakeholders such as nurses, doctors, pharmacists, and patients were not involved . This has been however controlled by establishing from Literature that these professionals are not the ideal technocrats of nutrition though work in conjunction and sometimes provide nutrition knowledge, albeit, to a small extent.

Despite the limitations, this study still revealed the gaps that exist between training and service delivery of nutritionists in Kenya. Trainer preparedness in terms of knowledge, skills and attitude has been revealed. In addition aspects about the curriculum and the resources used during training have been interrogated in order to reveal the inadequacies that do exist between what is being taught in class and that which is required in service delivery. Further, the study has examined how attachment during training ties up with the expectation that it should add value to the quality of nutritionists graduating from TVET. Furthermore, since the upsurge of NCDs is a global issue it may help in giving direction for further research into the training of nutritionists that will be useful as a pre-requisite in the formulation of training regimes (Beaglehole & Horton, 2010).

1.11 Conceptual Frame work

The concept of transfer of training (or training transfer), aims at reducing the gap between employee training and performance, has been a main research topic within various fields, including business and administration, HRD, adult education, and industrial and organizational psychology. (Lee, Lee, Lee, & Park, 2014). The concept of transfer with a behaiourist approach was first adanced by Thorndike and Woodworth (1901). According to Thorndike and Woodworth (1901), transfer happens when the original learning and transfer situations have identical elements interpreted as common stimulus elements. An early model of training transfer was first developed on the basis of previous research by Baldwin and Ford (1988). The model consists of training inputs, training outputs and transfer conditions. The training inputs are made up of trainee characteristics, training design and work environment, and the training outputs include learning and retention which then lead to transfer conditions that invlolve generalization and learning (Balwin &Ford 1988). The implication here is that type of input during training has its bearing reflected in the resulting work performance.

In this study, training design, trainer's transfer surport, similarity of environment brought on by resources used in the classroom and work environment and supervisor support for transfer were selected as independent variables affecting dependent variable, work performance via .motivation to learn, motivation to transfer and finally the transfer of learning. Training design factors include the training objectives, relevance of training, methods and opportunities for practice. Traners' transfer surport which are seen to influence motivation in the learner include aspects such as trainer's attitude, knowledge as well as skill. Resources available during

training have a link on generalization of learning as influenced by whether the same resources used during training are replicated in the working environment or not. Supervisors' involvement and accountability have an indirect effect on transfer of training through training retention (Al-Eisa, Furayan, & Alhemoud, 2009).

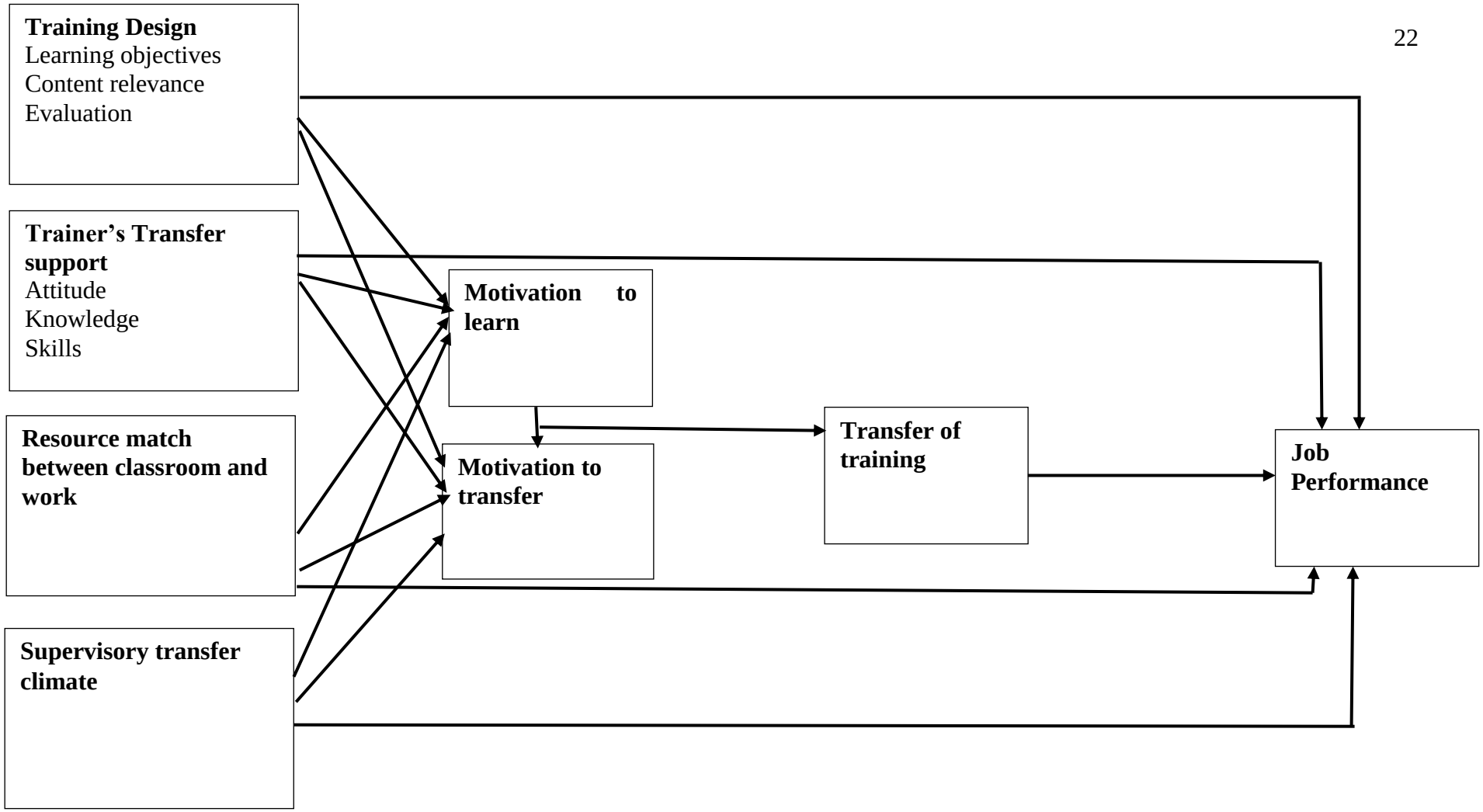


Figure 1. 1: Conceptual framework

1.12 Chapter Summary

This chapter has sought to lay a foundation for the work that entailed this study by introducing the building blocks of the study. It has clarified context. The problem of the study has been pointed out as existing a gap between training strategies and the actual service delivery of nutritionists from TVET institutions within the Uasin Gishu county of Kenya. However, empirical data on the training strategies has not been documented. The workforce in nutrition is an important determinant of a population's capacity to address public health issues. Multidisciplinary strategies in training have been proposed as being a viable intervention in training of nutritionists. Gallagher's concept on the need for a responsive curriculum has been cited along with its relevance to the current study. Finally, the conceptual framework has been crafted.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This chapter addresses the literature review for this study. It critically reviews and shares the findings of related studies; related to ongoing dialogue in the literature about the training of nutritionists and how this training is transferred during work performance, specifically when dealing with the incidence of NCDs.

2.2 General Literature

This section discusses briefly the components that make up the training of nutritionists who are expected to tackle the Nutrition related needs. Prior to that we look at literature that addresses the nutritionist's training needs in sub-Saharan Africa and to Kenya specifically. Then explains how the literature is related to this current study.

2.3 Training Needs of Nutritionists in Sub-Saharan Africa

In a study to find out about dietary practices in developing countries, growing paterns and their impact on public health and wellness, various factors that relate to coaching manpower had been arrived at (Amuna & Zotor, 2006). This is consist of the growing burden of communicable illnesses and NCDs in developing countries which is pointed out as considerable liability that requires continuos economic assistances of the national earnings for wellness. Developing countries, will continue to place a massive demand of NCD, and the economic charges of the lifestyles that is adjusted and reduced via morbidity upon their governments. Findings further, asserted that with constantly high degrees of poverty and malnutrition, the MDG set through the UN

could not have been met by the then projected 2015. Thus mandating for the need for imperative, targeted and extensive action which would be overdue then, how much more for 2019 and beyond? This cutting-edge knowledge is indeed one such potential of addressing innovative and multi-disciplinary training as a fundamental ability in accomplishing out in the direction of the intention of bridging the gap between training of nutritionists and true service delivery.

In the same regard, a distinct study, acknowledges the want for multilevel action, coupled with extending aptitude in the area of nutrition and public health to assist address the issues. Yet the authors notice at the same time that, nutritionists and different related health specialists do not meet the threshold of required numbers in developing countries, more so Africa. Capacity for prevention and managment of NCDs including monitoring and surveillance operations nationally are regarded inadequate (Beaglehole & Horton, 2010). Proposals made by the authors in addressing the apparent gap consist of the want for amendment of training curricular for nutritionists amongst other professionals. Further, the relevance and significance of nutrition to the promoting of the prevention and treatment of disease are viewed as focal points in diet schooling (Amuna & Zotor, 2006).

Though Amuna & Zotor (2006) addresses vital troubles that require interest toward the improvement of the training of nutritionists, this offers only generalized suggestions. It does not delve into the details of what aspects of curricular are to be modified or supply for plausible modes of accomplishing this. The cutting-edge study however, looks to the description of the precise competencies for switch from class to work that want to be addressed in the education of nutritionists and seeks to provide the how to.

A framework for the prevention and therapy of weight problems and its associated persistent disorders has been recommended Dietz (2015). Citing the truth that it has come to be clear that the contemporary disease care approaches offers a negative return on investment and cannot be sustained, (ibid.) has proposed a new model to tackle diet associated aspirations with the aid of a new model that calls for the integration of clinical and community attention toward the prevention and managment of obesity and its related chronic diseases. Further, guidelines for the policy adjustments needed to enforce them have been articulated..

Good as the recommendation about the prevention and remedy of chronic illnesses might sound (Dietz, 2015), but simply pointing to a new model for integration of scientific and community efforts as an answer may not be appropriate enough. This is due to the fact it is one thing to take a certain direction and quite a different matter to make certain that the services are not only solely adequate but applicable and effective. Without addressing the training of the service providers, relevance will stay surely a mirage. In this regard, the current study seeks to specify objectively areas that can be addressed to bridge the gap that exists in service transfer of nutritionists.

An exceptional inquiry in South Africa to evaluate and submit on the modern and projected public fitness diet group of workers in South Africa, and further, to scrutinize techniques that the department of fitness is endeavoring to meet the increasing burden of nutrition-related diseases in South Africa has been done, (Steyn & Mbhenyane, 2008). The findings in the paper pointed out that there had been much less than 2000 registered dietitians in South Africa and less than 600 of them work in the public health sector. This state of affairs is aggravated through the

developing burden of stipulations related with both over nutrition and underneath nutrition, as well as the giant needs of the HIV/ AIDS epidemic. The department of health in South Africa has thrown in the effort necessary meet these increasing desires through potential of the built-in Nutrition Program coupled with a National Human Resources Plan. This consists of many techniques geared closer to the enchancment of the numbers inthe training of dietitians and nutritionists. This design envisions that the public health workers will expand to greater than 250 entries of trained dietitians and nutritionists per annum through 2010 (Steyn & Mbhenyane, 2008). Details of how to improve the volume and first-class of dietitians and nutritionists is on the other hand no longer provided with the aid of the study. Yet it is absolutely cited that technical, human, and fiscal resource constrains are important impediments to the establishment of high quality prevention and control programs. It has been cited once more that notwithstanding the growing awareness and dedication to address persistent disease, concrete movements through international companions to sketch and put in force low cost interventions are insufficient (Beaglehole & Horton, 2010). This present study is one such succinct step toward singling out these grey areas and pointing out applicable ability thru strategic training of nutritionists.

2.4 Nutrition Related Need in Kenya

In Kenya NCDs are responsible for greater than 50% of total health center admissions and over 55% of sanatorium deaths. The Ministry of Health and stakeholders have developed a strategic record to serve as a complete guide to addressing this rising epidemic. The goal of this country wide NCD prevention and manage Strategy is to minimize the preventable burden of morbidity, mortality and

disability due to Non-communicable ailments via multi-sectoral collaboration at the county and country wide levels, to ensure the highest functioning healthwise and productiveness throughout the life cycle for sustainable socioeconomic improvement (MinistryofHealth(Kenya), 2015).

This approach has laid emphasis on the four essential NCD: cardiovascular conditions, cancers, diabetes, and persistent obstructive pulmonary ailments and their shared danger factors. However, a great deal emphasis has also been given to, haemoglobinopathies, mental disorders, violence and injuries, oral and eye illnesses in line the Brazzaville Declaration on Non-Communicable diseases (African Union, 2014)

This country wide NCD Strategic layout 2015-2020 is meant to act as the strategic blue print for the country wide and county response to non-communicable illnesses prevention and manage for the subsequent 5 years in Kenya (MinistryofHealth, 2015). While the said NCD Strategic sketch 2015-2020 appears excellent, and it is a suitable reference in setting up the conceptualization of the means and favored policy statement about NCD in Kenya, it leaves a lot to be desired. For instance, minimal partnership exists between specific local and international companions for the ministry of health in the direction of its efforts in the prevention and control of NCD. The education of nutritionists in this specific effort is not mentioned. Let alone the high-quality or the quantity of the coaching of these essential stake holders towards prevention and dietary administration of NCD!

Yet Kenya, being a member state of UN has participated and agreed to a wide variety of resolutions inclusive of all the regional initiatives undertaken on the prevention and control of non-communicable diseases, such as the Declaration of the Heads of State

and Government of the ; the Libreville Declaration on Health and Environment in Africa, adopted in August 2008; the announcement of the Commonwealth Heads of Government on action to fight non-communicable diseases, adopted in November 2009 amongst others ((UN, 2011). These facts are well documented on paper but lack practical long-term steps in the direction of reaching the predicted goals: which is one purpose for doing this study that comes in handy in offering logical steps closer to the success of a top notch vision.

The UN Assembly (2011), further highlighted that weight problems is on the upward track in many regions, mainly affecting youngsters and youth, and moreover, the fact that obesity, alongside unhealthy bodily state of lack of exercises have been strongly linked with the four predominant non-communicable diseases, which are allied with high expenses and decreased productiveness namely obesity, excessive blood pressure, heart disease and diabetes later in life. Meanwhile it is diagnosed that prevention should be the cornerstone of the global response to non-communicable illnesses that require leadership and multisectoral methods for fitness at the government level, including, fitness in all policies and whole-of-government techniques across such sectors as health, education, among others (WHO, 2011).

The effectiveness of bodily therapy in stopping and managing NCDs and chance factors is nicely evidenced (WorldConfederarionForPhysicalTherapy, 2017). Yet little or no progress has been taken at the governmental level to grant for community interventions with the right and relevant assets . More engagements that are guided by means of the fine handy scientific evidence and that are culturally sensitive, need to be designed, carried out and monitored with WHO's help and leadership. Nonetheless, it is noteworthy that the mobilization has to incorporate a definitely

multisectoral method with blended energy, resources and knowledge of all international stakeholders as a measure of necessity for sustained progress (World Confederarion For Physical Therapy, 2017). Yet it is noteworthy that implementation of the Strategy by means of all those concerned will contribute to fundamental and sustained enhancements in people's health (WHO, 2004)

2.5 Curriculum used in the Training of Nutritionists

2.5.1 Competencies for Public Health Nutrition Practice

Competencies have been described as broad, practical statements of capabilities aiding knowledge, and expert values necessary to start impartial professional practice (Gilmore, Maillet, & Mitchell, 1997). As far as the preparation of nutritionists is concerned, there should the definition of what these advantage are for the establishment of standards that outline quality. In this study, the highlighting of the abilities is a precious device towards this stop as far as the transfer of learning among nutritionists is concerened.

A study to assess the level of consensus amongst an international panel of public diet leaders concerning the critical advantage required for tremendous public health nutrition practice has been completed (Hughes, 2004). The format of the tool in data collection was modified via Delphi study involving three rounds of questionnaires. The findings on the way the panel of 20 public health experts from seven countries in the European Union, the USA and Australia went about this inquiry was published. The professional panelists executed three rounds of study relating to competencies of public fitness nutrition scholars. The core premise of the findings pointed to the truth that the competencies that adress core training exercise are largely the same across nations and settings, albeit with variants referring to neighborhood problems in socio-

cultural and different contexts, Hughes (2004) argues that if this premise is true, then this would point to the fact that potential constructing for public fitness nutrition can be primarily based on a compromise set of knowledge that are transferable between countries. One way of trying out this premise is to arrive at healthy levels of agreement between the competencies wanted for high-quality practice in distinctive Countries. The study aimed to investigate the level of agreement amongst public nutritionists from one country to another (Hughes, 2004).

A literature review, viewed as an important step in this study was carried out by the researcher to search for published literature pertaining to to training needs, knowledge and workforce development in the fields of public health, nutrition and dietetics, health promotion, health education and public fitness nutrition, in order to isolate scholarship related to competencies. Analysis of the literature that identified and listed competencies related to public fitness diet effectively singled out fifty-two competency devices sorted into seven competency categories. The following were reported by Hughes (2004) as Competencies for Public Health Nutrition categorized into 7 broad branches that further break down into specific units as follows:

Analytical skills- inclusive of assessment, applied research, evaluation and monitoring and nutrition monitoring and surveillance;

Socio-cultural and political such as social sciences, Policy processes, Community capacity building and engagement and advocacy as well as cultural competency;

Public health services inclusive of Intervention management, Principles and practice of health education, health Promotion theory, behavior change and health promotion policy and programs, public health methods;

Knowledge of food and nutrition systems and community;

Communication;

Management and leadership inclusive of Strategic planning, Negotiation skills

Systems thinking skills and Team building;

Nutrition science such as Assessment of food, nutrient and dietary intakes and status in populations and Food composition;

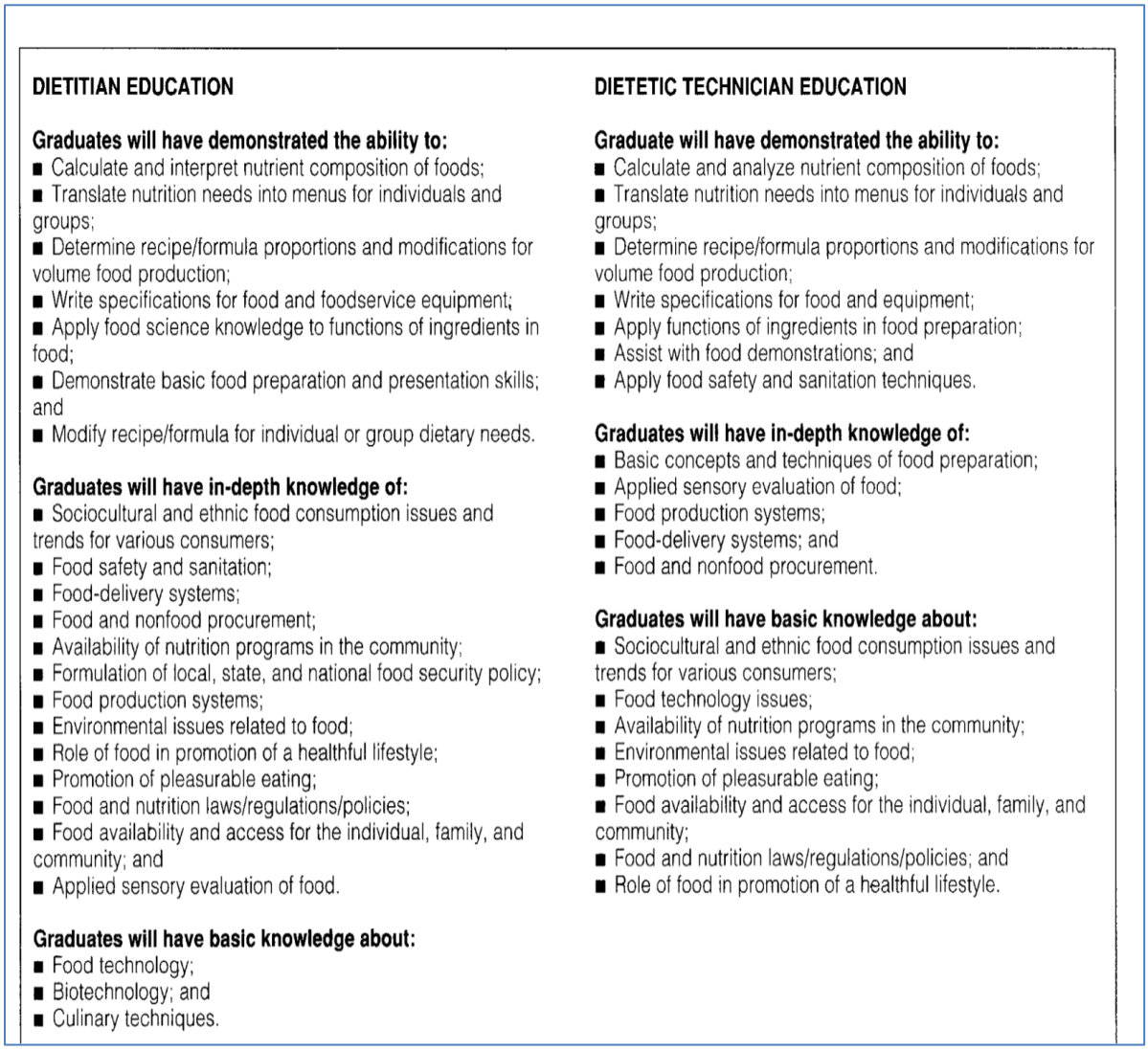
Professional such as professional accountability and social responsibility and Ethics of public health nutrition practice.

The wisdom brought forth by Hughes (2004) is applicable to the training of nutritionists in Kenyan and the region. However, to copy and paste as is, may not work for a culturally diverse and equipment challenging context as what is presented in Kenya. This brings about the need for thorough review of each skill that is suggested, with the view of tailoring each skill to fit in within the African context, and Kenya to be specific.

However, as the find out about via Hughes reiterates, the excessive level of agreement about quintessential potential amongst the global panel must be retained as necessary insight for replication in Kenya and the region. It is additionally suitable that there is a set of core expertise that are transferable throughout countries.Conversely, the truth that African international locations lacks representation in the course of the process of formula of potential leaves a hole in know-how that provides a mandate, for the premise that in addition checking out in this context is indeed necessary and required for local areas in Africa.

Yet it is noteworthy that the excessive level of settlement on competency units considered necessarry for effectiveness in the practice of public health nutrition that were recognized and examined in this method gives a useful potential for the development of internationally transferable competency requirements for public fitness nutrition, as a distinct discipline of practice.

Foundation knowledge and abilities advocated for both dietitian and dietetic technician education are classified in content areas spelt out as: communications, research, biological, bodily and social sciences, management, healthcare systems, meals and nutrition. Foundation knowledge and skills have been regarded to be very general, such as public speaking, as well as precise to dietetics expert statistics and competence.



DIETITIAN EDUCATION

Graduates will have demonstrated the ability to:
- Calculate and interpret nutrient composition of foods;
- Translate nutrition needs into menus for individuals and groups;
- Determine recipe/formula proportions and modifications for volume food production;
- Write specifications for food and foodservice equipment;
- Apply food science knowledge to functions of ingredients in food;
- Demonstrate basic food preparation and presentation skills; and
- Modify recipe/formula for individual or group dietary needs.

