

Significant skills for effective teaching of food and nutrition in secondary schools in Zambia

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Abstract

This article is an extract of one of the objectives from the master study entitled “Significant skills for effective teaching of Food and Nutrition in selected secondary schools of Kitwe District of the copper belt Province Zambia. The background of the paper emanates from the fact that there has been the persistence of infectious diseases and the mushrooming of non-communicable diseases due to lack of knowledge and skills in Food and Nutrition among the public in general. This is so because most Zambians take health living for granted (Begum, 2008) ^[3]. This scenario has been compounded by a number of factors at play. Some of which include but not limited to the following: poor or non-existent sanitation and public health services which allows infections to spread, Poverty and inadequate food lowers people’s resistance, limited medical understanding means that there are few effective treatments, all these facts result in a high incidence of infectious diseases and premature death, the Western diet and life style are becoming more and more popular with everyone who can afford them, sedentary work and cars are in demand, Western style high-fat- fast food outlets are multiplying, the use of tobacco and alcohol is increasing, and with all these changes, so is the incidence of degenerative disease. Thus the poorest countries in Africa Zambia inclusive now have the double burden of unconquered infectious diseases and rising incidence of degenerative illness (WHO, 2010) ^[12]. His article therefore argues that the effective teaching of Food and Nutrition in secondary schools is not only relevant but also an issue that should be treated with the sense of urgency because it can preserve life and reduce premature death.

In light of the above challenges, this study sought to establish skills and methods for effective teaching of Food and Nutrition. In achieving this task, the study employed a case study which adopted both quantitative and qualitative paradigms. Data for the study was collected from ten (10) secondary schools in Kitwe District including the District Education Board Secretary (DEBS) and Mukuba University. The total sample size was fifty – five (55). Questionnaire data were analyzed using Microsoft excel and STATA that were interpreted into tables, frequencies and graphs whilst qualitative data were analyzed using emerging themes and sub-themes.

The study found that the first step is to make the pupils understand Food and Nutrition as a preventive care are indispensable part of their daily life. As the saying goes prevention is better than cure, prevention is cheaper while curative is very expensive. Therefore pupils should know that modern health and nutrition Education can help them in their daily life and can also help them find work after school. With the newly coming method of teaching Food and Nutrition using hands on; pupils must be looking forward to preserving their health and to prevent diseases. Pupils should know that a balanced diet and good life style keeps non-communicable disease at bay. Hence, Schools provide an important opportunity for prevention, because they provide the most effective methods of teaching and reaching large numbers of people which includes children, youth, school staff, families and community members. Teaching is an activity that requires professional knowledge as well as pedagogical skills. The teacher, therefore, requires knowledge in terms of critical awareness of a range of pedagogies. The teaching process involves specific actions; hence, a teacher must have a repertoire of methods, strategies, approaches and techniques applicable to different teaching – learning situations. Hence, healthy food and improved nutrition should be a high priority on every school agenda because of the positive effect on the child well-being, and subsequent enhanced learning ability and academic performance.

Through effective teaching of Food and Nutrition as a compulsory subject from an early stage in the revised curriculum of “hands on” pupils can greatly improve their life qualities and live at full potential. Pupils who learn Food and Nutrition will realize that people, who live healthy, live at their full potential physically and mentally, and they will extend their love to people around them, to the community and to the whole Nation (Caballero, 2001) ^[4]. Therefore empowering all pupils with Food and nutrition skills, knowledge, values and attitudes will improve health qualities of the nation. This is in line with the philosophy of Reconstructionism which states that the school must play active role in changing or reconstructing society and pupils must be active participants in making positive changes in the existing social situation. (Andeyinka, 2000) ^[1]. Thus the study made the following recommendations (1). The government through the Ministry of General Education should buy the necessary equipment, materials, and ingredients needed for practical lesson in schools. (2) The government through the Ministry of General Education should make Food and Nutrition a standalone subject and make it a compulsory subject from primary level to tertiary level. (3) The government should start training teachers in Food and Nutrition as a standalone course in Colleges and Universities (4) the government should also start conducting surveys on the practical methods of Food and Nutrition.

Keywords: effective teaching, pedagogical skills, preserve life, compulsory, practical lessons, reconstructionism

1. Introduction: Background of the study

The perception of many people towards Food and Nutrition is that it is a subject of cooking and eating with the content that can be taught at home as part of the currently informal

education. This renders the content to be regarded as not challenging as it can be learnt by anyone. However, this is not the case as Food and Nutrition is a discipline just as much as other subjects such as Mathematics, Physics and English.

Therefore, one cannot claim to have learnt Food and Nutrition at home as similar to have learnt it in school. The learning of a skill at home is not based on the scientific nor does it render a basis of conferring one to have undergone training in the field of Food and Nutrition science. The aspect of methodology is also of great concern as it involves theory and practice. Hence, Food and Nutrition allows abundant theoretical and practical application from home to primary through tertiary education. The hierarchy of Food and Nutrition is well tabulated to qualify it as a discipline and subject. In this modern age of technological advancement Food and Nutrition is one of the technologically advanced subjects that have integrated modern technology through its varied electrical and solar gadgets that range from the digital kitchen scale to microwave cookers.

Food and Nutrition also plays a critical role in the prevention of both communicable and non-communicable diseases (Mohan, 2000) ^[9]. Moreover, the effective teaching of Food and Nutrition will impart in pupils both life skills as well as survival skills. The effectiveness of teaching, therefore, can be evaluated from various viewpoints such as the way teachers pose questions, describe and explain things. How they involve pupils in the learning process and the interest they are able to generate in the subject they are teaching to pupils as indicators of the quality of teaching.

The school Head teacher and head of departments are equally interested in assessing the performance of their teachers and pupils. But their interest is mainly to know how many of the pupils have passed public examinations to enable them to progress to the next grade. Note that significant skills for effective teaching and learning of Food and Nutrition should aim at bringing intended changes in the pupils. So this study investigated significant skills for effective teaching of Food and Nutrition beyond public examinations. This is so because the scene of this world is changing but not always for the better.

Despite appreciable worldwide improvements in life expectancy, adult literacy and nutrition status, we all view with deepest concern the unacceptable fact that millions of people in developing countries still do not have access to enough food to meet their basic daily needs for nutritional well-being.

Due to this reason the dynamic characteristic of the subject had enabled the Food and Nutrition syllabus to undergo some changes in response to societal need. These were needs such as the need to have a relevant Food and Nutrition syllabus that was able to address the local and regional issues. Following this need the Zambian High School Food and Nutrition syllabus was reviewed in 2013. According to Educating Our Future Policy Document (MOE 1996) the need for education at high school level was to enable pupils to become responsible persons capable of making a useful contribution to society and adequately qualified for the adoption of adult roles. Thus high school Food and Nutrition was further meant to enhance the integration and comprehensive development of each pupil potential.

The syllabus was designed in such a way that it portrayed the important role of the subject in the preparation and execution of the hands on methods in relation to society welfare of the country. This portrayal was in accordance with the views of (Campbell and Fosktt, 2012) ^[6] who contend that the subject Food and Nutrition is a pragmatic science, which is meant to be practical in addressing issues that affect society. Society

needs pupils who after attaining secondary education would be able to participate in the development of their own county through upholding the various, skills, customs, traditions and attitudes of their society.

As such Food and Nutrition secondary school pupil's need to be equipped with skills, knowledge and values that would motivate them to take up practical jobs meant to contribute to the development of their own society (Cooper, 1996) ^[7]. This is where Food and Nutrition is meant to promote the learning of value laden issues. Despite vivid and empirical evidence of the positive role that Food and Nutrition play in peoples life concerning healthy eating habits, many questions still arise as regards the impact it has on the people who learn it. For example, how do people choose food? When they buy food, what factors influence them? Is it packaging? Price? Ease of preparation? Or just the persuasive claims in advertising? Or just the way the food looks and tastes? Making the right choices may determine whether your health is improved or damaged (Begum, 2008) ^[3]. The present study therefore attempted to find out from administrators, teachers of Food and Nutrition and pupils taking the subject if methods used in teaching are effective and practical. And if the content taught in Food and Nutrition is able to help pupils and the society to preserve health and prevent diseases.

Statement of the Problem

The effect of significant skills for effective teaching of Food Nutrition in Zambia still remained un investigated this is so because most research have been done in Home Economics and not in Food and Nutrition as a component of Home Economies which is now being offered as a standalone subject in most high schools in Zambia.

This has caused concern particularly in view of the point that Food and Nutrition is the only subject that meet and deals directly with human life at family level so if effectively taught in schools most infectious and non-infectious diseases could be prevented and premature death could be reduced. Thus, Food and Nutrition studies in school does not only offer a promising career but can preserve life. This study therefore would like to find out if this subject is being effectively taught more especially that the curriculum demands hands on methods (learning by doing).

Significance of the Study

This study was significant firstly because the findings provided valuable information which would be a basis for further research for the improvement of Food and Nutrition teaching in Zambia. Secondly, the findings of this research were important as they brought awareness of important teaching experiences in Food and Nutrition which would be of interest to teachers, teacher educators and to curriculum planners. It is in the interest of every educational system to ensure that teachers are competent in the subjects they teach. Perceptions' concerning distinctive qualities as characteristics of a competent Food and Nutrition teacher is important in stimulating and guiding improvements in the teaching of the subject. Therefore, identification of competencies that Food and Nutrition teachers perceived to be critical for teaching the subject is an important step towards improved learning in Food and Nutrition.

Some teachers' perceptions may not necessarily be related to effective teaching and learning. Such data, however, shall

bring awareness of how Food and Nutrition teachers interpret the existing syllabus and how they interpret what is fundamental for teaching the subject. The findings helped to expand the understanding of the nature of teaching in Food and Nutrition in Zambia. Such information is useful for preparation of curriculum reviews, in-service training courses and for the planning of pre-service teacher training courses. The information can also provide a basis for making changes in school programs. Focusing on perceptions of practicing teachers as a means of identifying critical competencies provided an opportunity to re-conceptualize the role of the Food and Nutrition teacher with regard to teaching responsibilities, professional development, and roles in curriculum and staff development. Focusing on teacher perceptions also helped revealing important elements inherent in the teaching of Food and Nutrition which would otherwise be impossible to identify if observed from an outsider's point of view. It is of prime importance that the teachers' perceptions on such issues be reflected through interpretative research.