Graduates will have in-depth knowledge of:
- Sociocultural and ethnic food consumption issues and trends for various consumers;
- Food safety and sanitation;
- Food-delivery systems;
- Food and nonfood procurement;
- Availability of nutrition programs in the community;
- Formulation of local, state, and national food security policy;
- Food production systems;
- Environmental issues related to food;
- Role of food in promotion of a healthful lifestyle;
- Promotion of pleasurable eating;
- Food and nutrition laws/regulations/policies;
- Food availability and access for the individual, family, and community; and
- Applied sensory evaluation of food.

Graduates will have basic knowledge about:
- Food technology;
- Biotechnology; and
- Culinary techniques.

DIETETIC TECHNICIAN EDUCATION

Graduate will have demonstrated the ability to:
- Calculate and analyze nutrient composition of foods;
- Translate nutrition needs into menus for individuals and groups;
- Determine recipe/formula proportions and modifications for volume food production;
- Write specifications for food and equipment;
- Apply functions of ingredients in food preparation;
- Assist with food demonstrations; and
- Apply food safety and sanitation techniques.

Graduates will have in-depth knowledge of:
- Basic concepts and techniques of food preparation;
- Applied sensory evaluation of food;
- Food production systems;
- Food-delivery systems; and
- Food and nonfood procurement.

Graduates will have basic knowledge about:
- Sociocultural and ethnic food consumption issues and trends for various consumers;
- Food technology issues;
- Availability of nutrition programs in the community;
- Environmental issues related to food;
- Promotion of pleasurable eating;
- Food availability and access for the individual, family, and community;
- Food and nutrition laws/regulations/policies; and
- Role of food in promotion of a healthful lifestyle.

(Gilmore, Maillet, & Mitchell, 1997)

Figure 2. 1: Foundation knowledge and skills for the food content area for dietetics education programs

The basis information and skills are then preceded by fulfillment of the practitioner competencies, which pick out the performance degree predicted on completion of the supervised practice component. Practitioner competencies then build on basis know-how and skills and specify what every practitioner need to be able to do at the starting of his or her career. The final set of core competency statements were described as shown in figure 2.1.

CORE COMPETENCIES

Upon completion of the supervised practice component of dietitian education, all graduates should be able to do the following:

- Perform ethically in accordance with the values of The American Dietetic Association.
- Refer clients/patients to other dietetics professionals or disciplines when a situation is beyond one's level or area of competence (perform).
- Participate in professional activities.
- Perform self-assessment and participate in professional development.
- Participate in legislative and public policy processes as they affect food, food security, and nutrition.
- Use current technologies for information and communication activities (perform).
- Supervise documentation of nutrition assessment and interventions.
- Provide dietetics education in supervised practice settings (perform).
- Supervise counseling, education, and or other interventions in health promotion/disease prevention for patient/clients needing medical nutrition therapy for common conditions such as hypertension, obesity, diabetes, and diverticular disease.
- Supervise education and training for target groups.
- Develop and review educational materials for target populations (perform).
- Participate in the use of mass media for community-based food and nutrition programs.
- Interpret and incorporate new scientific knowledge into practice (perform).
- Supervise quality improvement, including systems and customer satisfaction, for dietetics service and/or practice.
- Develop and measure outcomes for food and nutrition services and practice (perform).
- Participate in organizational change and planning and goal-setting processes.
- Participate in business or operating plan development.
- Supervise the collection and processing of financial data.
- Perform marketing functions.
- Participate in human resources functions.
- Participate in facility management, including equipment selection and design/redesign of work units.
- Supervise the integration of financial, human, physical, and material resources and services.
- Supervise production of food that meets nutritional guidelines, cost parameters, and consumer acceptance.
- Supervise development and/or modification of recipes/formulas.
- Supervise translation of nutrition into foods/menus for target populations.
- Supervise design of menus as indicated by the patient's/client's health status.
- Participate in applied sensory evaluation of food and nutrition products.
- Supervise procurement, distribution, and service within delivery systems.
- Manage safety and sanitation issues related to food and nutrition.
- Supervise nutrition screening of patients/clients.
- Supervise nutrition assessment of patients/clients with common medical conditions such as hypertension, obesity, diabetes, and diverticular disease.
- Assess nutritional status of patients/clients with complex medical conditions (eg, renal disease, multisystem organ failure, and trauma).
- Manage the normal nutrition needs of persons across the lifespan (infants through geriatric patients/clients) and a diversity of people, cultures, and religions.
- Design and implement nutrition care plans as indicated by the patient's/client's health status (perform).
- Manage monitoring of patients'/clients' food and/or nutrient intake.
- Select, implement, and evaluate standard enteral and parenteral nutrition regimens (perform), for example, in a medically stable patient to meet nutritional requirements where recommendations/adjustments involve macronutrients primarily.
- Develop and implement transitional feeding plans (perform), that is, conversion from one form of nutrition support to another (eg, total parenteral nutrition to tube feeding to oral diet).
- Coordinate and modify nutrition care activities among caregivers (perform).
- Conduct nutrition care component of interdisciplinary team conferences to discuss patient/client treatment and discharge planning.
- Refer patients/clients to appropriate community services for general health, and nutrition needs and to other primary care providers as appropriate (perform).
- Conduct general health assessment such as monitoring blood pressure and vital signs (perform).
- Supervise screening of the nutritional status of the population and/or community groups.
- Conduct assessment of the nutritional status of the population and/or community groups.
- Provide nutrition care for population groups across the lifespan (perform) (infants through geriatric patients/clients) and a diversity of people, cultures, and religions.
- Conduct community-based health promotion/disease prevention programs.
- Participate in community-based food and nutrition program development and evaluation.
- Supervise community-based food and nutrition programs.

(Gilmore, Maillet, & Mitchell, 1997)

Figure 2. 2: Core competency statement for entry-level dietitians

Industry derived definition of competence

There is an effort geared at turning Kenya's education into competency based education training system (CBET). Competency-based education is training that is focused on outcomes (Muoka, Mursal, & Kyalo, 2013). Such a move requires collaboration from many stakeholders including Industry and Employers as pointed out by Muoka et al (2013). The industry in particular is considered an important partner in the endeavor based on the fact that it is the industry that provides competency standards, professional task descriptions and testing centers among other necessary tools. Expertise in the occupation helps identify what it takes to get the job done. Yet according the conference proceedings as reported by Mouka et al (2013), competence is a contested concept whose meaning is shaped by those who use it. Fortunately for CBET, correspondence between education/training and workplace requirements is given priority in the description of what competence is. It makes as clear as possible what is to be achieved in training and the evidence of trainining transfer by giving standards for measuring achievement.

2.5.2 Distinguishing Competence from learning objectives and Outcomes

In a distinctive account, Hartel & Foegeding (2004) assert that there is a giant confusion about precisely what a competence is exceptional from learning objectives or capabilities. Even in literature, the usage of these terms appears contradictory at times. According to the American Heritage Dictionary (2011), competencies are described as follows: Competency: Competence- or being competent; suitable or nicely qualified, capable. Objective: Something worked towards or striven for, a goal. Outcome: A natural result, consequence. These definitions in accordance to Hartel et al (2004), leaves one unfulfilled when it comes down to the details of writing

statements of student learning that can be used for assessment. In which case (Ibid) chose to outline competency as a widespread statement detailing the desired knowledge and capabilities of students graduating from a program.

2.6 The current skills being inculcated in the training of Nutrition Technicians by TVET

To enumerate the skills for transfer on offer in the TVET institutions for nutrition technicians, will be related according to what the three modules train according to the syllabus designed by Kenya Institute of Curriculum Development, KICD. During the first module, the courses offered are, Communication skills, Diet therapy I, Anatomy and physiology, Microbiology; Legal aspects and Food and beverage production. A consideration of all the courses offered indicates that only communication skills might involve the impartation of people skills. The course description for communication given by the syllabus outlines the objectives of the course as; to understand the importance of communication skills; to comprehend the concepts and methods of effective communication; to communicate effectively in a given situation; to store/retrieve information; to appreciate the barriers to communication (KICD, 2004) Thus revealing that only general aspects of communication are tackled in this unit. The skills offered though useful for general communication, they are not necessarily tailored to specifically equip a professional in the helping field as a nutritionist who has to often interact and relate with intense human suffering. This study responds to this obvious need by factoring in the need for a multi-disciplinary attire that helps tackle this rather glaring gap in training that fails in transfer demonstration.

The Diet Therapy unit further describes a few skills that are to be trained. These are taught in the context of nutritional counseling and include; building rapport, ‘soler’,

and role-taking. This takes three hours which means that the most the trainer may work out is a demonstration of the mentioned skills and no opportunity is offered for the trainees to try out the skills and receive any feedback. Yet using counseling skills is a complex activity that does not come naturally to most of us; rather it is something we learnt to do by integrating theory with practice and by reflecting on our work (Culley & Bond, 2004). This, skillfully addressed in training of nutritionists as suggested in this study will be one step in the right direction.

Module II offers; Computer Applications, Psychology, Physical Sciences, Diet therapy II and Biochemistry. The psychology unit includes teaching methods including, use of questions, dramatizing and a number of teaching methods whose approach of teaching is purely theoretical.Module III offers Diet therapy III, Principles of Accounting, Principles of Management, Project Proposal writing and Food Science. This module thus trains in book keeping skills. No soft skills are offered at this level, KICD syllabus (2004). Such training is limited in the sense that it fails to address what vision 2030 details as required for highly skilled human resource in which measures are to be taken to improve the national pool of skills and talent through training that is relevant to the needs of the economy. The current study seeks to follow up on what has been envisioned for vision 2030 by pointing out specific areas in training that are relevant bridging the gap between training and service delivery.

2.7 Trainers Transfer surport in the training of nutritionists

According to the Association of UK dietitians, dietitians are the only nutrition professionals to be regulated by the law, and are governed by an ethical code to ensure that they always work to the highest standard (BDA, 2014). This brings out an

important point in terms of what trainers should be in order to pass it to their trainees, namely, being governed by an ethical code. Being an ethical nutrition trainer is a pre-requisite to ethical transformation within the trainee, as is posited by vicarious learning (Kafu, 2011). The aspect of vicarious learning has been taken a notch higher by Albert Bandura (1998) in a study on health promotion from the perspective of social cognitive theory where beliefs of personal efficacy is seen to occupy a pivotal role in behavioral processing and relevant action taking. Belief in the power to produce a desired action may determine how long people will persevere in the face of obstacles. One way of creating and strengthening self-beliefs of efficacy is through the vicarious experiences provided by social models. Seeing people similar to oneself succeed by sustained effort raises observer's beliefs that they too may possess the same capabilities. Through observation of behavior and expressed ways of thinking of models, observers are taught by competent models knowledge and effective skills and strategies for action (Bandura, 1998).

Such transformative actions within the context of training therefore place a heavy responsibility upon nutrition trainers as well as the trainees on the long run. Bandura's social cognitive theory (1998) helps the concept of first being "converted" before attempting to "convert" others in any given nutritional behaviors such an important consideration in training as well as in addherence. This has been echoed by others (Holi, 2003; Dickson, McCarthy, Howe, Schipper et.al., 2012) .

Apart from being an ethical trainer, it is required of dietitians and nutritionist that they should be the only qualified health professionals that assess, diagnose and treat dietary and nutritional problems at an individual and wider public health level. They work with both healthy and sick people. It follows that dietitians and nutritionists are

expected to apply the most current public health and scientific research on food, health and disease which they decipher into practical guidance to enable people to make appropriate lifestyle and food choices (BDA, 2014).

It can be drawn from the British Association of Dietitian's expectations of dietitians and nutritionists that they should be up to date with the most current information on food, health and disease. What this implies is that trainers have to take that extra effort as well as get necessary support from the relevant stake holders, namely their employer to continuously get exposure to the industry in order to remain relevant, (BDA, 2014)

To break down role of a nutrition technician, we need to gain a clear picture of both the physical and psychological conditions that constitute the working environment for which they are being trained. According to Holi et al (2003), the goal of nutrition counseling and education is to help individuals change their food and eating behaviors so that they can select healthy choices. For a clear understanding of how to embark on this noble task, nutrition professionals need a solid foundation of counseling and new skills and knowledge of evaluation methodologies (Bauer, Liou, & Sokolik, 2012). This point brings to the fore nutrition counseling as yet another important skill that a trainer requires so as to transfer learning and bring quality to the training of nutritionist. Although changing people's food choices sounds easy, it has over time proven to be a very complex problem. The complexity of this change is grounded in various reasons and this study has illuminated as follows;

2.7.1 The Essence of Psychological origins of Dietary behavior in skill development

A major influence is the food eaten during childhood that defines what is familiar and brings comfort, Holi et al (2003). Eating is a learned activity and children early experiences contribute to their food preferences. Learning is defined as a process that produces a relatively enduring change in behavior or knowledge as a result of an individual's experience, (Hockenbury & Hockenbury, 2004). Early childhood experiences have been known to become entrenched into what shapes our beliefs, feelings and attitudes, food habits notwithstanding. Such studies on cultural and social influences on dietary behaviors forms important and necessary content for the training of nutritionists. Yet from perusing through the syllabus in use, nothing to this end features KICD (2004). These gaps form the basis for the warrant of scrutiny of the syllabus as well as the embracing of professional from relevant disciplines to help bridge the gap in training transfer.

However, as is posited by the classical conditioning theory, advanced by Ivan Pavlov (1927) that what is learned can also be unlearned (Hockenbury & Hockenbury, 2004). This can be done by skillful application of the principles of learning. It follows that for this to be realized in the concept of dietary change initiated by nutrition technicians, a detailed knowledge of these learning theories is essential during training. A close observation of the syllabus reveals quite the contrary thus leaving a gap of substantive magnitude.

In a qualitative study which purposed to generate a model of advanced medical nutrition therapy (MNT) practice based on descriptions of their clinical activities provided by advanced- level MNT practitioners, counseling expertise was deemed

important (Skipper & Lewis, 2006). The study further showed that application of counseling skills included selecting among models to best meet the needs of the patient and practitioners were conscious of their unique contribution in identifying and preventing nutrition-related co morbidities in their patients. Their knowledge of nutrition- and non-nutrition-related co morbidities was viewed as necessary to treat the whole patient.

2.7.2 Eating as a psycho-social activity

Eating is a social activity. We dine with family and friends. The significant persons in our lives such as mother and father often serve as position model that helps to form out for ourselves what we finally emulate as pertaining to our food culture. The social cognitive concept posits a multifaceted causal shape in which self-efficacy beliefs function in live performance with cognized goals, effect expectations, and perceived environmental impediments and facilitators in the legislation of human motivation, action, and well-being (Bandura, 1998).

Social cognitive principle is being utilized worldwide to address some of the most urgent social attributes and social modeling is viewed as an essential element in most modes of change (Bandura, 2004). Although information of what to consume is truly a quintessential step in influencing healthful food choices, but many humans who know what to eat nevertheless go against all good judgment to defy the facts through settling for opposite choices. Thus expertise has been determined only to assist when people are inclined and influenced to change, (Holi et al, 2003). This brings to consideration one factor posited by Bandura (1998) as important in strengthening people's beliefs that they have what it takes to succeed. This first takes place inside

the family context in which tremendous relationships between household members inspire individuals to control crisis situations together (Patrice, 2012).

2.8 Knowledge in Cultural orientations as a needed perspective in trainers

While ignorance may be a big factor posed as an obstacle for tranfer in nutritional practices, yet there are individuals who know what to eat but do not do it (Holi et al, 2003). This certainly poses as an issue of concern to a nutritionist. Such resistance derives from the fact that eating is a social activity. The following factors seem to inform this stance; that Cultural preferences associated with food are deeply ingrained. These points to the fact that changing people is not always easy and requires a sound understanding of the human nature and processes that motivate change (Bandura, 1998). To get a grasp of this theories of transformation provide a map work. Thus the trainer is required to be in touch with cultural orientations that exist in Kenya as much as it is possible. The undertaking of the professional can't be to have a knowledge of all of the kinds of personal, familial, and cultural melancholy that numerous people experience. But as a substitute to co create with the patron or pupil a new truth that is relevant for transformation to emerge by using inner representations in symbols, words, and actions.

Non adherence to recommended food ingredients is viewed an essential drawback towards the realization of accurate health. This is because such recommenndations last for a long time, or might also be for a lifetime. Humanly speaking, every now and then such tips appear as an insufferable imprisonment which extends barriers to what has been formerly loved throughout lifestyles and hence failure in adherence. A study carried out to determine motives for poor adherence to life-style guidelines amongst the patients suffering from type 2 Diabetes in Gaborone, Botswana, traced an

excessive non-adherence to weight-reduction plan and exercising recommendations, with 37.2% failing to adhere to weight loss program while almost 1/2 (52.0% of the participants no longer adhering to diet. The findings posits that concentrating on one way of life modifications amongst sufferers with type 2 diabetes mellitus is ideal if the healthcare practitioner understands patients' motives for adherence and non-adherence to diets and exercising recommendations. This is not solely applicable during the process of dietary amendment however it is additionally viable for both prevention and control of patients with type 2 diabetes mellitus (Ganiyu, Mabuza, Malete, Indiran, & Ogunbanjo, 2013).

This is similarly compounded by using the reality that such advocated ingredients can also be considered to interfere with usual household habits and practices. Although doctors, nurses and dietitians anticipate that they can encourage their clients to evidence-based healthy life-style measures, a study indicates that most patients do not easily buy in (Serou, Alqhenaei, Al-Saqabi, Mustafa, & Ben-Nakhi, 2007). These finding depicts the fact that characteristics and preferences as well as cultural and demographic factors prevent the adherence to theses interventions. It further endorsed to care givers that these obstacles have to be clarified, regarded and addressed when counselling about these measures with patients. What this means to the cutting-edge study is the fact that trainers of diet require the understanding of the idiosyncrasy of patients in order to transfer mastering to practice.

Idiosyncrasy of patient's cultural interrelationship with dietary behavior therefore claims sizeable room for consideration within the know-how and skill set required by nutritionists. This truth is precious in the modern-day study. It has additionally been eulogized in a study that posits that while lifestyle is central to the improvement of

self-care, developing an interest at culturally touchy interventions is needed. Community based interventions that grant culturally suitable assets to facilitate self-care is a stance that is strongly endorsed (Dikson, McCarthy, Howe, Schipper, & Katz, 2012). A focus on self-care practices has been described by ibid as encapsulating adherence to diet, medication, and symptom administration behaviors as properly as the socio-cultural beliefs round food. The perception of the dynamics of self –care by using nutritionists is pivotal in the direction of transfer of the first-class outcomes out of any given intervention measure. In the current study the equal is upheld from the premises that a giant percentage of NCD prevention as well as the dietetic management of the symptomatic penalties of NCDs falls squarely upon the shoulders of the client. Hence the coach has to analyze how to empower nutritionists to deal with it.

Empowering of patients to think of transformation extends beyond the management of NCDs to the capacity to sieve out actual dietary facts from unauthenticated sources. Media insurance on nutritional topics can affect fitness components both positively and negatively; it is not exceptional to find some of the reviews on diet subjects posted in print media missing scientific basis or suitable information. It has been mounted that news media over or lightly emphasizes certain elements of science subjects for motives such as the vantage to attract readers as well as to shield industrial interests..

High cost of the recommended food is yet another major barrier towards positive nutritional skills transfer that calls for attention in the practice of nutritionists and the same within this study. Though this may not be applicable to all recommendations, it nevertheless contributes to a successful transfer of training. This fact is especially a

point of concern as incomes are not always commensurate with required nutritional adjustments. Financial problems as an obstacle in lifestyle interventions has also been cited by Ganiyu et al (2013). What this brings to the fore in this study is the need for training in food composition as a priority in order to empower substitution with ease (Delisle, 2012). The current study equally embraces this pragmatic approach to dealing with presenting problems.

On the other hand a very busy executive may face limited options for foods due to a career that demands extensive travels that lead to lack of access to the recommended foods.

Lack of transfer of rapport building skills among nutritionists is yet another case in point that trainers need to demonstrate to their trainees during the course of training. This is considered a key factor that leads to relationship building which is an important factor in initiating change in another human being.

Further, prestige seems to be taken to be indicated by using expensive meats, fine wines and exotic food stuffs found in trendy restaurants and having an expensive car (Holi, et al, 2003). Such a trend may easily be picked from numerous messages given by members of the Kenyan community that unfortunately reverse efforts meant to drive positive change in personal and societal health.

2.9 Resources used in training nutritionists

Literature review acknowledges that sources devoted to combating the challenges posed via non-communicable ailments at the national, regional and international degrees do not match with the magnitude of the problem (Amuna & Zotor, 2006).

Equipment and gadgets that are supposed to be used in the education of nutritionists according to (CND-labs), should complement the concept taught and related to distinct aspects of dietary assessment, anthropometric, laboratory, clinical, dietary assessments. Furthermore, the lab sessions are meant to develop practical competencies in the use of tools and strategies used for evaluation of nutritional status (CND-labs).

From the perspective of clinical nutritional assessment, (Soeters, et al., 2008) ,four types of measurements have been proposed;

> ***Measurement of nutrient balance encompassing****- Dietary history, Nutrient losses in excreta Energy expenditure- both indirect calorimetry and activity devices, Nitrogen balance*
>
> ***Measurement of body composition****- Anthropometry, inclusive of body weight, height, BMI (kg/m squared MAMC, Triceps skin fold (TSF), BIA/ BIS*
>
> ***Measurement of inflammatory activity****- Albumin levels, Hb, CRP, Cytokines*
>
> ***Measurement of function****- Muscle function- Handgrip strength Immune function, Cognitive function* (Soeters et al., 2008, pp. 711).

CND-labs has enlisted equipment for anthropometry as;

The height meter, Weighing Scale Height Meter
Body Frame Size, Waist Hip Ratio, Head to Chest Ratio)
Skin Fold Calipers
Measuring Tapes
Stethoscope
Blood Pressure Instrument
Stop Watch
Diet Sheets/ Questionnaires/ Formats

Simulated Food Models
Step for Fitness Test

While some vital body measurements performed on nutrition clients include taking of;

Standing Height, Circumferences (Head, Mid-Upper Arm, Chest, Waist, Hips, Wrist)

Body Mass: Weight For Body Composition: Skin Fold Thickness (Biceps, Triceps, Sub-Scapular, Supra-Iliac);

Blood Pressure

Pulse Rate

For measurement of nutrient balance

Energy Expenditure: Basal Energy Expenditure (BEE) Using Harris Benedict and Mifflin Equations

Dietary Intake: 24-Hour Recall, Diet History, Food Frequency, Observation, Weightment

Running similtaneously with the diet lab is a food processing and practise laboratory in which education is combined with theoretical information to equip college students with the competencies and scientific functions for meals processing and preparation.

The relevant gear and devices that are required in such a kitchen include;- working stations for college students outfitted with the equipment required in the kitchen for processing and practise of food.

Skills that become operational in the kitchen include,

Measuring Techniques

Methods of Cooking Including Moist Heat, Dry Heat & Microwave Cooking

Sanitation in Food Processing and Preparation

Vegetables and Dried Legumes Cooking

Cereals Cooking

Fruit Cooking

Meat and Poultry Cooking

Milk and Milk Products

Eggs and Custards

Lipid Absorption during frying

Yeast Leavened Breads

Butter Type Cakes

Design of Food Label (CND-labs, n.d.)

The listed skills become relevant to this study because they are a description of the bare minimal skills in food production that any nutritionist should have. Thus these skills along with the equipment are important to have in mind as a requirement for the training of nutritionists.

2.10 Practical Food Analysis Laboratory

This lab introduces students to the techniques of food analysis, its use and limitations. Here, sensible demonstrations on procedural analysis and use of instruments for the

evaluation of precise chemical substances and food factors are engaged in. Classical and modern-day instrumental food evaluation techniques are proven where practical education focuses on the evaluation of various food companies for their main and minor food elements inclusive of their chemical separation, identification and quantification.