Study Site

The study was conducted in selected secondary schools of Copperbelt province. Ten schools were selected and a case study research design was used. These sites in Copperbelt Province were chosen because they had been teaching Food and Nutrition as a subject.

2. Literature Review

Globally the prominent role of Food and Nutrition is to improve people’s health and hygiene practices for both rural and urban families. Hence, the creation of the American Home Economics Association in 1899 in the United States of America initiated a long but fruitful struggle to make Home Economics an important subject to be included in all school curricular and to be undertaken by all children in schools of the new world. Home Economics was nationally recognized as an important subject when College of Home Economics was established in 1919 at University of Cornell in the United States of America. From Cornell University the subject spread to many educational institutions in the United States.

In the 1920s Home Economics were disseminated through the print media, publishing women's magazines and writing inexpensive pamphlets that were distributed widely. They also started using the radio in the 1920s and in the 1950s the

television was used as an outreach medium. These were ways of sensitizing the public of the importance of Home Economics as a subject in educational institutions and the American society.

In America 99% of the public schools offer nutrition education starting from kindergartens, 70% of nutrition education is integrated within the total curriculum, 84% of the nutrition education is concentrated within health curriculum 72% in science classes and 68% within school health programs. Topics in nutrition covered in all schools are the relationship between health and diet, finding and choosing health food, nutrients and their food sources, the food guide pyramid and the dietary guidelines and goals, schools focus on increasing the pupil’s knowledge about what is meant by good nutrition. At high schools the curriculum is designed to help students understand the good system basically from farm to fork, but on a global perspective with the idea that you teach students about how food system work and let them make their own choices helping student learn how to make health choices is a concept that is prominent in these programs throughout the country.

According to Naticia Campbell, a division chairwoman of science, applied technology and family and consumer sciences at Victor j. Andrew high school, students take fitness and nutrition courses which was designed to teach students how nutrition is related to physical activity. Part of the elective class is spent on strength training and conditioning in gym, while the rest is spent in the classroom learning about nutrition, students are also required to bring a health lunch to class that they have prepared at home which is parts of their grade.

On lab days, students learn how to prepare healthy meals that are related to what they have learned in class, such as creating an egg dish during protein unit. Regardless of individual pace of learning, children should be encourage to and shown how to learn basic skills. Children and adolescents should learn food skills according to their age and aptitude, with abilities developing as a child grows and matures (Campbell, 2012)^[6] Food skills consist of basic knowledge in areas such as food hygiene, consumerism, food preparation and labelling. Basic food preparation skills are essential and contribute to the overall food skills. The ability to use kitchen equipment safely easily aids the learning process and encourages experimentation with food and cooking. A guide to general skills appropriate to age is presented below in table: 1

Table 1: Guidelines for basic food skills for children and adolescents

Age (years)	Basic food skills/food preparation	Food purchasing
2	Wipe table tops, wash and scrub vegetables, play with utensils, select ingredients	
3	Wrap potatoes in foil for baking, knead and shape dough, pour liquids, mix ingredients, spread soft spreads, dispose of rubbish appropriately	
4	Peel fruits, form shapes i.e. bread dough, mash bananas using a fork, set and prepare table for eating	
5-6	Measure ingredients, cut soft vegetables, use an egg beater	
7	Understand basic hygiene concepts (i.e. hand washing, cleaning fresh fruits and vegetables before eating), setting tables, kitchen safety awareness (i.e. caution required with sharp utensils)	Recognise specific shops e.g. butcher or baker, food supply in shops
8-10	Prepare sandwiches and simple snacks, know simple techniques (i.e. boiling, frying), read and follow recipes, understand the need for hygiene, clean dish cloths, utensils etc, behave safely in food preparation areas	Purchase basic goods, handle money, identify different types of shops where food is sold, understand the environmental impact of packaging, be aware of food labels and basic information provided i.e. ‘best before’ or ‘use by’ date, be able to recognise an advertisement as a method of selling products

11-13	Experiment with different preparation techniques, use recipes, measure ingredients, apply food hygiene principles, use sharp utensils safely	Recognise the influence of advertising, ability to handle a shopping assignment (money and correct product), be able to identify the same food item in different packages, basic knowledge of the food chain, understand basic storage instructions included on food labels, ability to read ingredients list and highlight basic food groups
14-18	Plan and prepare meals for themselves and others, apply different cooking techniques using appropriate equipment and skills, recognise and avoid critical hygiene points for cross-contamination, serve food, recognise eating as a social event, use a range of kitchen equipment safely, confidently and independently, respond appropriately to emergency situations.	Prepare shopping lists, establish food budgets for time periods, buy according to need, ability to compare prices and quality, recognise and understand nutrient values, ingredients and use of additives presented on food labels, understand the factors determining the quality of food, ability to understand and critique advertising techniques used in supermarkets, shops and by the mass media

Source: Centre for Nutrition Policy and Promotion, 1999; Dixey R *et al.*, 1999^[15].