2.11 Equipment and Instruments

pH Meter
Top Loading Analytical Balance
Balance
Oven (up to 120ºC)
Vacuum Oven
Muffle Furnace ~ 550ºC
Water Activity Meter
Dessicator
Complete Soxhelt Unit for Fat
Kjeldahl (Digestion and Distillation Units) System for Total Proteins
Gerber Centrifuge for Milk Fat Determination
Fiber Tech System
Digital Refractometer for Food Application
Digital Colorimeter for Food Applications

EXPERIMENTS

Determination of Food Components
Moisture and Ash
Water Activity
Lipids
Proteins
Carbohydrates
Fiber
Minerals
Vitamins

Color

Food Additives

The list of equipment for both training and practice of nutrition is quite elaborate and specialized. The implication of this fact is that the training and practice of nutrition requires a substantial level of funding. While this may not pose as a challenge in developed economies, the scarcity of finances in developing economies in Africa at large and Kenya specifically, is a limiting fact towards the proficiency of nutritionists. It has been well noted by Enitan (2016) that the current capacity of nutritionists in Africa is hindered among other things by lack of necessary equipment attributed to scarcity of financial resources for nutrition activities Enitan(2016); UN (2011).

This aspect of the challenge of Africa being resource poor and how this impacts on the transfer of learning of nutrition graduates has been reiterated by Delisle (2012). Yet the evaluation of nutritional status is the first step in the development of a satisfactory plan for the nutrition care of an individual and it can provide the basics for the prevention of chronic diseases later in life. Unfortunately, the role of nutritionist's transfer of learning towards the downscaling of these chronic diseases otherwise referred to as NCDs is sometimes ignored. This is reflected in a study entitled *Health Care Providers' Perceptions and Practices Survey Regarding Non-communicable Diseases in Nairobi* in which the respondents only included general physicians, nurses, pediatricians, obstetricians and gynecologists (Mugo, 2017). This among others show that the role of the nutritionist's transfer of learning in Kenya is not yet prioritizes explicitly in the prevention and management of NCDs even when the adoption of a healthy diet is considered as important.

There is need for nutritionists not only to be specified but also to be equipped for effective action against the upsizing of NCDs in Kenya and the rest of Africa. In

tandem with this is the need for an organized and properly supervised attachment during training. A literature review on this follows.

2.12 Organization and supervision of attachment in the course of training.

The practice of nutrition demands the protection of the public as well as protecting and promoting professional standards. Professional standards or competencies are precise descriptions about a work role that are used to assist with credentialing which in turn is a system that ensures individuals' competence to practice (Palermo & McCall, 2008). Professional standards ensure fitness for purpose and it is expected to indicate eligibility for entry into a professional job. It is in this regard that professional development for nutritionists requires statutory regulation and professionalization that must meet the test of public protection (Landman & Wootton, 2007). This covertly refers in essence to the transfer of training.

Patient contact that is facilitated during attachment is part of this venture of orportunity to practice transfer of learning. For purposes of uniformity in training, there is need for a common framework for nutritionists. Once standards of proficiency have been developed, guidance for prospective practical professional development that are not only flexible, but affordable may be applied during formal training in placements or attachments (Landman & Wootton, 2007). Yet this is not yet applicable during the attachment in Kenya today as this study established. Supervision during training is not done uniformly as should be the case. Instead, each college goes about the supervision based on the expectations of their own college.

Attachments are ideally meant to provide for real-world training as well as a chance to demonstrate transfer of training. However, while on the job training is the norm for

physicians and nurses, training for many other healthcare occupations that include nutritionists do not include hands on component. And in the cases where there is a hands on component, the guidelines that define the attachment process is not universal (Mauldin, 2011). This brings about a gap in attachment that requires to be tackled. This leads to a diversity in the approach to attachment, thereby, bringing about glaring differences in the demonstration of transfer of training of trained nutritionists depending on which training institution they come from.

Innovations in nutrition education that will guide the potential of the student to analyze complicated capabilities in a secure surroundings before proceeding for attachment have been sought. Virtual simulation is a computer generated simulation of the actual or imagined environment or world. In other words, it is the act or technique of modeling, imitation or illustration of a viable situation. Simulation training serves as a bridge between classroom studying and actual life experience. The application of simulations in the course of education is advisable in that it helps meet the demand for medical placement sites and introduce new experiential environments that would be in any other case difficult to get entry to in person. This may similarly minimize stress on restrained scientific web sites and preceptors. In addition, simulation may additionally be used as an educating resource to growing self assurance of trainees from protected possibilities to exercise abilities (Davis, 2015)

Lessons from such improvements in mastering may address the otherwise restricted theory based procedures to education that lead to gaps in the transfer of knowledge, capabilities and mind-set inculcations.

Motion and workout are indispensable to a healthy, happy lifestyle, regardless of age. Although World Health Organization says that the state of being inactive is one of the leading preventable causes of dying worldwide, and has made bodily exrecises a public fitness priority, lack of exercising is nonetheless the norm. This is regardless of the reality that it is a big risk component for continual non-communicable illnesses (NCDs) like heart disease, stroke, cancer, chronic respiratory diseases, and diabetes – which now make up 60% of all deaths. Not only that, lack of exercising can lead to lasting disability (Reinberg, 2014).

Evidence involving human beings at the risk of cardiovascular sickness has verified that supervised exercises by therapists, coupled with dietary counselling, leads to substansive upgrades in blood pressure, weight, pleasant of life and different health symptoms after one year (Erickson, Westborg, & Eliason, 2006). This finding ties properly with the current research in the view that preventive strategy for NCDs is bodily workout skillfully balanced with guidance from nutritionists. Exercise has a role in preventing and controlling diabetes. According to the World Health Organization, 30 minutes of moderate intensity physical undertaking on most days, mixed with a healthful diet, can assist limit the risk of developing type 2 diabetes (WHO, n.d.) .

Since Literature review is awash with evidence of prevention of NCDs by exercising, the training of nutritionists cannot afford to ignore such a correlation. Maintenance and sustainability of physical activity interventions to effectively influence behavior change should be part and parcel of the practice of a nutritionist (WHO, 2006) .Yet literature review presents with a glaring gap in towards the conceptualizing of training nutritionists in basic physiotherapy.

The concept of incorporating basic physiotherapy in nutritionist's training is first of all necessary for the sake of the nutritionist's personal transformation in accepting physical exercise as an essential component in healthy lifestyle choices. As a trainer, the researcher has experienced firsthand a psychological barrier within trainees that have not taken any personal effort in their belief and behavioural actions to demonstrate knowledge transfer that sedentary lifestyle is indeed an impediment in the NCD prevention and management. This is a serious source of trouble that is bound to hinder genuine skills of motivating clients to exercise during practice if this future nutritionists lack the ability to transfer practical personal experience of physiotherapy. Any negative attitudes towards physiotherapy is bound to manifest, and efforts to help clients to engage in active living may be dampened by inexperience. This idea is well illustrated in theories of learning and counseling Bandura (1998); Corey (2009); Hockenbury & Hockenbury.

To date there is no consideration in the training process of nutritionists in Kenya that has factored in this concept of exercise practically during training regardless of the fact that it is obviously very late in the day to tap into this logic. Exercises for nutritionists would help them appreciate what it means to actually exercise. Experiential participation is known to become emulated more easily than empty rhetoric (Corey, 2009).

It is imperative to take into account that many types of gurus make a contribution to habits fitness schooling and fitness behavior. Health education practice in training of nutritionists is reinforced by using the close collaboration amongst professionals of specific disciplines, each concerned with the behavioral and social intervention procedure and each contributing a unique viewpoint (Glanz, Barbra, &

Viswanath 2008). There is an increasing emphasis on an interdisciplinary or even a trans disciplinary focal point (Turkkan, Kaufman, and Rimer, 2000) in two Glanz, Barbra & Viswanth (2008). Psychology brings fitness education to successful application in practice in regards to character differences, motivation, learning, persuasion, and mindset and behavior exchange as well as the perspectives of organizational and social psychology (Glanz, Barbra, & Viswanath, 2008). Therefore as far as the current study is concerned, having trainees interacting with other professionals in a mentorship relationships would provide essential training transfer during attachment.

Some tips that would be borrowed from the field of counseling while following on this particular thought is the aspect of the trainee becoming a client in any aspect of nutrition and then seeking nutritional counseling . This according to Corey (2009) would enhance self-awareness that then leads to motivation for personal development, vital in training transfer to practice. If such a concept is considered during attachment as well then it would be enhance training of nutritionists.

2.13 Gaps Highlighted by Literature Review in this Study

The training design used in the training of nutritionists has not given much attention on the needs of the industry, which is a vital step in training transfer. Needs assesment has been shown to be one ot the determining factors as whether training transfer takes place or not (Donovan, Hannigan, & Crowe, 2001). This gap has been closed by this study specifically as regards to the need brought on by NCDs. The need for prevention of most NCDs has been spelt out as well as various aspects of practical managment of the same have been highlighted by venturing into relevant

competencies nutritionists need to transfer from training in order to be effective in practice.

For the highlighted competencies to be effective, the need for collaboration with the industry in providing competency standardss, proffesional task descriptions and testing centers has been described to a substantial extent visa vi the current skills being taught to nutritionists in TVET.

Trainer's transfer surport has been brought into context as a pre-requisite to ethical transformation; a fact that has not received much attention from the studies from literature review. Considering that according to the seminal model proposed by Baldwin and Ford (1988), transfer consists of training inputs, training outputs and transfer conditions. The training inputs are composed of trainee characteristics, training design and work environment, and the training outputs include learning and retention. Finally, transfer conditions involve generalization and learning . Although the trainer's role is implied in this model, it is not directly acknowledged. This research therfore closes this gap by delving into the role played by trainers in detail.

As regards to the role played by resources in the transfer of learning, this literature review has gone beyond what is generally acknowledged in research as there being the need to match resorces used during training to those used in the work environment by getting into the detail of specifying which recources in particular apply in the training of nutritionists.

2.14 Chapter Summary

Training needs of nutritionists in Kenya are well revealed from a strategic plan documented by the Ministry of Heath whose goal is to reduce the preventable burden due to NCDs with little to show in terms of action to provide community interventions with access to relevant resources. This provides the mandate for this study to exlpore objective means of focusing on transfer of training in the the training of nutritionists as a viable intervention tool in prevention and managment of NCDs. Literature review has further shown that Africa lacks representation on international competency formulation boards, which would be handy in identifyng training needs and guiding the process of training. This serves to intensify the need for this curent study by seeking to understand training transfer efforts directed towards ameliration the NCD scourge both regionally and globally.

The review has also revealed that skills being relayed at the TVET are inadequate thus laying ground for need towards the consideration of a wider scope of disciplines being embraced in training in order to deal more effetively with tranfer of training during service delivery. Disciplines required in service delivery include, but not limited to sociology, psychology, education, physiotherapy among others. This ties well with the curent study which aims at bridging the gap between training and actual service delivery.

The challenge of Africa being resource poor has been revealed to impact on the training transfer of nutritionists exiting the TVET. This is also a concern of this study which seeks to find innovative ways of making use of locally available resources in tranfer of training.

Supervision during training has been found to be diverse, thus leading to differences in the ability to transfer among trained nutritionists. The study is also about seeking means of uniformity at this level in a bid to reduce these unnecessary differences among nutritionist exiting the TVET.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Overview

This chapter outlines the theoretical framework, description and justification for the type of methodology and methods. The assortment and meaning of a mixed method sequential explanatory design is then articulated. The imperative role of this approach as a method is elucidated and the methods in the design are communicated, underlining their rationality and practicality to the process of collecting.

3.2 Geographical Location of the Study

This study was carried out in all major and Referral hospitals and health centers in Uasin Gishu County. The hospitals that were included in the study are listed in table 3.1

Table 3. 1: Localities of work Places

Public Hospitals	**Private Hospitals**
Moi Teaching and Refferal Hospital	Eldoret Hospital
Memorial Hospital	Alexandria Hospital
Huruma (Rural) Subcounty Hospital	Reale Hospital
West Maternity Hospital	St Luke's Hospital
Uasin Gishu District Hospital	

The community in rural Uasin Gishu formed part of the study area. The hospitals and the community were chosen because they comprise the ground where nutritionists render their services. The study aimed at examining the nutritionist's perspectives of the curriculum used during their training and how this contributes to their current

service delivery. The number of nutritionist in Uasin Gishu county were estimated to be 600 in total.

The choice of hospitals and health centers in Uasin Gishu was purposely selected as it provided for nutritionists in both administrative positions as well as in clinical practice coupled with those drawn from the community. Nutritionists Alumni from TVET institutions were engaged as well as the industry which entailed work stations in which these graduates work. A survey was carried out in the first phase of the study. This was conducted at a Teaching and Referral hospital which served patients from the greater North Rift of Kenya and its environs. Questionnaires were administered with the help of nutrition administrators and heads of departments. Participants were selected on voluntary basis. Nutrition professionals in administrative positions were interviewed in the second phase of the study. The choice of this particular study site embraces purposive sampling which encourages information rich cases from which one can learn a great deal about issues of central importance to the purpose of the study (Patton, 2002; Driscoll, 2007; DiCicco-Bloom & Crabtree, 2006).

Private hospitals in Rural Uasin Gishu were beyond the scope of this study because nutritionists have been trained to work in collaboration with a number of other health practitioners who can hardly be found in Rural Uasin Gishu where necessary equipment and infrastructure would be lacking. Cases of patients with nutritional problems which are not easy for nurses to handle are known to be referred to major referral hospitals that are found mostly within the Urban Uasin Gishu.

Uasin Gishu County is among the two counties in Kenya that is home for the largest number of teaching and referral hospitals rivaled only by Nairobi City being the other

region with a concentration of such hospitals. This has been brought about by the proximity of the country's major medical colleges that have to be situated alongside hospitals. The researcher was inclined to select Uasin Gishu county purposively based on the fact that some of the data for the study was to be qualitative thereby necessitating familiarity to the study area by the researcher Creswell (1998).

3.3 Philosophical Framework

For the purposes of this particular study, a theoretical perspective is used to refer to a philosophical standpoint shaping the methodology and an epistemology as a theory that elucidate what is known and is entrenched in the theoretical viewpoint Crotty (1998). Accordingly, a theoretical stance provides for "unified, systematic explanation of a diverse range of social phenomena".

The mixed-methods conceptual framework may be approached by illuminating four theoretical starting points namely, triangulation, multiplism, mixing methods and paradigms, as well as mixed design strategies. Triangulation refers to the designed use of multiple methods in investigating the same phenomenon in order to strengthen the validity of inquiry results by offsetting biases, concept embraced in this study by using both a survey and indepth interviews as data collection methods. While Multiplism encompasses the basic rationale of triangulation to all aspects of the inquiry process by emphasizing validity via convergence of results from multiple methods, theoretical orientations and political perspectives. In the same vein, mixed-methods design strategies concept is for additional ideas on alternative mixed methods purposes and on design characteristics that may differentiate among this purposes ideas (Greene, Caracelli, & Graham, 2010).

The philosophy that underpins this study was inclined towards a pragmatic philosophical view. Pragmatic method or maxim posits that it is useful to evaluate ideas by considering their empirical and practical consequences (Burke & Onwuegbuzie, 2004). The pragmatic method then works at trying to interpret each notion by tracing its respective practical consequences. This stance seeks to unravel meaning of the idea by asking for the consequences that present. Efficacy in practical application becomes a precious goal of research by looking out for that which works out most effectively. The underlying factor is that, while mixing research approaches, the goal should be to offer the best opportunities for answering important research questions (Burke & Onwuegbuzie, 2004)**.** A theoretical framework exemplified by pragmatism was fundamental to as the way to go for this research as it brings into perspective the rational connection between qualitative and quantitative inquiry (Patrice, 2012). This concept is well embraced in this study by making room for both the qualitative as well as the quantitative paradigm.

Pragmatism is derived from the Greek word 'pragma' "deed" meaning action. The opposite of *idealistic is pragmatic,* a word that describes a philosophy of "doing what works best. A pragmatic person is sensible, grounded and practical. Pragmatism is a philosophical movement that may be traced to the work of American philosopher Charles Sanders Peirce in the late 19th century in his quest for a critical philosophy (Crotty, 1998). Historically, pragmatism can be traced to an early period from 1860-1930 and the neopragmatic era from 1960 to present (Maxcy, 2003). Many mixed methods researchers and theorists are inclined to pragmatism (Bazeley, 2003 ; Greene & Caracelli, 1997 & 2003; Maxcy, 2003; 2003; Johnson and Onwuegbuzie, 2004). Johnson and Onwuegbuzie, (2004: 17) summarizes the philosophical position of mixed method researchers when they state that pragmatism as the philosophical

partner for mixed research attempts to fit together insight provided by qualitative and quantitative research into a workable solution. It is this provision for workable solutions that this study went for pragmatism to seek out holistic solutions to the problems that bedevil the training of nutritionists for efficiency in the service delivery.

Yet as to the question of experiences being based on habit or on active inquiry Dewey treats all experiences as both historical and being aligned along the cultural domain (Morgan, 2014). Thus from the pragmatic perspective, prior paradigm that relied on metaphysical description of ideas as a means for investigating social research is effectively disrupted. Instead, pragmatism maintains that research is a human experience and actions of actual researchers. This goes against the older approach that places emphasis of social research in terms of ontological and epistemological as well as methodological orientations. Even though, it does not neseccarily disqualify the older approach, but understands the previous paradigm as having served well within the context that were in existence then (Morgan, 2014) . The circumstances then have changed, beckoning for change in methodological approach. This view of changing circumstances fits well with the scenario presented during the service delivery of nutritionists which is bound to influence the need brought forth during training.

Thus social science research, from the pragmatic view point, essentially shifts focus towards the requirement to examine not just what researchers do, but why they do things the way they do. Additionally, as ibid puts it, research is never an isolated affair, so how it is influenced by the prevailing factors such as historical, cultural, and political contexts of the day is the concern of the pragmatic researcher. More attention focus on the ways these factors affect both how we select our interpretation

of the outcomes of this choices becomes an important goal to be pursued. This includes how researchers would join together to emphasis a common view of doing things as opposed to the other (Morgan, 2014).

Pragmatism advocates for the fact that organisms are undergoing a contiuos adaptation to new situations and environments. Our reasoning, consequently follows a dynamic homeostatic process of belief, doubt, inquiry, modified belief new doubt, new inquiry…..in an infinite loop where the person or researcher (and research community) tries to improve upon past undertakings in a way that fits and works in the world their own world (Burke & Onwuegbuzie, 2004). The training of nutritionists may be viewed as one human experience that naturally requires an examination of both historical and contextual issues that shape the environment in which they work. These contextual issues point to nutritional related needs of the industry which bear the characteristic of being dynamic and that therefore require continuous inquiry, reflection and action based on the beliefs that presents from experience. Improvement of this nature of training in a way that fits and works in the world in which nutritionists operate becomes a precious goal attainable through inquiry with the present acting as a new starting point. This research draws from the work of classical pragmatics such as Charles Sanders Peirce, William James and John Dewey.

Pragmatism in mixed methods research has been proven as a worthy philosophical partner; it attempts to fit together the insights provided by both quantitative and qualitative research into a workable solution. In mixing the paradigms of quantitative techniques such as survey with qualitative one such as an in-depth interview into a single study, a logical and practical alternative to inquiry is derived. A multiple-

method approach informs knowledge better for purposes of corroboration, for complimentarity, for expansion as well as triangulation (Johnson & Onwuegbuzzie, 2004; Creswell,2005; Patrice, 2012).

Further, in applying pragmatism, the existence and importance of both the natural or physical world as well as social and psychological world is recognized. This is quite enabling in research as it avoids unnecessary constraints (Feilzer Y. M., 2010). In applying abduction in pragmatism, observations are first converted into theories which are then assessed through action. Pragmatism as a perspective emphasizes the assessing of inferences through action solely. The application of abduction in pragmatism, may further a process of inquiry that evaluates the result of prior inductions through their ability to predict the workability of future lines of behavior. Sequential process in research sits quite nicely with pragmatism in that qualitative and quantitative methods where the inductive results from a qualitative can well serve as inputs to the deductive goals of a qualitative approach and vice versa (Johnson & Onwuegbuzzie, 2004). This concept has worked well with this study whereby a survey was practically followed up with an in depth interview that dealt with acquiring richer and deeper views transfer of training.

Duality in pragmatism is well captured since it brings on board intersubjectivity. This is well advanced by commensurability as a pragmatic approach which does not find it problematic to accept that there is a single ‘real world’ and that all individuals have their own unique perspective of that world. Intersubjectivity is therefore regarded as an element of social life. Knowledge creation therefore incorporates joint efforts and actions of different groups or people (Feilzer, 2009; Johnson & Onwuegbuzzie, 2004). This was quite well sought after in this study in which data collected during the

survey was corroborated with voices from key informants that gave way to “thick” descriptions.

Reflexivity was yet an important subset of pragmatism where more attention was paid to the social processes that produce both consensus and conflict within one field and how these issues transition back and forth between these statuses. Specificity, in terms of knowledge being context based in pragmatism goes as well as universality that seeks generalization of knowledge is taken in stride. From the pragmatic point of view, the important question is the extent to which we can transfer knowledge from one specific setting and make the most appropriate use of that knowledge in other circumstances. (Morgan, 2014). This takes us back to one important outlook of pragmatist that involves a process of working back and forth between specific results and their more general implications. Transferability of learning from one context to another is well favored in pragmatism as well. This is so for as long as the factors that affect whether the knowledge we gain can be transferred to other settings. This was a valuable provision for this study in which qualitative data was played back to the key informers in order to validate it.

Applying pragmatism comes with its way of stressing ‘the how to aspect’ of research and even more importantly to get concerned about why do research in a given way. As posited by James in his classical theory on pragmatism, the why question is necessary in the justification of one method over other methods. Thus this gives way to the consideration of the choice of research goals as being precious as well. This way of viewing the world seems to supersede just a problem solving activity that is misconstrued to be the major concern for pragmatism. Thus conclusively, pragmatism offers an effective alternative through its emphasis on the abductive, intersubjectivity

and transferability aspects of research (Morgan, 2014). These facts played out so well in this study by each being put into consideration through abductive, intersubjective means of data collection that provide for means of application in similar circumstances that other nutritionists may face.

3.4 Methodology

Method and methodology are defined in conflicting ways in literature. For the purpose of this study, methodology is defined as a theory and analysis of how research should proceed; an analysis of the assumptions, principles, and procedures in a particular approach to inquiry or the description, explanation and the justification of methods, not the methods themselves (Carter &Little, 2007). Taking for example the case in ethnographic inquiry that seeks to uncover meaning and perceptions on the part of the people participating in the research; ethnography as a methodology guides the researcher in choosing method and shape the use of the methods chosen. The same will apply to other methodologies like phenomenology, action research, feminist research and the list goes on (Crotty, 1998).

Methods are techniques for gathering of evidence which can be thought of as action of research as suggested by the same paper (Carter & Little, 2007). Methods may involve the use of unstructured interviews and use a non-directive form of questioning in the case of ethnography for instance, while experimental research would go for sampling, measurement and scaling for data collection. This study aimed to have a more holistic view by including both structured and unstructured methods of data collection, a justification for which follows shortly.

But first it is important clarify the fact that research methodology describes the strategy of action. Strategy has its'origin stemming from the Greek word *strategos* meaning "the thinking and action of a general". The terminology "research methodology" is used interchangeably with "research design" and it is considered vital in shaping choice and use of particular methods and as a linkage to the desired outcome (Crotty, 1998). Research methodology does not only refer to the strategy of the research, but also accounts for the rationale it provides for the choice of methods and the particular forms in which the methods are employed.

Theoretical perspective then refer to the philosophical stance informing the methodology and providing a context for the process and determining it's logic and criteria (Crotty, 1998). Following this argument, in this study, the training of nutritionists within the context of dynamic factors that drive the nutrition industry is a situation whose nature requires unraveling in order to bring clarity to it. Personal experience played a major role since the study touched on phenomena within the life experiences of the researcher, who is a trainer of nutritionists within the nutrition industry. The lessons learnt at a personal level were channeled into the present study that was incorporated into the recommendations that result (Creswell J,,2007; Feilzer; 2009; Denzin,2004; Flick, 2004)

The nature of training nutritionists and the transfer of this training relate to issues that touche on personal choices based on both individual and societal interpretation of their environment. This indicates that participant's own perspective in the meaning of their training demands consideration as it points to an important inner resource which may play a major role towards desired change. Further, human beings do not live in isolation and so do not arrive at isolated nutritional related choices. Their nutritional

related choices are actually contingent of social interaction. In view of this, Symbolic Interaction as a theoretical perspective informed the methodology of this research (Koro-Ljunberge, Mirka, Diane, &Judie, 2009; Denzin, 2004; Crotty, 1998; Paton, 2002)

The theory of knowledge embedded in the theoretical perspective and thereby in its methodology is Constructionism. In Constructionism, all knowledge and therefore all meaningful reality is dependent upon human practices being sculpted in and out of interaction between human beings and their world and developed and passed on via a vital social context (Crotty, 1998). This study relied on both qualitative data which entails the use of language as well as numbers, thereby delving into mixing of methods as well as data from both the quantitative approach as well as the qualitative that is interpretative and naturalistic. In a naturalistic inquiry, observations take place in real world environment and participants are interviewed with open ended questions in an atmosphere that does not pose any threat or discormfort that is most familiar to them (Patton, 2002). Qualitative research embraces the concept of intersubjectivity which refers to how people may agree or construct meaning; in order to interpret the social world they inhabit (Biggerstaff, 2012). These meanings are derived from, and arise out of the social interaction that one has with one's fellows. These symbolic interactionism premises led Blumer to qualitative inquiry is viewed as the only realistic conceptualization by people that dictate how they perceive, understand and interpret the world (Patton, 2002). Blumer is seen to have been one of the first researchers to use group discussions and interview methods with key informants. He accomplished this by carefully selecting a group of people of naturally acute observers and well informed people to be a real "panel of experts" about a setting or situation; experts who would take the researcher inside the phenomenon of interest.

This wisdom was insightful in this study because the decisions that entail how nutritionists are trained is socially constructed; thereby bearing a common basis with Symbolic interactionism.

Open ended interviews with key informants were used to collect data. Key informants formed part of the study participants. Key informant interviewing is borrowed from ethnographic research. According to (Bernard, 1994), good informants are people who are easy to talk to yet well conversant with the information you need and gladly give it it to you or get it for you. Spradley (1979) concurs that not only is availability important but willingness to be engaged as well as the ability to communicate experiences and opinions clearly, freely and in a reflective manner (Spradley, 1979). Central to this study, key informants were nutrition professionals and nutritional administrators who were information rich and were willing to participate in the study. Other studies involving key informants in which a series of extended interviews with individuals especially knowledgeable about the topic under examination was done (Predeli, Halsaa, Thun, Peren, & Sandu, 2012). Driscol et al (2007) sites the time required to design and conduct a separate tailored instruments for key informants as being disadvantageous. While on the other hand Paton (2002) points out that purposeful sampling is a technique popularly used in qualitative research for the identification and selection of information-rich cases for the most effective use of limited resources.

3.5 Research design

Mixed methods research is on record as a highly sought out and well spoken of in research practice, and embraced as the third major research approach or research paradigm, coming only after qualitative research and quantitative research (Johnson,

Onwugbuzie, & Turner, 2007). Concurrently, Denscombe (2008), adds voice to this argument by stating that the mixed methods approach has emerged as a ‘‘third paradigm’’ for social research by developing a platform of ideas and practices that are credible and distinctive and that distinguishes the approach as a practical alternative to quantitative and qualitative paradigms.

Mixed methods research is formally defined by Johnson and Onwuebbuzie (2004) as the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study, (Johnson & Onwuegbuzzie, 2004).

On the other hand a more comprehensive definition is provided by Creswell and Plano Clark (2007: 5) who define mixed methods as:

> *Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone. Pp 5*

Many reasons have been identified for conducting a mixed methods research study. Greene, Caracelli & Graham, (1989) identified five purposes for conducting mixed methods research designs. These are triangulation, complementarity, development, initiation and expansion Greene, et al. (1989). These reasons have been further expounded to arrive at a total of sixteen reasons that scholars have given for engaging in multimethods research (Bryman, 2006) . It is in solidarity with this view that favors multimethods, that this study seeks to utilize the advantage provided by combining both quantitative and qualitative approaches in the study of the transfer of training of nutritionists in the view of a myriad of dynamic issues that spells the

phenomena at hand as being complex. Outlined below are the main points that have a bearing in the present study.

Triangulation or greater validity in this research gives way for greater validity that is brought about by corroborating both qualitative and quantitative data. This was well articulated in this study by using both a survey as well as an indepth interview.

Offset – This is the utilization of the research methods, in this case a survey in combination with an in-depth interview associated with both quantitative and qualitative research by capitalizing upon the strength of each while giving chance for each to offset weaknesses that present from either one of the methods used fits well with the study at hand.

Completeness – This refers to the concept that, by combining both quantitative and qualitative research, a more comprehensive version of the research is attained. This was one aspect that we embraced as needful for the study.

Explanation – one is used to help explain findings generated by the other. As viewed in the study that presents, the qualitative approach was useful in explaining quantitative findings yielded by the survey.

Credibility – refers to suggestions that engaging both approaches yields added trustworthiness of findings, a fact that was well articulated herewith.

Context – refers to bringing on board the idiosyncrasy that stories told in context may add voice to generalizable findings among variables uncovered through the survey.

Illustration – refers to the advantage in the use of qualitative data to illustrate quantitative or in other words, putting ‘meat on the bones’ of ‘dry’ quantitative

findings. This resonates well with our current study where numeric data on the objectives of the study would not be convincing enough without elaboration from the lived experience of the participants.

Utility or making findings more valuable – refers to a suggestion that, combining the two approaches will be more useful to practitioners both in nutrition practice and in training.

Confirm and discover – this refers to using qualitative data to generate Hypotheses then using quantitative research to test them within a single project as was the case with this present study in which a survey yielded data that was further interrogated via an interview.

Notation has developed in mixed methods field that provide shorthand labels and symbols that convey important aspects of mixed methods research that makes provision for easier communication of procedures by researchers. Some of the notation adopted from Morse, (1991) Bryman, (2006) have been made use here and make sense in providing for short forms as follows.

Morse (1991), initially used “quan” to indicate quantitative methods of a study and “qual” to indicate the qualitative methods. This is not only a shorthand means, but it also conveys equal status of the two methods. On the other hand , when relative priority of the two methods within a particular study is desired, then the prioritized methods are indicated with uppercase letters as in QUAN and QUAL and secondary methods with the lower case letters, ie quan and or qual, (Creswel & Clark, 2011)

Further, Morse introduced, the use of Plus (+) to indicate the notation that occurs at the same time and an arrow (→) to show methods that occur in sequence as reported by Ibid. A diagrammatic representation of Creswel & Clark Mixed Method Sequential Explanatory Model is illustrated in figure 3.1. Using this notational design.

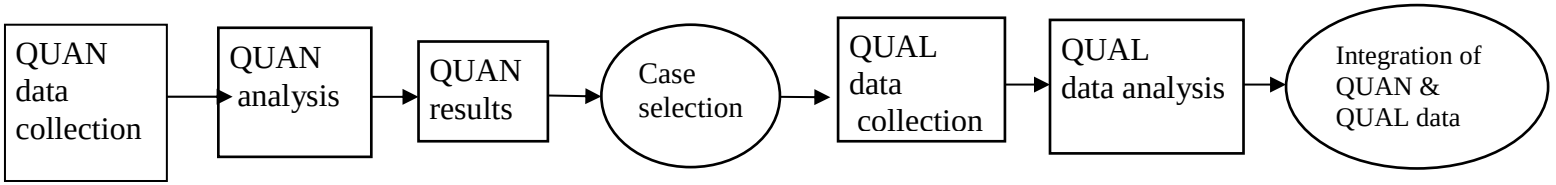


Figure 3. 1:Creswell & Clark Mixed Method Sequential Explanatory Mode

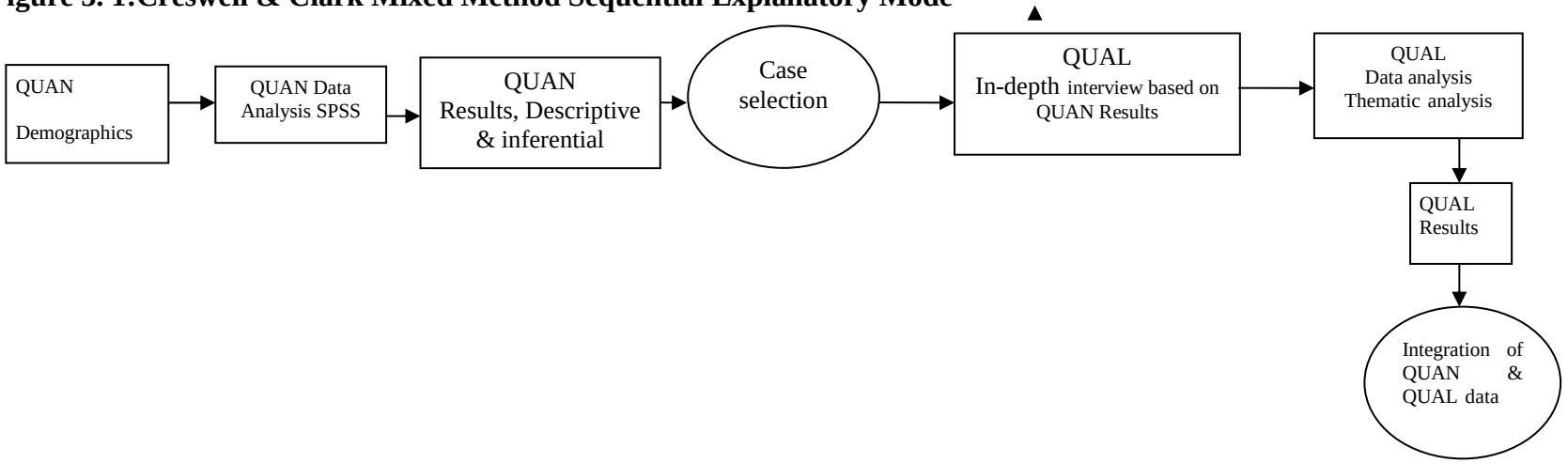


Figure 3. 2: A Mixed method sequential explanatory study to measure the relevance of training nutritionists within the context of emerging needs

When measuring the nature of training for nutritionists within the context of emerging nutritional needs, a mixed sequential design is appropriate. The explanatory design comprises of two segments of study in which qualitative data is used to expound on initial numerical results. This was first referred to a sequential explanatory study by Creswell (1998). Application of the follow-up explanatory model entails an initial identification of specific quantitative findings, like unexpected results as the case may be or some variances observed between groups that need further exploration using qualitative methodology (Doyle, Brady, & Byrne, 2009). Such a two-phased approach thus allows study participants to respond to the survey on their own time and reduces the time required for in-depth discussions of emergent themes. Apart from providing a focus on emerging thematic issues, such an approach provides for an opportunity to review and analyze the survey results and drive the subsequent in-depth interview instrument to follow-up on unclear or significant responses (Driscoll, Appiah-Yeboah, Salip, & Rupert, 2007).

In addition the iterative nature of a sequential study simplifies the integration of coded qualitative collected in in-depth interviews with survey data. Further, the qualitative phase has priority in the participant selection model, and the purpose of the quantitative phase is to identify and purposefully select participants (Doyle, Brady, & Byrne, 2009). This is not to say that either of the approaches holds dominance above the other. There exist differences in opinion as to the equality of the status designs in terms of applying quantitative and qualitative epistemologies. Equal priority may be given to the two phases (Johnson, Onwuegbuzie, & Turner, 2007). Priority for this study has dwelt on quantitative data as is the case with sequential explanatory mixed methods studies in which qualitative data is sought to explain unclear information yielded during the quantitative phase (Creswell, 2014).

3.6 Target Population

The population is the group of interest to the researcher; the group to whom the results of the study will apply (ideal researcher's choice) which is rarely available, hence the researcher ends up working with the accessible population (realistic choice) (Fraenkel & Wallen, 2000). For this particular case, the target population is made up of practicing nutritionists who trained and graduated from any TVET institution in Kenya, and the industry in which these Nutritionist get employed, mainly the Referral and Teaching Hospitals in Uasin Gishu County, Kenya. This view was advantageous because it went beyond aggregating data from individuals to what Patton (2002) describes as an attempt to get overall program results which involve looking at the program units holistically.

3.7 Sample size and Sampling Procedures

Characteristics of mixed methods sampling strategies are combinations of (or intermediate points between) the probability and purposive sampling positions. The overall purpose of sampling is designed to generate a sample that will appropriately address research questions. Thus in a mixed methods research there are multiple samples in the study which vary in size depending on the research strand that may be suitably applied and the research questions that the study addresses (Teddlie & Yu, 2007) .

In this study, multiple samples were used in which all major hospitals and health centers in Uasin Gishu County were purposely selected and questionnaires given to 234 nutritionists although only 187 were returned and found useful. The number 234 was arrived at based on an estimated population of nutritionists in Uasin Gishu being 600 thus going with what is suggested statistically by Cohen, Manion & Morrison

(2005). This was then followed by interviewing 5 key informants who were nutritionists in administrative positions because they were willing and were suitable to deliver the feature necessary to develop the qualitative results (Creswell, 2014; Benard 2002; Driscoll, 2007; Palinkas et al, 2015) Both numeric and narrative data were generated from the participants.

Table 3. 2: How participants were represented

Work Place	Number of questionnaires Filled and Returned
Moi Teaching & Refferal Hospital	58
Memorial Hospital	16
Huruma (Rural) Hospital	11
West Maternity	9
Uasin Gishu	13
Eldoret Hospital	13
Alexandria Hospital	7
Reale Hospital	20
St. Luke's Hospital	18
The General Community	22
Total	**187**

Sampling is an important step in both the qualitative and quantitative research process and even more so in the mixed methods research process (Onwuegbuzie & Collins, 2007). This is compounded by the complexity arising from the fact that the quantitative and qualitative components bring into the setting their own problems of representation, legitimating, integration, and politics. These issues may give rise to combined problems that are likely to yield an additive effect or a multiplicative effect that adversely impacts the quality of data collected.

The purpose for this study has directed the type of sampling that the researcher employed. The important issues that were central to the study focused on how the training of nutritionists was being transferred to prepare them to tackle present day challenges that relate directly to the reason for their training. In purposive sampling,

you make the selection of a direction you want an informant to assist and you set out to find one (Bernard, 1994).

Purposive sampling served for the study very well because it provided the frame work within which an intensive study was done. The research needed to get to the depth, detail and meaning of the program in order to illuminate the training of nutritionists. This required that the researcher engages personal experience by having direct contact with and gets close to the informants, situation and phenomena of the training as well as the industry for which the training is being undertaken (Patton, 2002).

The study was a kind of a critical case. A critical case is one which can make a point quite dramatically or is particularly important in the scheme of things (Patton, 2002). In the case of this study, it illuminated ways of improving transfer of the training program of nutritionists for the emerging nutritional challenges of the current times, thereby providing for a premise for an informed action. In addition, logical generalization may be made from the weight of evidence that this study has brought to the fore. Thus purposive sampling was engaged along with snowballing that led to information rich informants.

3.8 Research Variables

The study investigated how independent variables affect dependent variables. In this study, the effect of independent variables, training design, trainer's transfer surport, resources used in the classroom as compared to the work environment and supervisor support for transfer were selected as independent variables affecting dependent variable, work performance via motivation to learn, motivation to transfer and finally the transfer of learning.

Job performance of nutritionists was the dependent variable. This is because the effects of independent variables, training design, trainers' transfer surport, equipment used in training and trainees experiences in terms of attachment organization and supervision were examined.

3.9 Research Instruments

This section describes instrumentation and the administration of instruments. Several methods were used to collect data for this research. They included: document analysis, and interviews guided by interview schedules and questionnaires. These data collection strategies promoted triangulation. Triangulation is perceived to be valuable in demonstrating rigor in research as it addresses the issue of internal validity by using more than one method of data collection to answer a research question (Barboaur, 2001). This facilitates a broader view of the phenomenon under study. Denzin (1978) quoted in Patton (2002), rules that multiple methods should be used in all investigations since no single method adequately addresses the problem of competing fundamental factors since each method brings to the fore different features of empirical reality. Hence upholding the premise that multiple methods of observation must be employed.

3.9.1 Quantitative Phase

This study aimed to reveal the gaps that exist between the training of nutritionists and the actual job performance within the context of emerging nutritional needs of the population. The initial quantitative phase used questionnaires to measure the relevance of the training program of nutritionists as it relates to the need of the nutrition industry in order to gather information in regard to curriculum, books, trainer's skills and how the attachment to the nutrition industry is organized during

the training of nutritionists. Data analysis of the quantitative phase identified significant thematic aspects that required further exploration. Strands of information from the quantitative segment of the study were followed through by applying for purposes of seeking out persistent themes running through the two segment of the study. The phenomenon of this research that examines the training needs of nutritionists in a dynamic nutritional industry is subjective by nature.

A purely quantitative approach would not have adequately provided an understanding of the experience of the training needs of the nutrition industry because of their complexity and subjective nature (Johnson & Onwuegbuzzie, 2004). Quantitative (mainly deductive) methods are ideal for measuring pervasiveness of "known" phenomena and central patterns of association, including inferences of causality while qualitative (mainly inductive) methods allow for identification of new processes, reasons as to why and how phenomena occur, and the range of their effects (Creswell, Klassen, Clark, & Smith, 2011). Using the combined approaches of quantitative and qualitative thus unifies of the strengths of each to answer research questions.

3.9.1.1 Participant Demographics

Before demographic data collection was embarked on, participants were engaged for demographic information about themselves. Demographic measures typically are used to identify key respondent characteristics that might influence opinion and/or are correlated with behaviors and experiences (Lavrakas, 2008). The demographic sector of a questionnaire not only provides leads to useful information about respondents but also, paves way for determination of the representativeness by the respondents of the population. This is quite useful to it may determine whether respondents are representative of the population, and helps to establish a context for the responses

(Colton & Covert, 2007). Demographic measures are also important as demonstrated by numerous studies that opinions are formed primarily through an individual's environment which socializes us to think and behave in accordance with community norms and standards. Thus by isolating these demographic measures, pollsters are better suited to understand the nature of public opinion and ways that may then be directed into achieving new opinions and modification of the same (Lavrakas, 2008).

Demographic characteristics sought for this study included Gender, age, state of employment (whether one was employed on permanent basis or voluntary), section of work to indicate area of specialty, experience and the highest level of training achieved. The objective for collection of this data was for purposes of yielding a frame work of variables that are useful in identification of patterns, behaviors, features shared aims and variations. (Patrice, 2012).

3.9.2 Qualitative phase

Following the quantitative phase of study was the qualitative phase. Qualitative research inquires into the meaning that individuals or groups attach to a social or human problem in a way that is empathises with the people and places under study and presents represents opinions of participants, the reflexivity of the researcher and a complex description and interpretation of the problem that extends literature or calls for action, (Creswell J. , 2007). The qualitative segment of this inquiry utilized semi-structured in-depth interviews of accepting participants.

3.9.2.1 In depth Interviews

An interview is an interchange of views between two or more people on a topic of mutual interest, that considers the centrality of human interaction for knowledge

production, and emphasizes the social ‘situatedness’ of research data (Cohen, Manion, & Morrison, 2005). Cohen et al (2005) point out that interviews give a chance to participants, both the interviewers and interviewees to discuss their interpretations of the world in which they live, and to express these perceptions with their own voices. This feature is particularly suited for this study since it is capable of generating data that is void of concepts portrayed in other written versions. Knowledge thus generated therefore will bear novelty. However, bias is inevitable in an interview and it needs to be recognized and controlled (Cohen et al 2005).Consequently, awareness of bias by the research during the inquiry was important to inform care in ensuring reliability of the study.

An interview schedule was drafted by the researcher and used for generation of data central to the study. Flexibility is a highly sought out factor of qualitative interviewing (King & Horrock, 2010). As such, though the interview guide was necessary from the outset, yet the interview had to be directed to respond to emerging issues in the course of the interview in order to explore the opinions of the participant on the topics under investigation. Yet caution mus be applied to avoid the use of guides as rigidly to counter the limitations they introduce in the collection of data that stifles the capturing of subjects’ meaning of the experience of a condition and its treatment.

King & Horrock (2010) have further suggested that although interview guide summarizes the main topics the study that a study focuses on, but flexibility in the phrasing of the questions and the order in which they are asked requires consideration. The interview schedule should allow the participant to lead the interaction with creativity and skillfullnes. This study was, guided by a milieu drawn from the quantitative data, where topics were identified yielding to matters that became the

focus for further exploration. The interview helped the researcher to understand pertinent issues that arose during the practice of nutrition thereby providing for premise for in-depth exploration (Patton, 2002; DiCicco-Bloom & Crabtree, 2006; Driscoll et al, 2007). Issues such as readiness of fresh graduates to tackle specific aspects of the practice, prior exposure to important aspects of nutrition practice and preparedness of the trainers to deal with emerging issues in the nutrition industry were illuminated. Strategies were identified from the lived experiences of key informers. This flexibility was embraced during this study as well as the creation of rapport that allowed for free expression and adjusted to fluid social situation.

From the constructivism point of view, multiple realities that people have in their minds hold value. Therefore, to acquire valid and reliable multiple and diverse realities, application of various methods of searching or gathering data are well suited (Golafshani, 2003). In this study, the use of triangulation and member checking has been embraced such that what the survey may have revealed with brevity is further explored by engaging key informants via the interview. Triangulation in this study has taken the form of combining method as well as both quantitative and qualitative data (Denzin, 2012) In addition, an open ended perspective was upheld in that at the initial stage, participants, (mainly the key informers) were allowed to assist the researcher in formulation of the research questions as well as with the data collection. This was a deliberate action that caters for demands of validity in qualitative research by bringing on board sufficient number of participants who are well versed with information under study, secured through purposeful and criterion-based sampling that isolates research participants who have a rich experience with the phenomena under study and who can effectively articulate these experiences, (Ponterotto & Grieger, 2007).

Further, member checking was pursued throughout the inquiry in a bid to establish credibility of findings. Member checking is a process in which collected data is 'played back' to the informant to check for perceived accuracy and reactions (Cho & Trent, 2006). This was done by audio-recording the interview upon getting permission from the key informants. The information was then transcribed from the audio recorder. Any unclear messages would prompt the researcher to call the informant for clarification and confirmation. Reconstructions of the findings were read back to the informants for confirmation if they indeed were in agreement or not. This was done to check for accuracy and reactions. Member checking is considered to be the most crucial technique for establishing credibility (Cho & Trent, 2006). When validity is worked out as a transactional process as in member checking misunderstandings are adjusted and fixed.