Exercise, fitness, eating healthy and living a healthy lifestyle is important for our overall good healthy. Hence knowing how to choose and prepare health and nutritious food is a very important skill in life. A healthy diet supports the immunity system and reduces the occurrence of many diseases including obesity, type 2 diabetes, heart diseases, strokes and some kind of cancer. Being health improves the quality of a person life and decreases public health care costs.

In 1995 Europe launched the world Health organisation’s Global School Health initiative, with the mandate to use schools as a means of strengthening health promotion and education activities at local, national, regional global levels in order to improve the health of students, families and all members of the community. The term health promotion schools’ was developed to recognise educational institutions that constantly strengthens its capacity as a healthy setting for living, learning and working (WHO, 2006)^[13].

The concept of a health promotion school is based on a social model of health, emphasizing the needs of the individual at the centre of the entire organisation. Using a holistic approach, supportive setting is created influencing the perceptions and actions of all involved with the school, from parents to caterers and food providers, [The European Network of Health Promotion Schools (ENHPS), 2006]^[16]. This is particularly important when addressing child nutrition and health, as all stakeholders involved in the provision of the school food influence the real nutritional quality and therefore diets of young consumers.

Therefore, according to Scriven and Stiddard (2003)^[17], schools and education institutions have been identified as one of the fundamental settings for health promotion and establishment of health eating and life style patterns. However, tackling nutrition issues in childhood requires coherent action in the school setting, as the hierarchical culture may inhibit achievement and empowerment. Improved school health is achieved by the development of Food and Nutrition policy. A written policy document should be produced based on a situation analysis specific to the context and agreed upon by all the different stakeholders involved.

The educational level at which Home economics is taught in public schools in Southern Africa varies from country to country, with some countries offering a strong component of Home Economics in primary and secondary schools, while others place it as part of other subjects, such as Creative and Performing Arts (e.g., Botswana), and still others teach it in non-formal sectors, or it is not taught at all. Regardless of when it is introduced into the public school curriculum, most Home Economics programs in African schools, including

colleges and universities are characterized by a shortage of human resources and equipment, by irrelevant textbooks, and by irrelevant content, among others (Ogwu, 2010)^[34].

In Yoruba land, domestic science was only taught in girls’ mission schools and marriage training homes run by the mission stations. The subject received very little attention in mixed schools. In the mixed school, only needlework was taught. The cookery syllabus was criticized as being too European; as a result Nigerian staff encouraged local recipes to be used in the teaching cookery and housecraft in the specifically constructed demonstration rooms in the affected educational institutions. Other than needlework being a home-focused subject, it became a lucrative occupation for young educated elite women as they became dressmakers and made profits from their businesses. On the other hand, skills in cooking, baking, sewing and embroidery saw the young ladies go into commercial enterprises such as opening shops to sell baked foodstuffs in markets. Although the real intention of teaching needlework to girls was to prepare them for future vocations as wives and mothers, the skills enabled them to earn a living as they become dressmakers. Similarly, the skills in cookery following the Nigerian syllabus which was adopted in preference to the European syllabus, the positive impact was that it benefited the young ladies to enter into commercial enterprises such as the opening of shops to sell baked foodstuffs in the markets.

In her chapter that appeared in Hansen’s work (1992), Musisi states that “Home Economics curriculum for girls in Uganda was from practical to theory. They were taught sewing starting with small samples. After some good experience they later began to make big garments. The curriculum included domestic science, housewifery and hygiene just as it was in England. At vocational level, the curriculum enabled women enter only a limited number of professions, such as primary school teaching, nursing and home-making, which were deemed suitable to European gender role definitions. On the other hand, through learning home craft women tended to produce more food and the surplus were sold to supplement the income in the home.

In Zambia the subject aim was to equip women and girls with skills that would enable them to manage their homes and families efficiently. Domestic science was in line with the recommendations of the 1924 Phelps-Stokes Report that stressed the need for the kind of education that would prepare people for life in the village or life within the tribal ethnic community (Carmody: 2004). However, at primary level Food and Nutrition is a component of Home Economics which is integrated with other academic practical subjects like creative

and technology studies. As a result the subject lacks adequate periods allocated on the time table to offer both theory and practical. The integration as well as lack of specialised human resource has severely impacted upon Food and Nutrition. In most junior secondary schools Home Economics rooms which were in existence from the era of the First Zambian Republic President, are now used for academic production Unity classes which has led to drastic phasing out of offering Home Economics in many junior secondary schools. Consequently, in secondary schools pupils find it difficult to choose Food and Nutrition as it is an option subject and pupils also lack sound background of the subject from primary and junior secondary school. Furthermore, most of the recipes and equipment are not easy to find in remote schools, for example electrical appliances. This is because of lack of conceptualization of the subject and also standardization of providing wooden stoves and small kitchen equipment even in rural schools Home Economics department.