In addition to triangulation and transactional member checking for validity, the researcher engaged in transformational validity termed as self reflexibility. Self reflexibility has been described by Cho and Trent as the interest in making explicit the value-laden nature of social, cultural and political meanings in micro and macro contexts by making sense that meanings are social constructions and multi perspectives on a topic thereby yielding multiple meanings (Cho & Trent, 2006).

Reflexibility came quite naturally to the researcher based on the fact that the researcher was very much a participant researcher who was a trainer of nutritionists and got a firsthand opportunity to cross check how aspect of training were being received by end users. Meaning creation was inevitable as lived/life? experience of training intermingled with responses and reactions about the training that the

researcher was engaged in for seven years and counting. The effect of this was truly transformational as some facts started to have their brunt.

3.9.2.2 Document analysis

Documents, records and artifact consist of particularly rich source of information about organizations and programs, in addition program records can provide a behind the scenes look at program processes and how they came into being (Patton, 2002). In this study, the latest samples of examinations, syllabus, textbooks that are recommended for institutions were analyzed.

3.10 Piloting

The researcher sought to verify the reliability and validity of the research instruments through piloting. Cohen, Manion and Morrison (2005) observes that piloting helps to detect deficiencies in research instruments. Piloting was done in Kapsabet county hospital and responses were checked against research objectives, (Paton 2002).

3.10.1 Validity and Reliability of Data Collecting Instruments

Traditionally, to acertain validity in qualitative research, the degree to which researchers' claims about knowledge march with the reality (or research participants' constructions of reality) being studied is checked (Eisner & Peshkin, 1990) in (Cho & Trent, 2006). Transactional approach as described by Cho and Trent (2006) iinvolves active collaboration between the inquiry and the research participants by the application of a range of techniques such as member checking Cho and Trent, (2006) and triangulation was useful for validation for this study. Thus , transactional validity is defined as a process that is commonly arrived at as far as the researcher, the researched, and the collected data is concerned where the goal is obtaining

authenticity and unanimity by means of playing back and forth facts, feelings, experiences, and values or beliefs collected and interpreted (Cho & Trent, 2006). Achieving validity is measured by the researcher's belief that transactional validity has achieved certainty.

Working iteratively with teams to develop coding schemes and elaborating the data into categories, subcategories, and conceptual frameworks adds credibility to the notion that the results were reliable (Eileen, 2010) The repeatability of this study was proven by the use of more than one coder process in processing a transcript. Triangulation in research gives greater perspective and allows for more credibility in one's findings. When the results obtained from methods and data sources march, confidence is heightened; when they diverge, a need for closer scrunity of all data to gain a better understanding of the phenomenon being studied arises (Eileen, 2010). Since triangulation has been included in this study, it helped increase its rigor.

3.11 Scoring of the questionnaire

The Likert scale was used to elicit opinions of participants as regards to relevance of the training that each underwent as it related to their current work. The Likert scale consisted of multiple items that sought for response sets that included five categories with wording categories, Strongly Agree, Agree, Undecided, Disagree, and Strongly Disagree.

The questionnaire was divided into four, along the major aspects of training; Training design, Resources, Trainer's skills and Industrial attachment. The questionnaire on training design was a 12 point questionnaire that measured the content aspect of training visa Vis the work requirement. Open ended questions were included at the

end of this section for expansion of information given through the questionnaire. The section on resources was a 7 point. This was also followed by one closed ended question and on open ended question for the same reason. Trainers' skill section followed bearing 10 items inquiring into trainer's skills and attitudes. One open ended question was included at the end of the section. Finally the section on attachment was a 9 point questionnaire on the relevance of attachment. It also included one open ended question. At the end of the questionnaire, two general open ended questions were asked.

3.12 Procedure of data collection

Data collection was done through the administration of the data collecting instruments. The order of data collecting was questionnaires, In-depth individual interviews, and Document analysis. Prior to embarking on data collection, a written Nacosti research permission was sought as well as an application for Institutional, Research and Ethics Committee (IREC). The process of data collection took place between August 2015 and December 2015. The reseacher approached the head of nutrition department in Moi teaching and referral hospital and took time to introduce self as well as the nature of the study. Permission to access the nutritionists working in the hospital through the chief nutritionist was sought. A copy of the questionnaire was presented and counterchecked to confirm the nature of the study. Consent for the study was sought from each individual nutritionist as is indicated on the questionnaires in Appendix III.

The procedure was replicated for the Uasin Gishu District hospital. At the district hospital the assistance of the county nutritionist was sought to establish the number of nutritionists employed. Through the county nutritionist, access to nutritionists

working in health centers throughout the county was obtained. The researcher facilitated the nutrition administrator at the district hospital with airtime for communicating with the community nutritionists. These community nutritionists reported to the district hospital regularly and so for those out of telephone reach, a period of two weeks were given to allow for them to come by the district hospital office to pick supplies for their practice. The Nutrition administrator would then request each of them on behalf of the researcher to become part of the study. Each would be given time to read and sign the consent form at their own volition.

On completion of data analysis of the quantitative data,participants for the second segment was started. Nutritionist administrators who had filled the quantitative tools and were ready to continue on to the next phase were sought for interview. This data was collected within the working premises, utilizing a time schedule that did not interferer with the programe of both participant and researcher. Individual nutritionists were sought for written informed consent before the scheduled interviews were carried out. Interviews were captured on a digital recorder where audio files were stored and transcribed by the researcher.

The interviews lasted roughly 30 to 45 minutes with each participant. Followup letters of appreciation were dispatched to all participant in the course of a week of the interview.

3.13 Data analysis

Data analysis in mixed methods research relates to the type of research strategy chosen for the procedures (Creswell, 2009). Each data set is analyzed using the appropriate method; quantitative is analyzed quantitatively and qualitative data qualitatively. This study used sequential data analysis which was then concluded by data integration phase. Sequential designs follows two major successive levels of collecting data.

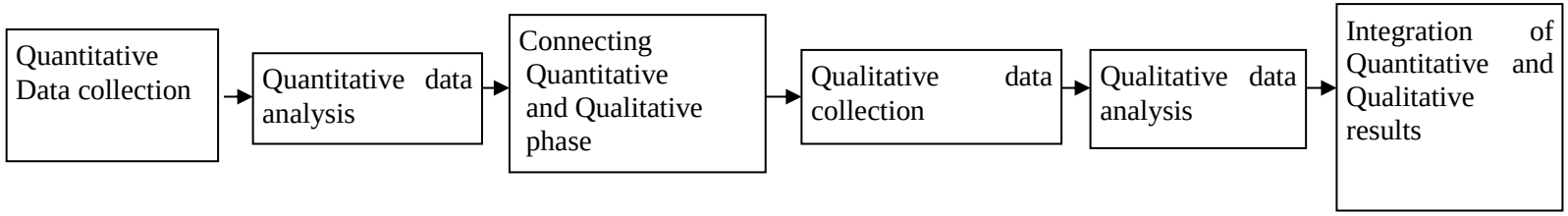


Figure 3. 3: Data analysis

This aims at answering the mixed method question, which seeks to find out by what means quantitative data is explained by qualitative data. Addressing the specific question of this study, the question may be rephrased as: How does the semi-structured in-depth interview expand the figurative data from the quantitative results on the transfer of training for nutritionists? Analyzing data this way provides for elaboration and extension of quantitative research which is important for realization of the goals of the study.

The sequential quantitative-qualitative analysis techniques that can enhance significant results include those identified by Onwuegbuzie and Teddlie (2003): (a) qualitative contrasting case analysis, (b) qualitative residual analysis, (c) qualitative follow-up interaction analyses, and (d) qualitative internal replication analysis in (Onwuegbuzie & Leech, 2004).

3.14 Quantitative data analysis

The quantitative data analysis preceded the quantitative segment of the inquiry. Numeric statistical data from the questionnares were independently scored by engaging the accurate scoring tool supplied with the SPSS tool. This was followed by representing the findings diagrammatically in a chart that displayed these descriptive statistics in percentages and frequencies for every variable tested.

3.14.1 Qualitative data analysis

Thematic Phenomenological Analysis was employed to analyze qualitative data in this study. Data analysis took place in two stages. Thematic analysis is a method for identifying, analyzing, and reprting patterns (themes) within data. It minimally organizes and describes your data set in (rich) detail. However, it also often goes

further than this, and interprets various aspects of the research topic (Braun & Clark, 2006).

According to Braun and Clark (2006) a theme captures something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set. Coding is then done by finding what is important in regards to the study at hand. This is done throughout the data set. Braun and Clark (2006) point out that the researcher judgment is necessary to determine what a theme is with some flexibility, and without being rigid as this does not work.

This present study adapted this method of analyzing for the flexibility it allowed and that was necessary to decipher essence from the study. Refinement of analysis resulted in themes and sub themes. A phenomenological inquiry involves a three step process: (a) the lived experience is deciphered from paticipants; (b) data is studied in order to reveal essential themes (reduction); and (c) the interrelatedness of the themes is worked out and how they reflect the core of the phenomena (Sullivan, 2003). This process was applied in this study for the clarity it provides in the process of analyzing the data.

The semi-structured interview with key informants was collected from a forty five minutes interview and tape recorded, The researcher asked a list of prepared questions pertaining to the key informant's views of nutrition training needs, the way it is taught, and factors that influence that practice. A written transcript of the interview was produced for confirmation by the key informant. Each question and answer segment was then analyzed and coded for topics, the content of which were compared across the data set (Thompson, 2002).

Individual texts were read several times, then trailed by extracting meanings which helped in organizing the information into themes and sub-themes. The researcher called the key informers a number of times during the process of writing to confirm the information given during the interview, as well as to compare the written account with the verbatim during the interview. This was an important step for ensuring credibility and trustworthiness of the data process.

3.14.2 Integration of data

By the application of both qualitative and quantitative findings, an agreed upon view of the findings can be embarked on, which would not have been possible by engaging only one approach. In the same vein, combination of methods was helpful in highlighting the similarities and differences between particular aspects of a phenomenon. Heightened interest in mixed methods design has most recently been fueled by pragmatic issues: the increasing demand for cost effective research and the move away from theoretically driven research to research which meets policymakers' and practitioners' needs and the growing competition for research funding (Ostlund, Kidd, Wengstrom, & Rowa-Dewar, 2010)

One approach to combining different data of marching weight and which expedite clarity in the identification of connections between the different levels of theory, epistemology, and methodology has been suggested by Erzberger and Kelle in (Ostlund, Kidd, Wengstrom, & Rowa-Dewar, 2010) as framing triangulation as a 'methodological metaphor'. Doing so has been seen to help to; illustrate the logical relations between the qualitative and quantitative findings as well as the theoretical concepts in a study revealing the way in which both qualitative and quantitative data can be combined so as to pave way for a better understanding of particular

phenomena; and, may as well spell the possibility of generation of a new theory, (Ostlund, Kidd, Wengstrom, & Rowa-Dewar, 2010). The points of the triangle are depicted to stand for theoretical propositions and empirical findings from qualitative and quantitative data while the sides of the triangle stand for the logical relationships between these propositions and findings. However, the nature and use of the triangle will depend upon the outcome from the analysis, if they are convergent as in the case where qualitative and quantitative findings lead to the same conclusion; complementary, in which case qualitative and quantitative results can be used to supplement each other or; divergent, as when the combination of qualitative and quantitative results provides different findings. The outcome is thus fundamental in determining how the triangulation metaphor is linked to the theoretical propositions and empirical findings (Ostlund, Kidd, Wengstrom, & Rowa-Dewar, 2010)

In this study the findings drawn from the quantitative approach were useful in supplementing findings from the qualitative realm which additionally expounded on the figurative aspects of data obtained during the quantitative stage.

3.14.3 Limitations of design underpinned by the theoretical framework

When viewed separately, both quantitative and qualitative approaches present with a couple of limitations. However, the purpose of a mixed methods research emphasizes the combined quality of strength brought in by each approach. In particular, nutritional training which targets a section of healthcare has been acknowledged as a dynamic phenomenon that presents with complex and multi-faceted research problems often encountered in the health care sector that require both paradigms for effectiveness. This study involved a small percentage of the total population and therefore, cannot be indiscriminately become a reflection of the broader population.

In this study, the participants were faced with dynamic nutritional related problems and work under varying conditions in terms of availability of resources, a range of professional knowledge backgrounds, and availability of opportunities for professional development as well as different levels of intrinsic motivation that may steer one towards advancement. Putting all these factors in to consideration reveals the fact of idiosyncrasy of the practice of nutrition that does not have a one size fits all solution that may relate to all. With this considerations, a mixed framework using a sequential explanatory design was indeed a most fitting means of investigating this population.

3.15 Ethical Considerations

After the researcher had picked on the study area, worked on the proposal and successfully presented it orally to a board of examiners, an aproval was granted to proceed with the research. The University of Eldoret, through the head of department of Psychology and Curriculum facilitated a written approval for futher course of action. Permission for research was sort from National Commission for Science, Technology and Innovation, to carry out research in the North Rift region of Kenya. In addition the proposal for research was scrutinized by Moi University and Moi Teaching and Referral Hospital-Institutional Research & Ethics Committee, IREC at the school of medicine. The human ethics committee is constituted with to protection of the rights and welfare of contributors to the research findings involved in any research in accordance to the applicable laws and regulations of the Kenyan and other relevant international bodies. The Committee reviews and approves research proposals for and on behalf of the National Council for Science and Technology

which is the legal entity authorized to review and approve research in Kenya under Cap 250 of the Laws of Kenya coding the entries of data collected.

The principles upheld by IREC for that guide human research with the respect for human beings, beneficence and justice were observed for this study. Care was taken not to disrupt the research site. This was be to be done by seeking for consensual participation by the research assistants aided by an explicit introduction to the questionnaire bearing a scripted introduction as shown in the appendix. The purpose of the study was also communicated to every respondent before collection of data. In cases where voice recording was required, consent was sought prior to the interview. All information was held in confidence and this was included as part of the training of the research assistants.

3.16 Chapter Summary

This chapter has outlined the theoretical frame work and the methodology and methods engaged to search and expound the occurrences of the training needs of nutritionists within the context of emerging trends. It has described how doing mixed methods research pragmatically hinges upon the practical relevance of philosophical pragmatism in application of research methodology to all types of research. It has further identified how pragmatism forges out this study. The gains of choosing pragmatism as a theoretical framework have been discussed. The chapter has also addressed the use of Symbolic interactionism as a core theoretical framework which stems from the thought of pragmatic philosopher and social psychologist George Herbert Mead. It has justified the choosing and delineation of a mixed method sequential explanatory design in the study. The significance of this method was

illuminated as well as addressing the methods in the design, with a focus on validity and utility to the collection of data for study.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Overview

This chapter contains the response rate and the demographic characteristics of the respondents. The first section looks at the demographic characteristics of the respondents. The quantitative data has been presented in tables and charts. Qualitative data has been intergrated within the text. The responses were analyzed using descriptive statistics for quantitative data and transcription for qualitative data.

4.2 Demographic Information

4.2.1 Response Rate

Out of 234 questionnaires which had been administered to the participants, 187 of them were returned for analysis, 7 were incomplete and thus not fit for analysis. 180 questionnaires were therefore found completed and fit for analysis. This translates to 80% percent return rate of the respondents, table 4.1. According to Kelly, Clark, Brown, & Sitzia (2003), though it may be unwise to define a level above which a response rate is acceptable, an acceptable rate is 75 % for interviews and 65% for self-completion postal questionnaires. This particular survey may not have been administered through any of the above mentioned but it has by far by passed the acceptable level for a reasonable response rate (Kelly, Clark, Brown & Sitzia, 2003).

Table 4. 1: Questionnaire Return Rate

Response rate	Number	Percentage
Issued	234	100%
Returned	187	80%
Not returned	47	20%
Total	**234**	**100.0%**

4.2.2 Gender

The study attempted to explore the gender of the respondents. The study findings indicated that the majority (66.7%) of the respondents were females while (33.3%) of the respondents were male (Table 4.2).

Table 4. 2: Demographic Information of the respondents by gender

Gender	Frequency	Percent
Male	78	33.3
Female	156	66.7
Total	234	100.0

This could imply that the nutrition industry in Kenya is largely dominated by females. This finding was also confirmed by (Kibathi, 2014). Considering studies from other parts of the world other than Kenya, Hooker, Williams, Papneja, Sen & Hogan, (2012) reported that 96% of dietitians and nutritionists in the United States of America are female. Like nursing, the practice of nutrition could be held among the general population as being a woman's world. The implications of this scenario may not only be limited to the gender as presented here in terms of only practicing nutrition. But could actually extend to personal application of nutrition knowledge. This could be pointing a finger to the fact that the role of being female helps to relate to the relationships that exist between diet and health. This is because women are

widely considered the custodians of meal planning and preparation. It may also be pointing to the fact that gender may determine how one becomes responsive to the realities of nutrition and health.

4.2.3 Age of participants

Table 4. 3: Age of participants

Age Category	Frequency	Percent
Under 21	10	4.2
21-30	190	81.3
31-40	29	12.5
41-50	5	2.1
Total	**100**	**100.0**

As the results show from table 4.3, the age of the majority of nutritionists is aged 21-30 (80 %). The implication of age of a workforce is an important consideration. This particularly applies to the health sector. Although having participating nutritionists being young may be tantamount to vibrancy and energy that they bring into the practice, consideration for experience then becomes a point of reference. It has been pointed out that health care employers must maintain an adequate supply of skilled workers at all levels without compromising high-quality health care services (Harrington & Heidkamp, 2013). The absence of nutritionist aged above the age of 50 could bear on the fact that before the 80s, there were not many individuals that had trained as nutritionists and it is possible that nutrition knowledge was mainly a preserve of nurses and other health practitioners.

4.2.4 Status of Employment

The study explored the employment status of the respondents.

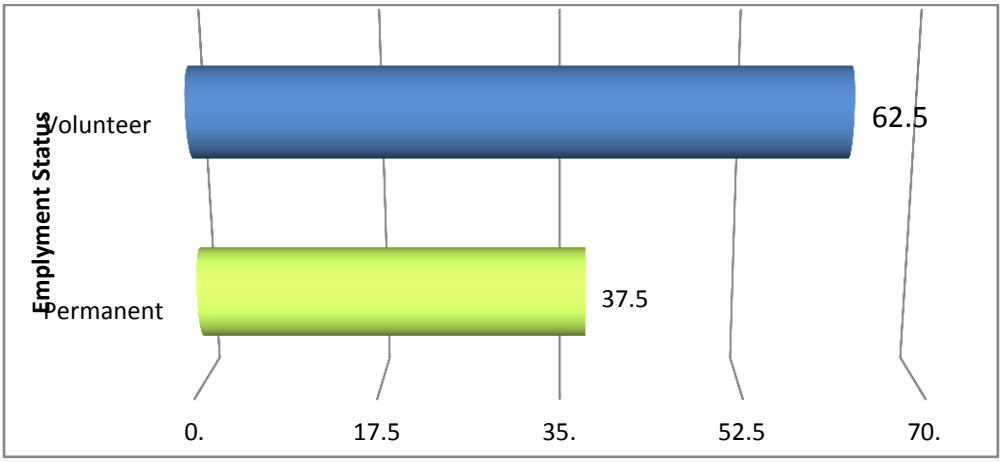


Figure 4. 1: Employment Status of the Nutritionists in Uasin Gishu County

The findings showed that 62.5 % of the participants were either volunteering or on internship, Fig 4.1. This spelt out implications that are both positive and negative. Positive in the sense that, pre-service exposure to work helps employers to eventually employ personnel with experience as opposed to those who come directly from college. But on the flip side of it, an extended period of volunteering is bound to squeeze out the motivation for work without monetary reward (Bandura, 1998).

4.2.5 Level of Academic Training

Level of professional training shows that 52.1 % of nutritionists hold a diploma. This turns out as the majority level with a comparatively small percentage of 6.4% having qualification at the certificate level. Those with degrees in nutrition at 41.5%. This is indicative of the fact that there is a definite room for further professional development (Delisle, 2012).

Table 4. 4: Level of Academic Training

Level of professional	Frequency	Percent
Certificate	15	6.4
Diploma	122	52.1
Degree	97	41.5
Total	**100**	**100.0**

Table 4.5 shows that 39.3%, of participants felt that their training lacked exposure to the realities of the nutrition industry. In the same vein, results on the question as to whether trainers for the core nutrition courses were theoretical in their approach, (were not in touch with what goes on in the working environment.) or not; 51.3% disagreed while 42.3% agreed that trainer for their core courses were theoretical in their approach and out of touch with what goes on in their working environment. This agrees with what (Amuna & Zotor, 2006) propose pointing to the necessity for developing countries, with specific attention to Africa, for amendmends in the design of training for the health sciences including Nutrition to reflect new realities; further, nutritional data base should be subjected to continuous scientific research and assessment in the application of the practice of healthcare.

Table 4. 5: Training Design as a factor of transfer

	strongly disagree		Disagree		Undecided		Agree		Strongly agree		Total	
	N	N %	N	N %	N	N %	N	N %	N	N %	N	N %
Prevention	20	8.5%	30	12.8%	24	10.3%	130	55.6%	30	12.8%	234	100.0%
Management	5	2.1%	40	17.1%	0	0.0%	145	62.0%	44	18.8%	234	100.0%
Time on prevention	15	6.4%	20	8.5%	29	12.4%	131	56.0%	39	16.7%	234	100.0%
Time on management	35	15.0%	39	16.7%	29	12.4%	101	43.2%	30	12.8%	234	100.0%
Exposure	29	12.4%	63	26.9%	20	8.5%	98	41.9%	24	10.3%	234	100.0%
Realistic	5	2.1%	24	10.3%	20	8.5%	97	41.5%	88	37.6%	234	100.0%
Trainers approach Theoretical	49	20.9%	71	30.3%	15	6.4%	79	33.8%	20	8.5%	234	100.0%
Examined on prevention of NCDs	10	4.3%	25	10.7%	25	10.7%	139	59.4%	35	15.0%	234	100.0%
Examined on NCDs Management	0	0.0%	25	10.7%	20	8.5%	121	51.7%	68	29.1%	234	100.0%
Importance of being up to date	10	4.3%	0	0.0%	10	4.3%	34	14.5%	180	76.9%	234	100.0%
Nutritionists should be role models in body weight	10	4.3%	10	4.3%	20	8.5%	64	27.4%	130	55.6%	234	100.0%
Preparedness in treatment/management of NCDS	15	6.4%	10	4.3%	15	6.4%	97	41.5%	97	41.5%	234	100.0%

4.3 Analysis and Interpretation

The training I underwent had sufficient content on the prevention of NCDs

21.3% disagreed while 68.4% agreed to the above statement which could mean that the majority of the participants felt that content on prevention of NCDs was sufficient. On the other hand, 21.3% who were dissatisfied with the content covered could be indicative of a substantial number of nutritionists that felt unequipped to tackle prevention of NCDs.

The time taken on management of non-communicable disease during training was appropriate.

The response to this statement shows as indicated on table 4.5 that 19.2% disagree while 80.8% agree that time spent on the management of NCDS was appropriately allocated during the course of their training. Again, though 80.8% are good with what they got on the management of NCDs, the remaining 19.2% were not satisfied and this could mean that they required more content at a personal level, or were absent from class when topic was done or that they failed to encode the information for retrieval when needed thus leading their forgetting. Other reasons for the dissatisfaction could also stem from the lack of involvement through practical or hands on experience which has been found to improve carrieer and personal satisfaction (Palermo & McCall, 2008).

The time taken on management of non-communicable disease during training was appropriate.

With 31.6% of the participants disagreeing while 56.0% assenting to this statement it means that a good number of the participants at 31.6% needed more time for training

to become effective with the management of NCDs, although 56.0% were fine with the time allocation.

Opportunities were available during the course of training for us as trainees to be exposed to situations similar to our current work environment.

With 39.3% of the participant disagreeing while 52.1% agreeing, it means that exposure to real patient situations was not provided for sufficiently. For competency achievement, this exposure is necessary (Bauer, Liou, & Sokolik, 2012)

Trainers for the core nutrition courses presented us with realistic situations that I currently meet in the course of my practice.

On this question 12.4% disagree while a substantial 79.1% agree that their trainers had been realistic. This means that trainers for core courses were mostly perceived to be in touch with the real world of the nutrition related needs. But interestingly when asked differently, 42.3% of the participants agree that their trainers were theoretical in their approach of teaching while 51.3% disagree. This may mean that the participants are not so sure on this point. This notwithstanding, knowledgeable mentorship is of prime importance (Palermo & McCall, 2008).

The examinations administered to us at the end of each module addressed information that relates with the prevention of non-communicable diseases.

Examinations were generally perceived by the participants as having tackled aspects on prevention of NCDs, 74.4% and 80.8% perceiving that exam questions addressed management of NCDs.

It is important for nutritionists to remain up to date regarding the prevention of non-communicable diseases.

91.5% of the participants find it important that nutritionists remain up to date with information to do with the prevention of NCDs, 82.9% of the participants also agree that as nutritionists, they should be role models by maintaining normal body weight (Bandura, 2004).

Table 4. 6: Skills Development and Exposure to the Use of Tools of Practice

STATEMENT	FREQUENCY	PERCENTAGE
Need for more field work than waiting for them in the hospital	5	2
Need for going to the community to strategize	5	2
Need for more health education in community outreach.	14	5.9
Indications for the need for basic nursing skills, such as biometric, BA analyzer	9	3.9
More time is needed to address NCDs	23	9.8
Knowledge on how food fortification is carried out is needed	5	2
Knowledge on nutrient profiling in the blood is a need	5	2
Indicated need for Preparation for attachment to equip trainees	23	9.8
Indication of need for more case studies to be discussed during training	18	7.8
Expressed need for more practicum	14	5.9
Need for skills in the use of random blood machine	9	3.9
Indication for need of knowledge on how to operate equipment in nutrition	18	7.8
Indication for more exposure on the TB clinic	5	2
Indication for need for exposure on food models	14	5.9
Need for Blood pressure machines exposure	9	3.9
Need for Blood biochemical testing equipment exposure	14	5.9
Expressed need for the exposure to the plate model in counseling	5	2
Indication for the need for the application of real situations experienced at work	18	7.8
More updates on current information and researches necessary	18	7.8
Skills in keeping a kitchen garden needed	5	2
Total	**51**	**100.1**

4.4 Time taken to tackle topic on non-Communicable diseases

The results from the survey show that 21.4% of the participants disagree that the time taken to deal with non-communicable diseases was sufficient while 68.9% agreed that the time was sufficient. Document analysis from course unit summary and time

allocation drawn from the syllabus used to train nutritionists in a TVET institution that has a direct bearing on scope of content dealt with revealed on table 4.7.

Table 4. 7: Excerpt of Module I Syllabus

Disorders of the upper Gastro-intestinal Tract (G.I.T)	Definition Disorders of the upper gastro-intestinal tract Causes and symptoms Dietary management of the named disorders	2 Hours- theory 3 Hours Practice
Disorders of the lower Gastro-intestinal tract	Definition of the lower gastro-intestinal tract Causes and symptoms Dietary management of the named disorders	2 hours- theory 3hours Practice
Disorders of the stomach	Stomach disorders Formulation of modified diets Counseling patients	0 hours theory 3hours- practice
Disorders of the liver and the pancreas	Functions of the liver Functions of the pancreas Disorders of the liver and pancreas Causes and symptoms Dietary management of the of the named disorders	Theory-1 hour Practice- 3hours
Diabetes	Definitions Types Causes and symptoms Dietary management and counseling	Theory -1 hour Practice- 3hours
Gall bladder and Renal disorders	Functions of the gall bladder and kidney Disorders Causes and symptoms Dietary management of the named disorders	Theory-1 hour Practice- 3hours
Cardiovascular disorders	Definition of cardiovascular disorders Causes and symptoms Dietary management and counseling	Theory – 1 hour Practice- 3 hours
Surgical burns	Definitions Causes Feeding methods Dietary management and counseling	Theory- 2hours Practice- 3hours

4.5 Training Needs as a factor of transfer

Key informant 3 acknowledges that for a start, the syllabus has addressed a number of issues on the nutrition practice; however, she relates, the need for broader approaches to learning. The aspect of having a hands on approach to learning as opposed to a theoretical one is particularly encouraged. She observed that the idea of giving trainees a lot of lectures by "*just teaching them and teaching them is not enough"*. "*The experience I have had in the practice of nutrition has helped me to realize that it would be important for "... the trainers and the student can visit the hospital, make yourself familiar with the hospitals so that when you are sending them during attachment, they really know what they are doing..., that is exposure* now*..."*

In line with a broader approach to the tackling of the syllabus is the need for getting updated with interventions that are commensurate with emerging needs or the innovations that deal with those NCDs that have been known. One concern was the fact that there was a whole lot of difference in the content presented in books and the presenting issues on the ground. For instance, one concern touching diabetes was that, how the disease was tackled 10 years ago is so different from how it is being managed now. She pointed out that whereas in the past, diet was emphasized with the focus being on food with low sugar and food full of fiber, this is no longer the case. Instead of managing the disease mainly by imposing a dietary regime, now the emphasis has shifted to the application of control of portions along with proportionate amounts of insulin. She asserts that now "*a diabetic may eat anything they want in small amounts as long as they follow-up with commensurate amounts of insulin! To teach the management of diabetes based on the old regime is like performing witchcraft!"*

Other clinical aspects in the practice of nutrition were also brought up. One trainee is said to have attempted to feed a post- operative patient with solid food. While some trainees express ignorance over very basic aspects of the practice with the claim of not having been taught. Most of the trainees on attachment from some tertiary colleges were so ignorant to the point that some nutritionists in charge of training were on the verge of deciding to deny them the opportunity for exposure within the hospital as it was observed that some of these trainees seemed to require to be taught even the most basic topics that are expected to have been taught during course work. This corroboted with the finding that between 40,000 and 50,000 deaths that are recorded in hospitals annually may be traced to lack keeness and poor organization among healthcare givers (Salas, Scott, Kurt, & Kimberly, 2012).

The findings reflected from the syllabus corroborated with those from the key-informant 2. Considering the number of hours taken to tackle specified topics in the syllabus as well as how the topics are to be addressed, mostly theoretically is in convergence with the finding from the key informant 1 who expressed utter dissatisfaction with the nutritionist graduating from school as the end product of schooling. Of much concern was the lack of skillfulness in approaching the practice of nutrition.

Capacity for prevention and management of non-communicable diseases, as well as monitoring and evaluation operations has been found to be bellow par globally. There hence is need for an evaluation structure, including a minimum set of indicators that deal with exposures and outcomes, that relate with policy development and assessment and for monitoring of trends in disease (Beaglehole & Horton, 2010).

This established gap in capacity of non-communicable disease may have find certain solution in ensuring that the design of training is driven by the result of a Training Need Analysis, TNA **(Salas, Scott, Kurt, & Kimberly, 2012)**. TNA is important because it provides the what is expedient in terms of goals of learning, guidance for taining design and output as well as evaluation. It becomes imperative therefore that for taining transfer to be realized, this becomes adopted in the training of nutritionists on a continuous basis, considering the dynamic nature of the practice of nutrition.

Table 4. 8: Trainers transfer surport; attitude, skills and knowledge

	strongly disagree		Disagree		Undecided		Agree		Strongly agree		Total	
	N	N %	N	N %	N	N %		N %		N %		N %
Trainer's attitude realistic about practice	5	2.2%	9	3.9%	54	23.6%	122	53.3%	39	17.0%	229	100.0%
Modes of Information delivery suitable	15	6.6%	24	10.5%	30	13.1%	150	65.5%	10	4.4%	229	100.0%
Modes of information delivery Unsuitable	39	17.0%	78	34.1%	54	23.6%	48	21.0%	10	4.4%	229	100.0%
Cats were relevant to current work	20	8.7%	9	3.9%	30	13.1%	138	60.3%	32	14.0%	229	100.0%
Cats were irrelevant to current work	94	41.0%	78	34.1%	20	8.7%	28	12.2%	9	3.9%	229	100.0%
Trainer's experience facilitative	10	4.4%	14	6.1%	20	8.7%	134	58.5%	51	22.3%	229	100.0%
Trainers were out of touch with the industry	48	21.0%	78	34.1%	49	21.4%	44	19.2%	10	4.4%	229	100.0%
Trainers refered to personal experiences	38	16.6%	97	42.4%	25	10.9%	49	21.4%	20	8.7%	229	100.0%
Trainers in core courses invited resource persons for technical areas	40	17.5%	38	16.6%	43	18.8%	80	34.9%	28	12.2%	229	100.0%
Trainers were conversant with nutrition tools	24	10.5%	10	4.4%	20	8.7%	114	49.8%	61	26.6%	229	100.0%

Trainer's attitude realistic about practice. Only 6.1% disagree that trainer's attitude about practice was realistic while 70.3% agree.

Modes of Information delivery suitable

As to whether modes of information delivery were suitable, 17% disagree while nearly 70% agree. But posed differently these figures change significantly with 25% agreeing that the modes of information delivery were in fact unsuitable while 51.1% disagree to the reversed question to mean that they found the mode of delivery of information by trainers suitable.

Continuous assessment tests were relevant to current work

This question yielded 75% disagreeing while nearly 25% agreeing that the Continuous assessment tests were indeed relevant to the participants' current work.

Trainers were out of touch with the industry

In response to the question as to whether trainers were out of touch with the job market, 55% disagree that trainers were out of touch with the nutrition industry while, 23.5% agree that trainers were out of touch with the nutrition industry. To find out how convincing this response was, a similar question put differently as to whether the trainers shared from their personal experiences during training, showing that 59% disagreed while nearly 30% of the participants agree.

Trainers in core courses invited resource persons for technical areas

A total of 34.1% disagree while 47.2% agree that resource people were invited to help teach the clinical areas of the course.

4.6 Trainers skills, knowledge and attitude

Trainers need to be taken in for refresher courses regularly, or else they are teaching our nutritionists to practice outdated management of NCDs. "*Not all of them are well equipped in the areas that they teach"…"Some have the skills…They brush some things.. Some do not know how to tackle some clinical issues such as the use of some equipment… Like blood pressure, (Blood pressure equipment), paraenteral nutrition, enteral nutrition .....Core areas".* Some trainers do not seem to have any idea about handling patients with burns and this can be told by what their trainees present. "*We end up spending so much time teaching them till we get annoyed."* This is said in reference to trainees on attachment at the hospital. This finding is corroborated with the findings of Salas et. al (2012).

It was pointed out that it was important if the trainees tackled all topics before proceeding for attachment. This would be appropriate since, they would not find any problem working in whichever area of the hospital. It was stated that *"it did not make sense, if they come when they have not tackled all areas of practice since attachment is for preparation for their work, let them be through with all their course work otherwise they can't even do things such as interpretation of biochemical* readings……." *We at the hospital are not ideally meant to teach again, only to clarify some few things…*

It is not good for students to be left to be so ignorant in core areas. This lack of knowing is bad because it spoils their self-esteem. This observation was being made in reference to the scenario in which, being in the midst of other trainees on attachment who are better skilled, a less skilled trainee happens to demonstrate ignorance when a situation presents itself in the course of patient nutrition

management. When one exposes so much ignorance the one stands out as being different and thus it becomes embarrassing to the student and annoying to the supervisor. Apart from impacting negatively on the individual trainee, their college also bears a negative brunt that hinders marketability of the same. Futhermore, for effective training transfer, trainers are expected toprovide for behavioural role modelling by demonstrating effective work place behaviours based on demonstrated behavioural modelling practices relayed by trainers among others in supervisory positions (Salas, Scott, Kurt, & Kimberly, 2012).

Table 4. 9: Additional training needs of nutritionist's trainers

Item	Count	%
Trainers should be role models	26	11.1
Trainers need community health education	16	6.7
Trainers need continuous medical education	13	5.6
Trainers should use practical examples during training	18	7.8
Trainers need to continuously update their knowledge	39	16.7
Trainers could update training materials	15	6.7
Need for at least an annual event to improve nutrition exposure	26	11.1
Trainers could be more committed	12	5.6
Use of experts in the field to give talks on current nutritional trends	26	11.1
Trainers need to provide appropriate information on real practice	10	4.4
They need more updates on current information and research	31	13.3

Table 4. 10: Resources used in training

	strongly disagree		Disagree		Undecided		Agree		Strongly agree		Total	
	N	N %	N	N %	N	N %	N	N %	N	N %	Count	Subtable N %
Books and other materials in training addressed prevention of NCDs	40	17.1%	53	22.6%	10	4.3%	107	45.7%	24	10.3%	234	100.0%
Books and other materials addressed management of NCDs during training	50	21.4%	68	29.1%	14	6.0%	83	35.5%	19	8.1%	234	100.0%
Reading material adequately provided during coursework	39	16.7%	44	18.8%	15	6.4%	107	45.7%	29	12.4%	234	100.0%
Reading material provided was suitable for nutrition practice	10	4.3%	25	10.7%	28	12.0%	128	54.7%	43	18.4%	234	100.0%
Reading material provided was clearly readable	15	6.4%	20	8.5%	10	4.3%	145	62.0%	44	18.8%	234	100.0%
Training exposed us to the use of nutritional tools.	0	0.0%	15	6.4%	30	12.8%	114	48.7%	75	32.1%	234	100.0%
Trouble using Tools due to lack of exposure	108	46.2%	83	35.5%	0	0.0%	29	12.4%	14	6.0%	234	100.0%

Books and Nutrition assessment tools in training addressed prevention of NCDs

Responses to the question above show that 56% agree while 39.7% of the participants disagree. What this points to is that nearly 40% of the participants found the books relevant in dealing with the prevention of NCDs. 50.4% happen to observe that the books and other training material did not address the management of NCDs. This means that nearly half of the participants observed that the books and materials were irrelevant in dealing with the needs of the nutrition industry a stance also reiterated elsewhere (Julio, et al., 2010). Yet according to Thordike and Woodworth (1901) transfer happens when the original learning and transfer situations have identical elements. This is therefore indicative that deliberate effort during training must be made to match resources with those used after training for effectiveness in transfer of learning. A point that is reiterated by Salas et. al. (2012).

Reading material adequately provided during coursework

As to whether reading materials, mostly books had been provided during training, 35.5% disagree while 58.1% agree that the reading materials were accessible to them during training. On the suitability of the reading materials, 73.1 % agree that in fact, the books available were suitable for the course. This could mean that the participants could have been referring to the class notes given to them by during class time. As regards to the exposure towards nutrition tools, around 80% agree that they had been exposed to the tools for nutritional assessments during the course of training. This is corroborated with the question on whether they had trouble using nutritional tools.

4.6.1 Section on open ended questions

Question; *Does having a nutrition lab during training improve training, if yes, specify which equipment, if made available during training would improve the nutritionist's skills towards the prevention/management of non-communicable disease?*

Table 4. 11: Equipment considered important for training of nutritionists

Item	Count	%
Automatic BMI	19	8.3
Weighing scales	39	16.6
Muac tapes	39	16.6
Height boards	39	16.6
Stethoscope	4	1.6
Glucometer	4	1.6
Testing of nutrient profile	15	6.7
Blood pressure machines	11	5
Skin fold caliper	15	6.7
Random blood machine	19	8.3
Blood biochemical testing equipment	23	10
Flip charts for teaching	4	1.6
Wheel teaching equipment	7	3

4.7 Resources used in training

Nutrition books are expensive and therefore not easily available. Some of the key informants decried the availability of books during their own training. One cited a scenario in which there was just one book or two against a class comprising of 40 students. Therefore accessing the book would be a real struggle. This is a case that is all too familiar also from the researcher's experience. One class that the researcher has taught, comprised of 75 students whereas, only two books were available from the library as class texts. The library had not subscribed to any relevant library for e-

books by the time of writing this work. There was a lot of struggle both as a trainer and on the student's part to get work done. The general feeling was that there had to be a better way around the process of training and learning.

Nutrition equipment available was reported to vary from one institution to another. While some circumvented the exposure to equipment by dealing with clinical topics practically whereby weekly hospital visits enhanced learning. Some related that in cases where books were not at hand, they were able to make use of journals through e-libraries facilitated by their institutions. The paltry state of tools for the training of nutritionists has also been pointed out (Ellahi, Annan, Sarkar, Amuna, & Jackson, 2015)

Though journals were mentioned as useful when undertaking a degree course, this was not the case with diploma students whose main focus was to pass the exam usually set by the Kenya National Examination Council (KNEC). Examinations set by KNEC are usually syllabus restricted and set within the context of recommended text books, as opposed to the university that could be more flexible. Therefore the aspect of using journal was not a likely point of interest for those whose main interest was to pass KNEC exams instead of looking at the bigger picture of preparing for skilled service.

Table 4. 12: Supervision and Organization of attachment during Training

	strongly disagree		Disagree		Undecided		Agree		Strongly agree		Total	
	N	N %	N	N %	N	N %	N	N %	N	N %	N	N %
Supervision during attachment was well coordinated	10	4.3%	25	10.7%	0	0.0%	118	50.4%	81	34.6%	234	100.0%
Supervision of attachment was well organized	5	2.2%	35	15.2%	10	4.3%	89	38.7%	91	39.6%	230	100.0%
Supervision of attachment was well conducted	67	29.1%	99	43.0%	15	6.5%	35	15.2%	14	6.1%	230	100.0%
Attachment beneficial in filling knowledge gaps	5	2.2%	0	0.0%	15	6.5%	135	58.7%	75	32.6%	230	100.0%
I was ready for attachment challenges	0	0.0%	25	10.9%	25	10.9%	128	55.7%	52	22.6%	230	100.0%
Trainers sent for supervision of attachment were nutritionists	5	2.2%	9	3.9%	25	10.9%	125	54.3%	66	28.7%	230	100.0%
Evaluation of attachment was appropriate	10	4.3%	5	2.2%	30	13.0%	149	64.8%	36	15.7%	230	100.0%
Feedback during attachment was beneficial	15	6.5%	5	2.2%	35	15.2%	137	59.6%	38	16.5%	230	100.0%
Attachment was intimidating	111	48.3%	70	30.4%	10	4.3%	25	10.9%	14	6.1%	230	100.0%
Attachment helped me build my confidence in practice	5	2.2%	5	2.2%	5	2.2%	65	28.3%	150	65.2%	230	100.0%

4.8 Supervisory Surport of Trainees' Industrial Attachment on Transfer of Training

Supervision during attachment was well conducted

As to whether supervision of the attachment was well done,72.2% disagree while 21.3% agree that supervision during attachment was well conducted. This means that 72.2% of the participants perceived that supervision of their attachment work was below par. This is a prerogative of the participant's training institutions. Coordination of the attachment which is done mainly by the industry was rated at 85% of the participants agreeing that it was well done while 15% disagree to this. As to whether attachment was well organized, 17.4 % disagree while 78.3% agree that it was well organized.

Attachment beneficial in filling knowledge gaps

A substantial 91.3% agree while 2.2% disagree as to whether attachment was helpful in filling knowledge gaps. This shows that attachment was a valuable learning experience to the majority of the participants.

I was ready for attachment challenges

A considerable 10.9% felt that they were not ready while 78.3% felt that they were ready for attachment challenges. This is an indicator as whether the participants have been prepared to tackle especially clinical aspects of their practice enough to take on assignments with minimum supervision.

Trainers sent for supervision of attachment were nutritionists

It is interesting to observe that 6.1% of the trainers sent by training institutions were not even nutritionists while 83% were nutritionists.

Attachment was intimidating

Those who assented to this question scored 17% of the participants indicating that attachment was intimidating while 78.7% disagree. This brings to book aspects of preparedness of the trainees as well as how the industry is willing to deal with it.

How would attachment be improved to tackle the prevention and management of non-communicable disease?

Core functions

The most common core function theme was intervention management that is inclined towards community level detailed education on preventive measures. The findings indicated that the participants recognized the need for comprehensive intervention measures. Broad public health approaches to problem resolution that inculcates opportunities for trainees to take their attachment at the community level as opposed to narrow approaches of dealing only with the management of NCDs.

Need for mentorship in the practice of Nutrition

The participants expressed the fact that sometimes they were at a loss of technical knowhow on clinical issues that required one on one interaction in which they would find clarification from experienced nutritionists. The arising of problems that were not easy to solve from their encounters with clients placed upon them the need for a

mentorship relationship that would provide for regular question-answers sessions in a friendly atmosphere without feeling ‘small’. This would call for a two way relationship between a ready learner as well as a nutritionist who is willing to share their experience with a younger nutritionist in need for someone who has gone ahead of them.

A second aspect of mentorship that was suggested was by allowing for vicarious learning by deliberately placing trainees from different institutions together during attachment. This was considered important as it would provide for a peer learning from each other that would help in filling up any gaps in information from one trainee to another.

Some complex situations presenting in the practice of nutrition

Sources of frustration expressed by participants include failure by clients to attend diet clinics. Sometimes though the clinics were attended, yet failure to adhere would be necessitated by financial inability to purchase requirements for suggested diet regimes by clients. Other impediments to the practice include being overworked due to a thin workforce sometimes language barrier or even the unexpected death of a patient who is undergoing treatment. The lack of some nutritional assessment tools, supplements, failure of supplements, blame from other medics, dealing with patients who have already given up. Sometimes having to deal with arrogance from patients, illiteracy and the reality that change of diet habits is a slow and difficult process. 9 Attachment and exposure to the practice of nutrition

There are few but very important points about attachment. “*Instead of assessing students in groups and only by looking at their log books. Students need to be*

assessed by the assessment of patient management. Their knowledge of patient cases in terms of the medical history, social back ground, literacy." The researcher observed that trainees from Kenya Medical Training Colleges (KMTC) had very detailed and organized attachment supervision as opposed to trainees from other tertiary colleges at the same level. It was noteworthy that though the examiner for these two different groups was the same; the approach to training in clinical areas was worlds apart.

This difference was brought about by the fact that whereas the trainers within the KMTC were clinicians, those in regular tertiary institutions were not clinicians and thus did not impart clinical skills. Trainers' skills as reflected in trainers notwithstanding, trainees from the KMTC worked with a memorandum of understanding with the hospital and were required to visit the hospital once a week to practically observe clinical aspects taught within the week. Some of the key informants who had graduated from these KMTC talked of spending their Fridays at the hospital during the entire time as students. Unlike trainees from the regular colleges, there was no such provision. From the experience of the researcher, only two such hospital visits had materialized throughout the 7 years' experience as a nutrition trainer.

Apart from there being a difference in the exposure to the nutrition industry during course work, another source of difference in training was spelled by the difference in the attachment supervision schedule used by trainers from different institutions. One informant observed that as a student, being supervised during attachment was a seriously dreaded and jittery process that demanded full attention and concentration in order to receive the approval from their supervisors. She reported that this took a

whole day. One had to have a thorough knowledge of the client history and diet management. This was because supervision was done at the patient's bedside and evidence for patient management was compared with information drawn from the patient directly. This forced these trainees to be extremely careful in the manner in which they handled each patient as well as the records they kept for each patient.