Since the picture of nutritional status in Zambia has changed drastically as a result of changes in the social economic situation. Two contradicting nutrition related diseases exist, those associated with inadequate intake of nutrients and unhealthy dietary such as growth retardation among young children and micronutrient deficiencies; and those associated with changes in life style such as cardiovascular disease, cancer, osteoporosis, diabetes and obesity. Factors contributing to nutritional problems vary from country to country, depending on socio economic status. In general, unsound dietary habits, poor sanitation, poverty, ignorance and lack of access to safe water and health services are mainly responsible for under-nutrition. Changes in life style and dietary habits as well as inactivity are associated with the occurrence of diet-related non-communicable diseases.

Food and Nutrition security worldwide is recognized as a human right and a critical ingredient for economic, social and human development. Prevention efforts in terms of nutrition education programs should be started as early as possible for young people. In order for positive nutrition behaviour to become permanent part of lifestyle habits, nutrition education must be delivered to young persons (Sovyanhadi, 2001) ^[18]. To accomplish the objective of good nutrition habits in pupils the teaching methods used to deliver these messages must be tried and proven as effective.

Since both under nutrition and overweight have a great negative impact on social economic and public care health systems. Intervention programs to control these nutritional problems should consider political, food security, economic, social, agricultural and environmental factors in order to develop multi sectoral program

Generally programs to prevent and control nutrition related diseases are insufficient in Zambia due mainly to focus on curative care at the expense of preventive health care services, lack of epidemiological studies, lack of nutrition surveillance, inadequate nutritional information and lack of assessment of the cost-effective of nutrition intervention.

Although it has been said and believed that nutrition education and nutrition interventions programs requires intersectional collaborations among different professionals such as agriculture, health, education and communication (FAO, 2012, Food and Nutrition Policy for European countries, 2006 and WHO, 2010) ^[12] have all pointed out that the ministry of education, through schools presents the idea setting for

teaching basic skills in food nutrition and health.

This is so because schools reach children at an age when food and nutrition habits are being formed; they also reach families, school community and can be a channel for wide community participation. The school through subjects like home economics and food and nutrition will help young people to curb the rising NCDs epidemic as well as coping with infectious diseases in Africa by targeting the modifiable risk behaviours thus tobacco use, harmful use of alcohol, unhealthy diet and inactivity. Such subjects provide knowledge and skills that can help pupils make good choices and develop eating habits that will help keep them healthy throughout their lives. Through activities such as school gardens, school meals, school clubs like anti-drugs and drama, children, adolescents and their families can improve their health and nutritional well-being and develop good life long eating habits. Hence promoting nutrition through schools can create benefits that extend beyond the classroom and play ground to improve the health nutritional well-being of households and communities (WHO, 2010) ^[12].

Food and Agricultural Organization (FAO), (2012) further stipulates that the approach to health nutrition education, in which classroom learning is linked with practical activities, reinforced by nutrition and health friendly school environment and involves the participation of all school personnel, families and community is effective. Education activities that complement each other, including classroom lessons, hands on opportunities for pupils to experience and practise and be activity involved in learning about food, diets and health are integral parts of effective school based nutrition educational. This comprehensive approach helps create positive attitudes and skills and helps pave the way for carrying health habits beyond school and into adulthood.

Improving and expanding education opportunities for girls is one of the best health and social investment since improving girls health will in turn improve the health of their children and families because women generally have a measure of responsibility to care for others with the household like food preservation and obtaining health care. (WHO, 1996) ^[11]

Educated girls and women seek appropriate parental care, give birth to healthier babies and bring them home to healthier environments. Research evidence makes it clear that the single most important factor in determining a child's health and nutrition status in the mother's level of education. Malnourished mothers tend to have low birth weight babies (Horwitz, 1993) thus perpetuating the problem of malnutrition and ill health from one generation to the next (UN/ACC/SCA, 1996) ^[25]. For example the child's attitude for formal education may be in jeopardy even poor to school involvement if the mother suffered from maternal iodine deficient during pregnancy. Thus educating young girls and mothers to be is one of the best ways of ensuring the nutritional future of the next generation.

According to [Morbidity and Mortality Weekly Report, (MMWR), 1996] ^[35] school health education about good nutrition also serves as a means to inform families and other community members about ways to promote wellbeing and prevent malnutrition. For instance, educating children about good eating health has the potential to enhance the nutrition of health status of the young siblings whom they may take care of (WHO 1996) ^[11] as well as of other family members that learn concomitantly with their children. Additionally,

involving parents in nutrition interventions at the elementary (primary) school level has been shown to enhance the eating behaviour of both pupils and parents.

Further research has also shown that school health education interventions can be considerably strengthened by complementary community-wide strategies (Kelder and Steven, 1995) [10]. Thus schools can be the Centre for community enhancement project that include programs to improve the health and nutrition status of the community. School also provide setting for new health information and technologies to the community (WHO 1996) [11] for instance the establishment of school canteens offering health food choices and practicing good food safety is a way to demonstrate how to improve facilities in community.

Other studies have also show that nutrition education provides people with correct information on the nutritional value of foods, food quality and safety, methods of food preservation, processing and healthy, food preparation and eating, to help them make best choice of food for an adequate diet. The provision of correct information is not in itself a sufficient objective to improve nutrition; successful nutrition education goes beyond the accumulation of knowledge, towards positive action. A change in behaviour leading to desirable nutrition practices would include, for example beginning to grow and eat dark green, orange and yellow fruits and vegetables to protect the body from infectious diseases, or learning how to store maize or other foods more safely to reduce nutrient losses and thereby increases household food resources.

Therefore, effective nutrition education and promotion in schools includes multiple components such as skill building to facilities positive behaviour change, environmental and policy changes to make the healthy choice the easy choice and integrated initiatives and social marketing to build community and social support. This will help consumers to select and to consume healthy and enjoyable foods by improving awareness, skills and nutrition to make action at home, school and at work, (Contento, 2011) [5].

Effective nutrition education must therefore be planned and executed in such a way as to motivate beneficiaries to develop skills and confidence for the adopting of positive and lasting practices, successful nutrition education often entails the active participation of the people, their awareness of the nutrition problems and their willingness to change. It also requires intersectional collaboration among different professionals such as Agriculture, health, education and communication strong political and government support, strengthening of local managerial and community capacities and external funding are some of the factors that can further support nutrition education.

3. Methodology

The study undertook triangulation methodology approach where both qualitative and quantitative methods were used to collect data.

3.1 Research design

The study used a case study employed qualitative and quantitative methodologies in order for the study to establish significant skills for effective teaching of Food and Nutrition in selected secondary schools. The case study was used because it was manageable both in terms of time and cost. Moreover, it was easier to use multiple data collection

techniques; questionnaires, interviews and classroom observations. A case study research design helped in obtaining in-depth information on the significant skills for effective teaching of Food and Nutrition in selected secondary schools of Kitwe district.

3.2 Population

The study comprised of pupils, Food and Nutrition teachers, administrators, the DEBS, the DESO and one Mukuba University lecturer all from Copperbelt Province.

3.3 Sample size

The sample size comprised fifty-five (55) respondents who included seven (7) secondary school head teachers, three (3) deputy head teachers, ten (10) secondary school Food and Nutrition teachers, ten (10) H.O.Ds, one (1) guidance teacher, twenty-one (21) pupils all drawn from secondary schools offering Food and Nutrition, one (1) DEBS and one (1) DESO, one (1) lecturer from the Home Economics department of Mukuba University.

Table 2: Demographic Characteristics of Participants

Category	Male	Female	Total	Percentage%
Pupils	10	11	21	38%
Food and Nutrition teachers	0	20	20	36%
Administrators	6	8	14	26%
Total	26	39	55	100%

3.4 Sampling Procedure

The simple random technique was used to select head teachers, teachers and pupils. The quota sampling technique was further used to select pupils in order to accord both the male and female pupils equal opportunities to participate in the study. Furthermore, the purposive sampling technique was used to select the DEBS, the DESO, and the lecturer because they are holders of valuable data that was required for the study.

3.5 Instruments for data collection

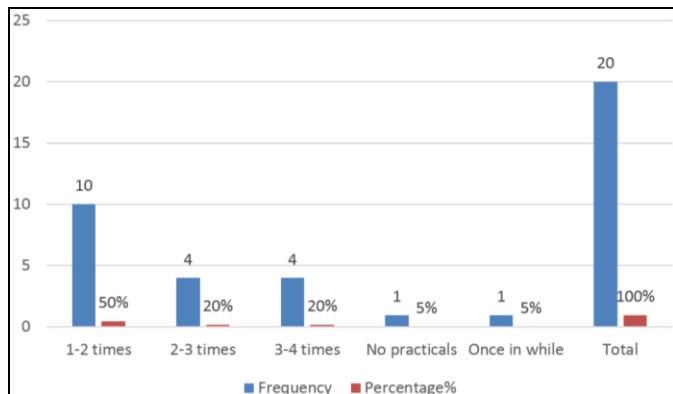
The study used questionnaires, interview schedules, class observations and corporative review of curriculum documents. The questionnaires were used to collect data from pupils and teachers who were the majority. Further, questionnaires were used because the sample composed of secondary school teachers and pupils who were literate. Furthermore, questionnaires were used as they were friendly, save time and suitable when dealing with quantitative data. However the inadequacies of using questionnaires were supplemented by employing interview schedules. The interview unlike the questionnaires helped in collecting in-depth and comprehensive data from teachers and administrators.

3.6 Data analysis

The statistical package (STATA) was used to analyze the quantitative data that was later interpreted into tables and graphs. The qualitative data was analyzed thematically under their respective emerging themes and sub themes. Further, ethical issues were also taken into consideration by obtaining participants consent and permission from relevant school head teachers. In addition, the respondents' identities were kept anonymous as a way of enhancing confidentiality and privacy.