For trainees from the regular tertiary colleges, this was not so. Instead, the supervision tool used for attachment was the same as the one used across board by trainers supervising all other students from different departments such as electrical or mechanical trainees. Trainees from the regular tertiary colleges, contrary to those from KMTC just had a smooth ride during supervision and cared less about it. Not much demand was placed upon them to bother with knowing their patient management that well.

Further, some of the regular training colleges could send trainers from any field of specialization to supervise their nutrition trainees. These trainers simply checked and marked the logbook, much to the chagrin of the hospital nutrition supervisors. One informant stated that they had resolved to send away any non- nutrition trainers send to supervise nutrition trainees in the hospital in subsequent visits. One reason given for this was the fact that such supervision was overly just superficial and a routine fulfillment of requirements that downplayed opportunity for feedback. This was sabotage to improvement of the practice of nutrition which was the fundamental reason for supervision during attachment. A learning transfer environment as advanced by Chatterjee, Pereire and Bates (2018) suggest that supervisor's encouragment for transfer, as well as timely and genuine feedback on demonstrated skills address managers' part in representing accurately performance standards for

training, identifying opportunities to use new knowledge by setting realistic goals based on training and working with individuals on problems encountered predicted individual job performance after training (Chatterjee, Preire, & Bates, 2018).

In regard to exposure during training, one informant said "*it is not easy but it is good if trainers really fight for it, make prior arrangement so that the hospital is aware and allocate an officer who can take you around. Although as nutritionists we are very few, for example, I am the only nutritionist in this hospital. If you were to bring your students here for a visit in which I would be required to take you to different sections of this hospital, I would not make it…. I would be inconveniencing even my clients"*

Scarcity of nutritionists in hospital was another case decried by practicing nutritionists. *"If KNDI is to implement their conditions of having four nutritionists working per every doctor, but in reality you find that where there is a doctor, there is only one nutritionist. KNDI has to struggle to get the right number of nutritionists so that we can be more effective and not do substandard work*"

4.9 Summary

If effective transfer of training is to be attained, then it needs to be preceeded by a Training Need Analysis TNA which entails a focus on expected learning outcomes, guidance for training design and delivery as well as evaluation. Among other things, the training design is important since it can be a key countermeasure with life-saving consequences. Therefore any training design should be guided by the outcome of TNA and executed by deleanating appropriate instructional strategies, content and appropriately evaluated.

Trainer’s transfer surport is needed for behavioural role modelling where demonstrating effective work place affective,cognitive and skills should reflect the learning outcomes.

According to Thordike and Woodworth (1901) transfer happens when the original learning and transfer situations have identical elements. This is therefore indicative that deliberate effort during training must be made to match resources with those used after training for effectiveness in transfer of learning. A point that is reiterated by Salas et. al. (2012).

A learning transfer environment as advanced by Chatterjee, Pereire and Bates (2018) suggest that supervisor support for transfer, and performance feedback predicted individual job performance after training (Chatterjee, Preire, & Bates, 2018).

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This present study investigated the gaps in the transfer of training of nutritionists from TVET. The findings are divided into four major aspects. First is the training design as a transfer factor for nutritionists in TVET institutions, second is the trainers's training transfer surport demonstrated through knowledge, skills and attitude of trainers applied in the course of training, thirdly the resources used during the training as a factor of transfer, and fourthly is the supervisory surport for transfer during course work as well as attachment done either during training or after training for some as the case may be.

5.2 The Traininig design as a transfer factor in the training of Nutritionists in TVET institutions

The aim was to provide a description and interpretation of the gaps in training design as a transfer factor. NCDs have a nutrition component both in the prevention and in their management. This comprises the sole role for the training of the nutritionists. Yet the study found out plenty in terms of the gaps that exist in the way the training is designed that requires consideration.

Curriculum has been defined as "the intentions of learning; the actions, interactions and processes elicited and directed by these intentions; and the actual learning that emanates from the prevailing context" (Syomwene, Nyandusi, & Yungungu, 2017, p. 12). Four elements of curriculum that are in constant interaction are pointed out by ibid as;

(i) Aims, goals and objectives (curriculum purposes)

(ii) Content (subject matter)

(iii) Learning experiences

(iv) Evaluation. p. 15

The objectives for the training of nutritionists as stipulated by KNDI in brief include; participation in the application of basic and social sciences principles used in the management and prevention of nutritional disorders; recognize food choices for individuals or communities to promote healthy eating; prevent malnutrition and manage diet related conditions; participate in nutrition communication/health education, and nutrition counseling to individuals, groups and communities; Help in the generation of national and international nutrition and dietetics policy.

Of interest to the first objective to this study is to determine the gaps in the Nutrition Trainers' skills to the transfer of the same in the practice of trainees to meet the emerging needs of job market. This points to the subject matter of the training program. This study has established that there is a gap between the complicated problems encountered in public health nutrition practice and not only the competencies sought during training but, the breadth of the skills, knowledge and applications required to address these problems. The findings about the curriculum implementation in the training nutritionists in Kenya is consistent with African literature that reveals that there is an obvious and required need placed upon developing countries, more so for Africa, for adjustmentment in the design for training for the health sciences including Nutrition and areas of study related to medicine to become aligned to new realities, (Amuna & Zotor, 2006)

New realities within this context refer to nutrition related needs of Kenyans that have been well spelt out by the Kenya Health Policy 2012-2030, whose first strategic objective happens to be; halting and reversing the rising burden of NCDs and the sixth being; eliminating communicable diseases and strengthening collaboration with health related sectors which have a bearing on NCD prevention and control, (Ministry of Health, 2015). The NCD that have been targeted are; cardiovascular conditions, cancers, diabetes, and chronic obstructive pulmonary diseases and their shared risk factors. The prevention and management of these NCDs claim much of the space allocated to the Nutrition industry for which nutritionists are trained to remedy.

NCDs are at the top of the agenda for the training of nutritionists as reflected in the current curriculum for training nutritionists. However as has already been noted from findings of this study as well as literature, a number of disconnects do exist between the curriculum and these realities. For instance, Table 1 shows that 39.3% of participants felt that their training lacked exposure to the realities of the nutrition industry. In the same vein, results on the question as to whether trainers for the core nutrition courses were theoretical in their approach, (were not in touch with what goes on in the working environment) or not; 51.3% disagreed while 42.3% agreed that trainer for their core courses were theoretical in their approach and out of touch with what goes on in their working environment. This finding was convergent with what was relayed by the nutrition industry and echoed by key informers. The key informers decry level of skills transferred in the practice of nutritionists being churned out of the TVET colleges with the exception of those from KMTC. Why is this?

Transfer of learning of skills may not be acquired by the present approach to curriculum implementation in the regular TVET colleges in which most of the

nutrition trainers are out of touch with the nutrition industry. This notwithstanding, clinical skills otherwise called competencies have a hands on aspect that may not be relayed by the paper pencil and lecture approach to training.

Data obtained from the syllabus advanced by KICD and evaluated by KNEC are also clearly way out of touch with the realities of the nutrition industry. The shallowness portrayed by the subject matter of core areas is an area of real concern. A case in point may be viewed from the excerpt drawn from the syllabus that instructs that diabetes may be taught in a paltry one-hour theory lesson and 3 hours of practice. Drawing from the experience of the researcher, of a truth, the three hours purported to be included for practice work goes un timetabled and it is difficult to even think of a practice class for which no resources have been allocated. So to say the least, that is an aspect found merely on paper; it has not taken place inside any of the classes taught within the regular TVET colleges exemplified by the one in which this researcher works. This mismatch is pointed out by (Frenk, Bhutta, Jordan, Nigel, & Evans, 2010) who point out that, Professional education has not kept pace with challenges that are emerging within the health industry. This has been attributed to fragmented, outdated, and static curricula that produce ill-equipped graduates. From this end this fragmentation is evident in several ways.

For one, as revealed from findings, the text books that are used for curriculum implementation that then guide curriculum evaluation are solidly outdated since they are not at all sensitive to the dynamism that is synonymous with the nutrition industry. Small wonder why key informants in this study have pointed to the use of journals for trainees to become up to date for innovative practice. Logical as this suggestion may be, yet it is not applicable in a situation in which such little time as been allocated to

cover the syllabus. One main determinant as to whether journals may also be sought out for knowledge in the regular TVET college would be if this effort would translate into an improved grade given at the end of the course from the curriculum evaluator.

Obstacles that stand in the way for change are said to be systemic and are the reason why there is a failure in the transfer of competencies to patient and population needs. Poor teamwork as it seems to be the case with all the stake holders of the nutrition industry that include the curriculum developer, implementer, evaluator and the industry is yet another undoing. A narrow technical focus without broader contextual understanding is also not helping much in the challenge of keeping training up to the task of emerging nutritional problems. This view is corroborated with the findings from a study that looked at competency development in public health nutrition that revealed that there was considerable disagreement about the utility of dietetic training for public health nutrition competency. Reflection on their own careers nominated landmark experiences that contributed most to their own competency development as ; exposure to mentors, on the job experiences, postgraduate training and committee work (Hughes, 2003).

The predominant hospital orientation at the expense of primary care in the approach to nutritional problems has been strongly implicated as being out of tune by participating nutritionists in the study who related that it would have been better to go to the community rather than waiting for the patients to come to them. By the time an individual makes the decision to go for medical care for any ailment and in this case a nutrition related one, it is mostly either too late or almost too late to remedy through dietary means. This has been reiterated by Hughes who asserts that clinical competencies are not at all required for community public health nutrition practice,

adding that the training programs require to be changed in order to factor in this all important fact (Hughes, 2003).

The input of KNDI is still needed to improve nutrition practice. On this one, KNDI's efforts have remained a little weak. This is substantiated by the fact that though KNDI has done some work in the production of a curriculum for a diploma in nutrition and dietetics, yet though launched in May 2012, it has never been implemented inside of any training program at least up to the writing of this thesis which is being done in April of the year 2017. Needless to say is the fact that laudable efforts to address these deficiencies have not been effective due to the so-called 'tribalism of the professions'—ie, the tendency of the various professions to act in isolation from or even in competition with each other (Julio, Chen, Zulfiqar, Cohen, Crisp, & Evans, 2010). This is one glaring truth which is evidenced by the findings in this study in which key informers have showed that a continuous collaboration between industry and training would be a very good place to begin the forward moving journey to improvement of transfer of training in the practice of nutrition. But as it is in its current form of training isolation of the stake holders is proving to be a reason for downward trajectory of this transfer of training to the practice of nutrition.

5.3 Trainers' Skills, knowledge and Attitude as a factor of transfer in the Training of Nutritionists

This study established that trainers experience was not always facilitative during training as some of the trainers were out of touch with the industry. 14.8% of the participants' trainers were not conversant with the use of nutrition tools. This fact notwithstanding, collaboration with resource people from the industry during training is not widely embraced; with 34.1 % of the participants disagreeing that there was

such a provision in which resource people from the industry could regularly be invited to give the talks to them during their training.

From the key informers, the need for use of experts from the industry during training was a major suggestion for transfer. It came across as one important link with industry for purposes of modeling and mentoring the trainee. In addition, there was a call for urgent need of continuous industrial attachment for trainers. This finding converges with that of (Steyn N. P., 2012)

Mode of learning experienced by trainees during training was faulted. This is attributable to a lecture method void of practical experience. The practical aspect should not be misconstrued to be limited to the hospital exclusively. There exists other ways of dealing with clinical issues depending on the creativity of the trainer as well as access to simulations of various human organs and parts within the institution. To further bring variety to the monotony of didactic learning mostly used, other approaches that may be included are field trips, role-playing, problem-based learning, classroom instruction, and other practice related (Hughes, 2003). There is also a dearth of literature on trainers' competencies, and there is a call for research to evaluate the effectiveness of innovative teaching strategies, (Kris-Etherton, Akabes, Bales, Bistrian, Braun, & Edwards, 2014).Interactive modules and small-group training has been reported and is particularly efficacious compared with the traditional didactic delivery style, (Polak, Pojednic, & Phillips, 2015).

Although this study established that lectures remain the most popular stategy of instruction, yet this has has been found to be problematic. Effective training is achieved with deliberate effort to provide for pedagogically sound opportunities for trainees to

learn targeted knowledge, skills, and attitudes (KSAs) through not only instruction, demonstration, practice, but also through timely diagnostic feedback about their performance (Salas, Scott, Kurt, & Kimberly, 2012).

5.4 Resources used in the straining of nutritionists as a transfer factor

This study established that reading material used during training were not only inadequate, but sometimes even unsuitable to the prevailing problems associated with the prevention of NCDs. The books as well as other material used for training tackled mostly the management of NCDs. On the exposure to the use of nutritional tools, 81.6% revealed that they had trouble using tools because they had no prior exposure during training. For effective training transfer, simulation has bee found to be useful. Simulations denote to structures that set out to give practical training by using a pragmatic view of reality (Salas, Scott, Kurt, & Kimberly, 2012).

Yet stories echoed from the key informers indicated that books were difficult to access because nutrition books are expensive. As to whether nutritional tools were available during training, information relayed showed that there was variation of the availability of nutritional tools from one institution to another, with some institution being advantaged while the rest having to bear with the brunt of very little in terms of resources. Resources for training and development of manpower in the field of nutrition are inadequate, the little available should be judiciously utilized, (Oyewole & Amosu, 2013) **.**

While working to have an agreeable working relationship with the hospital as KMTC has done would be superb in providing for technical knowhow for all other TVET, yet this has proven difficult. This difficulty has been attributed to the high charges that

the hospitals impose on the training institution for a Memorandum of Understanding. Some of the charges range from 500,000 ksh per year! The memorandum of understanding would stipulate and allow for a working relationship in which trainees may visit and be involved in the clinical aspect of their training, in other words, exposure to the industry. Yet the quality of training is thus often technically deficient in sub-Saharan Africa, (Oyewole & Amosu A, 2013). This has prevented students from acquiring similar basic knowledge in the field resulting in different levels of understanding of the subject matter by graduates with similar qualifications on paper. These differences impact negatively on the professionalism of nutrition with far reaching implications on remunerations.

The Ministry of education, through the Technical and Vocational Education and training Act, 2013, has been mandated to, among other functions, assure quality and relevance in programs of training, mobilize resources for development of training and ensure the maintenance of standards, quality and relevance in all aspects of training, (Ministry of Education, 2013). The aspect of resource mobilization usually trickles to the institutional managers on the ground that draws out budgets that are proposed from departmental levels within the institutions.

In this current study, inadequacy of resources was not only reported as being a problem during training, but one that followed up during the practice of nutrition as well. This converged with the findings of a study that looked at the policy options for community service dietitians delivering an effective nutrition service in South Africa. In this mentioned study, it was reported that the most common problem encountered during their compulsory community service year was related to limited resources (25% in the survey and 40% in the interviews) which prevented them from providing

an optimal nutrition service to patients. Frequently missing essential resources included a budget to purchase nutrition supplements and feeds and basic nutrition equipment (Steyn N. P., 2012)

Unfortunately, resource allocation and prioritization in learning institutions becomes mired up in the politics of these institutions. Yet, very few nutritionists from countries like Kenya and Malawi have occupied political positions in African countries where they can be actively involved in policy development, (Oyewole & Amosu, 2013). Apart from nutrition as a professional field lacking representation at the government levels that would assist in lobbying for resource allocation for training, at the institutional level representation is equally a major issue of concern.

One reason why nutrition as a subject may not become technically equipped in tandem with industry demand is the weak leadership trickling down from KNDI. This is reflected in the fact that nutrition is usually erroneously under the department of Hospitality, Tourism and Consumer Studies as is the case in a TVET institution in which the researcher has once taught. In such a case the department is normally headed by an individual with a Food and Beverage background or worse still, a Home science or Home Management orientation! This is a definite ground for a serious conflict of interest as far as resource allocation is concerned. This challenge of technical deficiency during the course of nutritionist's training has also been pointed out by Oyewole & Amosu. In their study that dealt with meeting the current and future challenges in the nutrition profession in Africa, they attributed the technical deficiency in nutrition to poor understanding of what nutrition entails. This has been demonstrated by misplacing the field of nutrition in unsuitable government ministries such as Agriculture. (Oyewole & Amosu, 2013) .

Given the fact that Foods and Beverages as a course tends to be costly on expenditure, Nutrition as a subject easily ends up as a sacrificial lamb receiving little if not nothing at all of the funds allocated to the department. This inappropriate representation then translates to a poorly motivated workforce that is the nutrition trainers. This is evidenced by an instance in which a trainer, known to the researcher, on making an effort to lobby for resources for nutrition training during a staff meeting, was given an immediate demotion from being the nutrition subject head and replaced by an individual with nil experience in the training of nutritionists. Although this step was supposedly justified on the ground that the replacement was better suited because he had a masters in nutrition as is required by KNDI, the timing was nevertheless suspect and unethical. The question this begs still is, how such an action impacts on the motivation of the demoted trainer who had an experience of 7 years in the training of nutritionists?

Such barriers towards lobbying for resources aside, nutrition professionals in Africa and other developing regions need to up their game by acquiring skills in policy issues and lobbying techniques to promote nutrition, (Oyewole & Amosu A, 2013). This may be the only way to draw attention of governments and other stakeholders on the benefits of enhancing nutrition technically to help reduce incident rate of NCD patients. It is the role of properly trained and equally well positioned nutritionists to influence a culture that is enlightened about the role of poor lifestyles on the quantity and quality of the life of the general public. This is well exemplified by Rwandese who have even set aside on their calendar a ‘Car free Sunday’ in which some designated roads in the City of Kigali are free from motor vehicles and so the people get a chance to run or walk on the streets, unhindered by traffic. (Kigali going car free on Sunday, 2016). Kenya may need to borrow a leaf from this if it is keen on dealing

with the upsurge in NCDs across the country as envisioned in the second medium term plan, (2013-2017) towards the realization of the Kenya vision 2030, (Ministry of Devolution and planning, 2013)

5.5 Attachment/ Industrial exposure during training of nutritionists

Supervision during attachment was perceived as an area that fell below par in terms of what was expected by the participants with 72.2% expressing dissatisfaction. The dissatisfaction about the organization of attachment was attributed to the casual supervision that some of the participants received. This casualness in supervision was sometimes demonstrated by the fact that for some institutions, any trainer would come around to see the trainees, regardless of not being nutritionists. This meant that at times a trainer from unrelated departments such as Mechanical department or Electrical departments or just about any other department would be sent. At times it just depended on whether as a trainer you relate well with the liaison's officer, which automatically qualified you to be picked for the job. This information is corroborated with the researchers own experience as a trainer in a TVET institution.

The study therefore confirms the assumption by this study that the nutrition work force has mostly floundered in the transfer of training to performance in response to the national population health needs. Little or no supervision towards workforce development is not a good place to start. This is because public health nutrition competence has been reported to be most effectively developed through experiential learning. Experiential learning is the process of learning through actual and practical experience in the work place. Different experiential learning models can be used to develop health workforce competence, such as apprenticeships, mentoring and clinical supervision. However jus applying experiential learning without effective

supervision and support infrastructure can lead to ineffective and unsafe practice (Palermo & McCall, 2008).

In addition to experiental learning, social support as well as motivation to transfer have been found to influence transfer of learning (Reinhold, Gegenfurtner, & Lewalter, 2018). Where social support in this case is described as the degree to which trainees perceive support for their work tasks including the trainee's belief about how much significant others at work would be interested about them and the extend to which they value their contributions to the organization. The dimensions of social surport are seen to refer to supervisor support, peer support, supervisor sanctions and feeback/coaching.

Laudable indeed is the much awaited articulation of the Internship Policy and Guidelines for the Public Service by the government of Kenya that has was put into place in the year twenty sixteen with aim of promoting and strengthening internship programs for the youth graduating from training institutions to enable them acquire practical experience (Republic of Kenya, 2016). This is indeed a big plus towards catering for the need of apprenticeship in workforce development! However, without an equally well articulated provision for a supervisory component, effective competency development will not be achieved.

Thus apprenticeship should go hand in hand with mentorship. Mentorship has been defined by Palermo & McCall as a reciprocal, mutual and supportive learning model which has been used to bridge gap successfully within health education, business and other settings (Palermo & McCall, 2008). Mentoring has been demonstrated as an effective method for transfer of learnining and developing competency by creating

opportunities for networking, access to resources, improving career and personal satisfaction and confidence as well as increasing interpersonal skills.

It therefore follows that it may be the solution to the finding by this study that attachment was intimidating to 17% of the participants. This was well corroborated by the participants who made the observation that doing more field work in terms of going to the community was a welcome idea. One other point of emphasis was the need for good orientation before going to the field. The need to have interactive sessions during the afternoon after engaging with patients during the morning hours was brought forth. These findings equally corroborate with what Dieleman & Jan (2006), found out and points out that the method frequently used to upgrade skills and knowledge in the health care sector in resource poor settings is off-site training courses and seminars, (Dieleman & Jan, 2006). Yet this has not proven effective, and (ibid) attributes this to the skipping of the process problem analysis and training needs evaluation as well as the mismatch between training contents and skills required in the field. Inadequate training methods are also an aspect that has been cited as a factor in failing to transfer learning among health workers in general.

The expression by participants for the need of mentorship especially at the hospitals during attachments confirms the bewilderment that nutritionist trainees often feel when little provision is made for inquiries about areas that are not easily understood. Even though on the surface, the trainers at the hospital may be physically present, there may occur other intricate situations that lead to the feeling of intimidation and apprehension in freely expressing doubts that one may feel as a trainees.

This calls for a deliberate need for the development of the mentoring culture on a long term basis. The impetus then falls upon the training supervisor to create a

psychologically safe environment in which expression of self is encouraged and not scorned or scoffed at. Borrowing from the practice of counseling, this is nicely put as involving three important qualities of being congruent, providing unconditional positive regard to all under the program, as well as presenting with an empathetic demeanor on the part of the supervisor (Rogers, 1961).

5.6 Overview of the Results

This section summarizes the results of the study and is organized according to the four constructs as spelled by the research questions. These were, the curriculum, trainers' competencies, resources available during training and how attachment was organized and supervised. A summary of each of these follows.

5.7 The training design as a factor of transfer.

This study established that there is a clear and urgent need, for modifications in the curricula for Nutrition to reflect new realities in the industry. Harmonization between what is taught in school with the emerging nutritional needs requires agreed upon strategy that is deliberate and continuous. Without setting into place appropriate strategies, the current curriculum fails the test of being responsive to the current pressing and complex needs of the industry. This has been reiterated in the Kenyan Health policy that anticipates the strengthening of collaboration between the health sector and related sectors which have a bearing on NCD prevention and control. (Ministry of Health, 2015).

It was also shown that learning of skills may not be acquired by the present approach to curriculum implementation in the regular TVET colleges in which most of the nutrition trainers are out of touch with the nutrition industry. This notwithstanding,

clinical skills otherwise called competencies have a hands on aspect that may not be relayed by the paper pencil and lecture approach to training that is currently favored.

Data obtained from the syllabus advanced by KICD and evaluated by KNEC are also clearly way out of touch with the realities of the nutrition industry. The theoretical approach mostly applied in training of core areas is another area of real concern. This study established a mismatch that shows that, Professional education has not kept pace with challenges that are emerging within the health industry. This has been attributed to fragmented, outdated, and static curricula that produce ill-equipped graduates.