4. Findings and Discussions

In establishing the significant skills for effective teaching of Food and Nutrition in Zambian selected secondary schools pupil respondents were asked how many times they have Food and Nutrition practical lessons in a week. The responses are shown in Figure 1 below:



Source: Field data, 2016

Fig 1: Food and Nutrition practical lessons per week

Figure: 1 shows that 10(50%) of the pupils interviewed said that they have practical lessons 1-2 times per week, 4 (20%) said that they have practical lessons 2-3 times per week, 4(20%) said that they have practical lessons 3-4 times per week, while 1(5%) said that they do not have practical lessons at all and 1(5%) said that they have practical lessons once in a while.

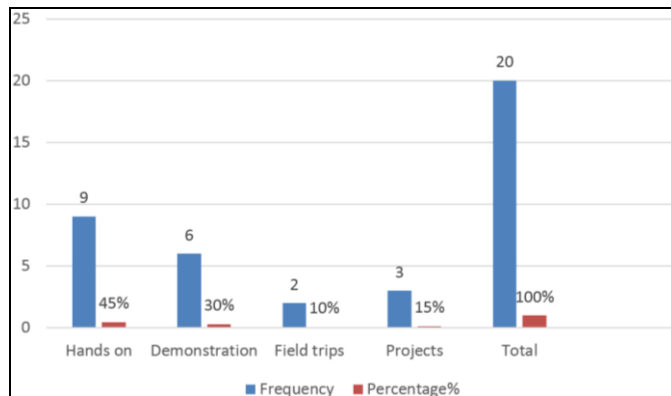
This practical subject needs more time in order to cover its wider syllabus and its practical sessions. Even from its introduction Food and Nutrition as a component of Home Economics was given more time of learning in order to cover its practical sessions fully. So the allocated time of twelve periods per week is definitely enough. But the learning of practical lessons is affected by lack of resources such as funds to buy needed equipment, materials and ingredients. In some newly up graded schools infrastructure is also a challenge as well as over enrolment. The practice oriented approaches are encouraged in teaching Food and Nutrition in order to ensure continuous interaction between pupils and content. In fact to inculcate means repeat them to, teaching should, therefore, involve more of repetition and revision of content in order to decrease errors. Repetition and practice involves repeated exposure to the materials to be learnt. Practice distinguishes learning from certain development process that involves change in behaviour but is not learnt, such as those that result from maturation or growth of muscles. Pupils require several practice sessions in order to master certain concept and skills in Food and Nutrition. Practice therefore, encompasses the application or manipulation of facts to a point of perfection and it implies more meaningful and purposeful varied repetition.

The amount of practice required depends on the task being learnt. The more complex the task, the greater the number of practice sessions required for effective mastery (Block, 1971)^[33]. In such a case, an individual’s memory becomes very good, the learnt material cannot be forgotten and recall becomes automatic. The practice period should be long enough to sustain learning of the given material or skill. It should be spread out over a period of time to allow for proper

consolidation. Practice sessions should be closely supervised to ensure that pupils do not master wrong concepts and skills. Reinforcement of learning during practice should be done through the use of both affiliation and approval. Pupils should be allowed to compare their ability, opinions and emotions and the teacher should acknowledge their efforts.

Learning is more effective when skills and concepts are split into manageable portions to be tackled sequentially, beginning from the simplest to the most complex. Once the stages are mastered, practice of the consolidated material or task should be undertaken. Feedback on the progress made in performance of the task should be provided regularly and be accompanied by appropriate reinforcement. Teachers should ensure that they present only correct and clarified material during introduction in order to protect pupils from mastering tasks wrongly. Practice sessions must be relaxed because anxiety can be incapacitating and may impact negatively on the pupil’s ability to master the tasks (Wragg, 1994^[32]; Joyce and Weil, 1980)^[31].

The researcher further found out which could be the best methods for teaching Food and Nutrition in secondary schools. The response is seen in figure: 2



Source: Field data, 2016

Fig 2: Best methods for teaching Food and Nutrition

Figure: 2 above shows that 9(45%) said that hands on is the best method of teaching Food and Nutrition, 6(30%) said that demonstration is the best method, while 2(10%) said that field trips is the best method, and 3(15%) said that using projects is the best method of teaching Food and Nutrition.

Teaching process involves imparting, inculcating, instructing or equipping pupils with desired knowledge, skills and attitudes. Teaching is an activity which requires professional knowledge as well as pedagogical skills. The teacher, therefore, requires knowledge in terms of critical awareness of a range of pedagogies Nacimo-Brown, 1994^[39]; Perrot, 1982)^[40]. The teaching process involves specific actions; hence, a teacher must have a repertoire of methods, strategies, approaches and techniques applicable to different teaching-learning situations.