From this end this fragmentation is evident in several ways. For one, as revealed from findings, the text books that are used for curriculum implementation that then guide curriculum evaluation are solidly outdated since they are not at all sensitive to the dynamism that is synonymous with the nutrition.

Obstacles that stand in the way for change are systemic and are the reason why there is a mismatch of competencies to patient and population needs. Poor teamwork as it seems to be the case with all the stake holders of the nutrition industry that include the curriculum developer, implementer, evaluator and the industry is yet another undoing. A narrow technical focus without broader contextual understanding is also not helping much in the challenge of keeping training up to the task of emerging nutritional problems.

The predominant hospital orientation at the expense of primary care in the approach to nutritional problems has been strongly implicated as being out of tune by participating nutritionists.

Weak leadership by KNDI that is substantiated by the fact that though KNDI has done some work in the production of a curriculum for a diploma in nutrition and dietetics, yet though launched in May 2012 and has never been implemented inside of any training program.

Laudable efforts to address these deficiencies have mostly floundered. The reasons for this could be a green area for research. This is one glaring truth which is evidenced by the findings in this study in which key informers have showed that a continuous collaboration between industry and training would be necessary for improvement. Figure 5.1 summarizes the results on the training design and transfer of learning.

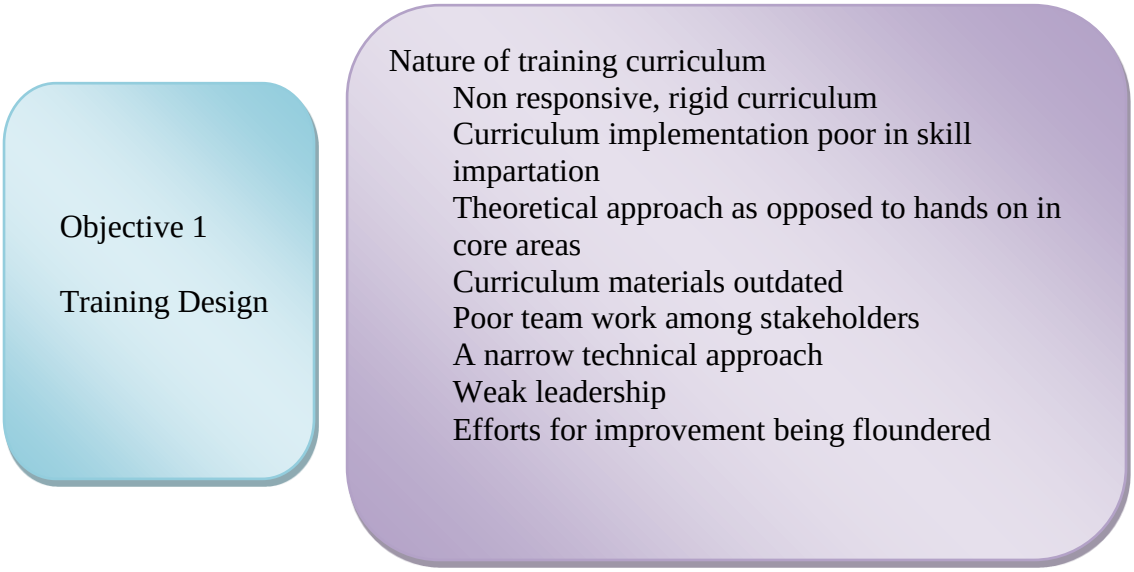


Figure 5. 1: The curriculum used for training

5.8 Equipment/ Resources used in training

Barriers towards access to nutrition equipment and tools have been enumerated. Lack of sufficient budgetary allocation by institutions, limited exposure to a hands on training, the use of outdated materials for training, poor leadership that would ensure a progressive access to equipment and tools during training play out as being problematic. The quality of training is thus often technically deficient. This has

prevented students from acquiring similar basic knowledge in the field resulting in different levels of technical capacities by graduates with similar qualifications on paper. These differences impact negatively on the professionalism of nutrition with far reaching implications on remunerations.

Resource allocation and prioritization in learning institutions becomes mired up in the politics of these institutions further complicating the question of access to resources for training. Very few nutritionists have occupied political positions in Kenya where they can be actively involved in policy development. Apart from nutrition as a professional field lacking representation at the government levels that would assist in lobbying for resource allocation for training, at the institutional level representation is equally a major issue of concern.

This inappropriate representation then translates to a poorly motivated workforce that is the nutrition trainers. There is need for properly trained and equally well positioned nutritionists to influence a culture that is enlightened about the role of poor lifestyles on the quantity and quality of the life of the general public. The findings on resources is summarized in figure 5.2.

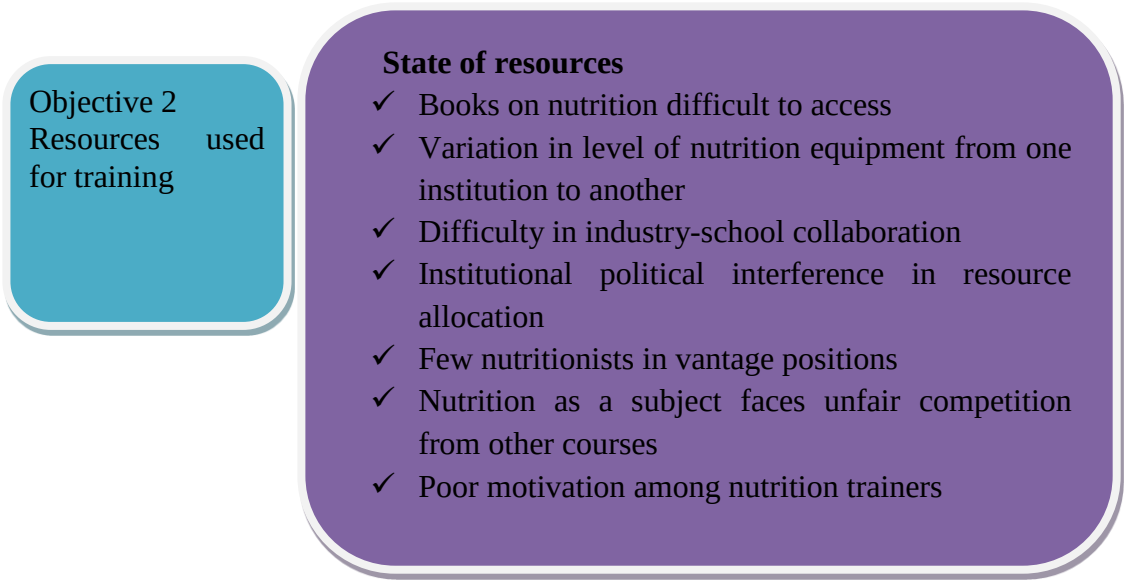


Figure 5. 2: Barriers in Resource allocation for training

5.9 Trainers' Competencies

The use of experts from the industry during training was suggested as a way to help make up for knowledge gap displayed by trainers. It came across as one important link with industry for purposes of modeling and mentoring the trainee. In addition there was a call for urgent need of continuous industrial attachment for trainers.

Mode of learning experienced by trainees during training was faulted. This is attributable to a lecture method void of practical experience. The practical aspect to training is not exclusive to the hospital. There exists other ways of dealing with clinical issues such as the use of simulations of various human organs and parts within the institution. To further bring variety to the monotony of lecture method mostly used, other approaches that may be included are field trips, role-playing, problem-based learning, classroom instruction, and other practice related. There is a dearth of literature on trainers' competencies, and there is a call for research to evaluate the effectiveness of innovative teaching strategies.

Interactive modules and small-group training as opposed to the popular lecture method has been reported and is particularly efficacious in knowledge delivery style. This is shown in figure 5.3.

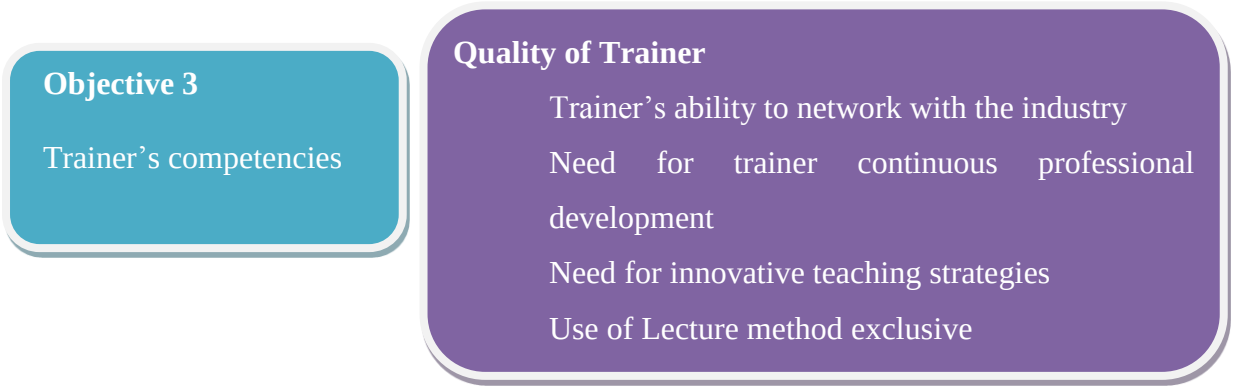


Figure 5. 3: : Trainers' skills, knowledge and attitude in training

5.10 Supervision during training

It was observed that doing more field work in terms of going to the community would be helpful in driving for competency development. Further, the need for good orientation before going to the field was presented.

The need for mentorship during the training was brought forth. One method that is popularly used to upscale skills and knowledge in the health care sector in regions that face a challenge in resources is off-site training courses and seminars. Inadequate training strategies have also been cited as a factor in lack of competence among health workers in general. It was thus established that training supervisors need to create a psychologically safe environment in which expression of self-doubt is encouraged during mentorship.

Some trainees were not usually ready for attachment challenges this is shown in figure 5.4.

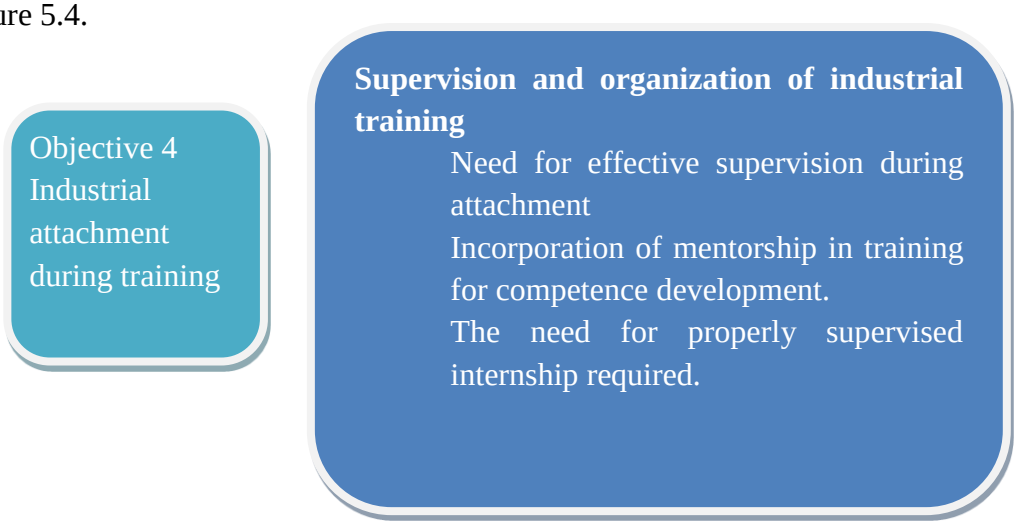


Figure 5. 4: Organization of supervision during training

5.11 Recommendations for Nutrition training in Kenya

The following are recommendations arising from the study for the training of nutritionists in Kenya

1. The blue print for the training of nutritionists should be, conducting a systematic training on needs analysis which should be used as a guidance for choosing what to should be included in training as well as locating training values for enactment. As a pre- training measure, personal analysis which goes beyond the scrutinization of a certificate would help to reveal individual motivation for seeking training. Motivation for training is an important factor in transfer of training.
2. Design of training ought to be directed by the outcomes of training needs analysis. Skills decay among trainers should be reduced by making provision for trainers to go for refresher training regularly.
3. Attachment should organized in such a way as to provide for supervisory surport which is an important factor in transfer of training. Supervisors should be prepared to surport trainees and send the right messages about training. This is important in enhancing trainee's motivation to learn.
4. Innovation in training that leads to a multidisciplinary strategy in training opposed to the current lecture methods that are bent towards being abstract in nature should be upheld. Such innovation in knowledge impartation would favor more exposure to industry regularly.
5. Sufficient budgetary allocation by institutions, exposure to hands on training, updating of materials for training, the enhancing of leadership that would ensure a progressive access to equipment and tools during training should be considered and appropriated. This should help facilitate transfer of learning.

5.12 Sugestions for future research

1. Future research is expected to shed light on the possible impact personal analysis on motivation of training transfer in nutrition.
2. The impact of Training needs analysis on effectiveness of training nutritionists.
3. Effect of simulation on transfer of learning.
4. Impact of negative feedback during supervision on motivation to learn.

5.13 Conclusion

Although the training of nutritionists is ideally expected to create sustainable changes in behavior and cognition so that individuals poses the competencies they need to perform a job, yet training of nutritionists has not always guaranteed this transfer.The way training is designed, delivered and implemented can greatly influence effectiveness (Salas, Scott, Kurt, & Kimberly, 2012). Merely training without putting into consideration mechanisms of transfer cannot lead to transfer of training. Systematic training design has to be put into consideration for effectiveness in training to be attained. This is because training is not a one time event but an iterative process that should go on through out the working years of practicing nutritionists. This is necessitated by the dynamic nature of the practice of nutrition. Successful training design has to consider three phases of training; Pretraining factors of training transfer, Factors during training and Factors after training. Motivation as a factor in transfer of learning cannot be ignored as it determines both the learning process during training as well as actual application of what has been learned from training to practice. Thus the process of effective training requires policy makers to comprehend how the effectiveness of labor force training and improvement can ensure a knowledgeble and skilled labourforce and that allocating practical policies and guidelines to improve human capital is of escence.

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APPENDICES

APPENDIX I: CONSENT LETTER

Department of Educational Psychology

University of Eldoret

Dear Participant,

My name is Clare and I am carrying out a study on training needs of nutritionists in Kenya. This study will take about 30 minutes to complete. I would like to hear your views on this topic. You are requested to participate on your own free volition. You are informed that you will not be compensated in any way or receive any gifts. However, your participation will serve in knowledge extension and benefit to humanity. Everything you share will be held in strict confidence. Would you like to share your views on this topic?

If the answer to this question is affirmative, you are requested not to indicate your identification details on this questionnaire.

Thank you for your time.

Signature ---------- Date: ----------

Researcher's Name: Clare Muhuha

APPENDIX II: INTERVIEW GUIDE

Nature of the program

What are some of the factors from the program that have assisted you in the practice of nutrition?

What issues pose challenges in the practice of nutritionists?

In your own perspective, what are the skills that lack in the program?

Are there courses in the program that you may not need? Which ones and why?

Tell me about any other factors that may contribute to the success of the program in your own view.

APPENDIX III: QUESTIONNAIRE ON NUTRITIONIST'S TRAINING NEEDS

Demographic Data

You gender: Male ☐ Female ☐

Your Age: (check where appropriate)

Under 21 ☐

21 to 30 ☐

31 to 40 ☐

41 to 50 ☐

51 to 60 ☐

61 to 70 ☐

71 and above ☐

State of employment; (Check where appropriate)

Permanent ☐

Volunteer ☐

In which section do you work?_____

How many years have you been practicing as a Nutritionist? _____

What is your highest level of professional training?

Certificate ☐

Diploma ☐

Degree ☐

Masters ☐

PhD ☐

Instructions

Indicate your level of agreement for the following statements by checking appropriately

This section of the questionnaire contains statements on training of nutritionists curriculum. Please read each statement carefully and indicate by circling how much you Strongly Disagree **(SD),** Disagree,**(D**) Undecided (**UN**), Agree (**A**) or Strongly Agree (**SA**) on the statement.

Curriculum Plan

	SD	**D**	**UN**	**A**	**SA**
The training course I underwent had sufficient content on prevention of non-communicable diseases.	1	2	3	4	5
The training course I underwent had sufficient content on the management of non-communicable diseases.	1	2	3	4	5
The time taken during training was enough to equip us on the prevention of non-communicable diseases.	1	2	3	4	5
The time taken on management of non-communicable disease during training was appropriate.	1	2	3	4	5
Opportunities were available during the course of training for us as trainees to be exposed to situations similar to our current the working environment.	1	2	3	4	5
Trainers for the core nutrition courses presented us with realistic situations that I currently meet in the course of my practice.	1	2	3	4	5
Trainers for the core nutrition courses were theoretical in their approach, (were not in touch with what goes on in the working environment.)	1	2	3	4	5
The examinations administered to us at the end of each module addressed information that relates with the prevention of non-communicable diseases.	1	2	3	4	5
Some question items in given exams tackled subject matter relating to the management of non- communicable diseases.	1	2	3	4	5
It is important for nutritionists to remain up to date regarding the prevention of non-communicable diseases.	1	2	3	4	5
Nutritionists should be role models and maintain a normal body weight.	1	2	3	4	5
I am professionally well prepared to treat/manage clients who are suffering from non-communicable diseases.	1	2	3	4	5

How many hours did you train in the prevention and management of NCDs_____?
Is there any other knowledge in the prevention of non communicable disease that would improve the nutritionists curriculum?_____
If the answer to the above is yes, which area of knowledge is left out that would be useful?_____
_____
_____
_____
_____

This section of the questionnaire contains statements on resources needed for training of nutritionists. Please read each statement carefully and indicate by circling how much you Strongly Disagree **(SD),** Disagree, **(D**) Undecided (**UN**), Agree (**A**) or Strongly Agree (**SA**) on the statement.

Resources

	SD	**D**	**UN**	**A**	**SA**
Books and other reading materials contained content on prevention of non-communicable disease were easily available during the course of training.	1	2	3	4	5
Books and other reading materials that contained content on the management of non-communicable disease were easily available during the course of training.	1	2	3	4	5
Reading materials were adequate during the training that I undertook.	1	2	3	4	5
The reading materials that were availed were suitable to equip us in the practice of nutrition.	1	2	3	4	5
The reading materials provided for the course were clearly readable.	1	2	3	4	5
I was conversant with the use of nutritional assessment tools during training.	1	2	3	4	5
I had trouble using most nutritional tools within the working environment due to lack of prior exposure.	1	2	3	4	5

Having a nutritional lab during training would improve the training of nutritionists. True or false (check appropriately)
If the answer to the above statement is true, please which equipment/s would improve the nutritionists' skills towards the prevention/management of non-communicable diseases?

Trainers

	SD	**D**	**UN**	**A**	**SA**
Trainers' attitude demonstrated realistic issues about the practice of a nutritionist.	1	2	3	4	5
The modes of information delivery used by trainers were appropriate in relation to real world encounters.	1	2	3	4	5
The mode of information delivery was unsuitable in preparing us for the working world.	1	2	3	4	5
The kind of Continuous Assessments tests given during training was relevant to the present working situations.	1	2	3	4	5
The kind of Continuous Assessments tests given during training was irrelevant to the present working situations.	1	2	3	4	5
The experience of trainers in core nutrition courses helped to translate theory into practice.	1	2	3	4	5
The trainers in core courses were out of touch with the practical practice of a nutritionist.	1	2	3	4	5
The trainers in core nutrition courses presented information without reference to their experience.	1	2	3	4	5
Trainers in the core courses used resource people whenever they were not conversant with a practical aspect of the subject matter.	1	2	3	4	5
Trainers during the course of my training were well conversant with the of use equipment used within my current working environment	1	2	3	4	5

What else may trainers do regarding to personal development to help nutritionists deal better with prevention and management of non communicable diseases?

_____
_____
_____
_____

Industrial training/Attachment

	SD	**D**	**UN**	**A**	**SA**
Supervision during attachment was well coordinated.	1	2	3	4	5
Supervision during attachment was well organized.	1	2	3	4	5
Supervision during attachment was not well conducted.	1	2	3	4	5
Attachment provided me with benefits in breaching real the gaps of knowledge.	1	2	3	4	5
I was well prepared to fit in with the demands of attachment.	1	2	3	4	5
The trainers sent from our training institution for assessment during attachment were knowledgeable about the practice of nutrition.	1	2	3	4	5
The kind of evaluation done during attachment was appropriate.	1	2	3	4	5
Feedback about attachment played a role in providing corrective measures in the practice of nutrition.	1	2	3	4	5
Attachment was intimidating to my practice as a nutritionist	1	2	3	4	5
Attachment helped in confidence building.	1	2	3	4	5

How would attachment be improved to tackle the prevention and management of non-communicable diseases better?

_____
_____
_____

General concerns

What is the major problem or frustration you have experienced in treating/Managing clients with Non-communicable diseases?

_____
_____
_____
_____

Do you have any other comments you would like to make regarding the treatment and management of clients with non-communicable diseases?_____
_____
_____

APPENDIX IV: IREC RESEARCH APPROVAL

INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)

MOI TEACHING AND REFERRAL HOSPITAL
P.O. BOX 3
ELDORET
Tel: 33471//2/3

MOI UNIVERSITY
SCHOOL OF MEDICINE
P.O. BOX 4606
ELDORET

Reference: IREC/2015/62
Approval Number: 0001650

7th June, 2016

Ms. Muhuha Clare Nekesa,
University of Eldoret,
Department of Psychology,
P.O. Box 1125-30100,
ELDORET-KENYA.

07 JUN 2016
APPROVED

Dear Ms. Muhuha,

RE: FORMAL APPROVAL

The Institutional Research and Ethics Committee has reviewed your research proposal titled:-

"Prevention and Dietary Management of Non Communicable Diseases in Kenya: An Implication in Training".

Your proposal has been granted a Formal Approval Number: ***FAN: IREC 1650*** on 7th June, 2016. You are therefore permitted to begin your investigations.

Note that this approval is for 1 year; it will thus expire on 6th June, 2017. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to IREC Secretariat two months prior to the expiry date.

You are required to submit progress report(s) regularly as dictated by your proposal. Furthermore, you must notify the Committee of any proposal change (s) or amendment (s), serious or unexpected outcomes related to the conduct of the study, or study termination for any reason. The Committee expects to receive a final report at the end of the study.

Sincerely,

For

PROF. E. WERE
CHAIRMAN
INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE

cc	CEO	-	MTRH	Dean	-	SOP	Dean	-	SOM
	Principal	-	CHS	Dean	-	SON	Dean	-	SOD

APPENDIX V: NACOSTI RESEARCH PERMIT

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit
2. Government Officers will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No. A 4962

CONDITIONS: see back page

THIS IS TO CERTIFY THAT:
MS. CLARE NEKESA MUHUHA
of UNIVERSITY OF ELDORET, 0-30100
Eldoret,has been permitted to conduct research in *All Counties*

on the topic: *THE TRAINING OF NUTRITION PRACTITIONERS IN KENYA AGAINST THE BACKDROP OF DISEASES OF AFFLUENCE*

for the period ending:
28th December,2015

Permit No : NACOSTI/P/15/6935/5541
Date Of Issue : 21st April,2015
Fee Recieved :USD 21

.....
Applicant's Signature

.....
Director General
National Commission for Science, Technology & Innovation

APPENDIX VI: ORIGINALITY REPORT

Turnitin Originality Report

Processed on: 24-Oct-2019 10:07 EAT
ID: 1199345985
Word Count: 43545
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EDU/DHIL/P/005/12 By Clare Muhuha

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