In the teaching process the interaction takes place between the teacher and the learners. This interaction usually involves curriculum instructions, giving feedback, holding discussions, social and personal conversations and organization and management of the classroom. The teacher may interact with the whole class, with an individual pupil or with small groups of pupils. These interactions are central to classroom life and educational purposes. The teacher should decide on the type of

interaction to engage in during the process of teaching. During the teaching process, the teacher should build a good relationship with the pupils to inspire confidence in them and this enables them to participate individually or cooperatively as a class. The relationship is dependent on the type of methods, approaches or techniques the teacher uses. It is the teacher's responsibility to develop, improve and affect different ways of organizing learning and teaching. Teacher should remember to relate the curriculum objectives and the needs of the pupils to the instructional methods, approaches and techniques during the teaching process (Thungu, Wandera, Gachie and Alumande, 2008).

The teaching of Food and Nutrition using hands on methods (learning by doing) is the best. This method uses pupil centered approaches like practical lessons, assignments, group work, demonstrations, discussions and projects. The practical teaching, therefore, is more like coaching (O'Connor and Lages, 2007) ^[46] as opposed to lecture method. An example of where coaching is an appropriate training method is learning a skill such as cooking or baking. Such teaching must be relevant and learning experiences should relate directly to the pupils daily experiences and issues that affect them on daily basis. Pupils need involvement in learning which can be accomplished by providing hands on work, conducting group and individual projects, using brainstorming and discussions (Rogers, 1969) ^[14, 48]. According to the policy on education, the aim of education is to promote the full and well-rounded development of the physical, intellectual, social, affective, moral and spiritual qualities of all pupils so that each can develop into a complete person for his own fulfilment and for the good of the nation.

Social learning theory states that when conditions are ideal, pupils learn most rapidly and effectively from watching some performing (model) a skill or an activity. For modelling to be successful, the teacher must clearly demonstrate the skill or an activity so that pupils have a clear picture of the performance expected of them. Learning to perform a skill takes place in three stages. In the first stage skill acquisition, the pupil sees others perform the procedure and acquires a mental picture of the required steps once the mental image is acquired, the pupil attempts to perform the procedure, usually with supervision. Next, the pupil practices until a skill competency is achieved and the individual feels confident performing the procedure. The final stage, skill proficiency, occurs only with repeated practice over time (Bandura, 1965) ^[2].

The demonstration method is mainly used with solid objects, but abstract concepts, ideas and attitudes can also be demonstrated. Demonstration is a dramatic performance, where the teacher is the actor, the pupils the audience and the materials and equipment the stage props. It is a method of teaching as well as an approach and strategy. For example in Food and Nutrition practical lesson, a teacher first demonstrates how to use utensils and equipment before letting the pupils operate them on their own. It is therefore, described as an audio-visual explanation that emphasizes important points of a product, a concept, a process or an idea.

Demonstration method trains pupils to be good observers, it enhances the formation of concepts and generalizations, it is appropriate when pupils need to learn how to operate a piece of equipment and it is also effective for introducing skills and concepts in learning. It is of high interest value when it involves the use of equipment and materials which may be

new to the pupils and it is economical in terms of time and money (Cueist, 2000) ^[27].

Discussion method is an interaction between two or more people. In a classroom, discussions often take place deliberately or spontaneously. They may occur at brief intervals during an informal lecture, demonstration or practical lesson. Hence discussion is referred to as a technique within a method. However, discussion is treated as an overall step by step procedure of teaching an aspect of a subject or a course in order to achieve definite instructional goals. It is, therefore, a pre-planned, organized and unique method, and not a part or an element of another method.

The discussion method is seen as a departure from the more traditional assignment-study-recite approach to teaching where pupils are required to reproduce what they have previously studied by giving correct responses when asked questions. Therefore, topics to be discussed must be real or hypothetical involving an issue with more than one side to it, for instance the topic for discussion could be, what do you understand by the term healthy eating? The discussion should also be limited to a few major aspects of the topic in order to have an in-depth discussion.

The discussion method provides an excellent opportunity for pupils to practice their oral communication skills. It gives pupils practice in critical and evaluative thinking and listening, they benefit from each other, it provides good practice for problem solving skills, and it gives pupils training in democratic processes and helps them to clarify ideas (Dawn, 2000) ^[28].

Project method, a project is an activity carried out by an individual pupil or a group of pupils in a more natural manner and in an environment that is freer than that of an everyday classroom. This is usually under the guidance and supervision of the teacher who ensures that the project accomplishes a definite and attainable goal. Pupils are given freedom to investigate and gather information for their project. One example of a project could be methods of food preservation. When preparing pupils for project the teacher should help them to identify and define project to be studied, organize and plan the study project in a manner that will enable pupils to collect relevant information. The teacher should also encourage the use of a variety of research method such as interviews, questionnaires and library study.

Project method helps pupils to develop skills on how to organize and carry out individual or group work without the teacher's constant supervision. It provides natural approach to learning as it relates the curriculum to real-life situations, captures pupils enthusiasm by stimulating their initiative and spirit of inquiry, encourages creativity, freedom of expression and sustains motivation, applies the philosophy of learning by doing (hands on), thus making learning pupil centered, and it give pupils experience in planning and organizing, and a sense of achievement (Nacimo-Brown, 1994 ^[39]; Perrot, 1982) ^[40].

An assignment is a task or piece of work given by the teacher in a particular subject to be done by individual pupils independently usually after class hours. Sometimes the pupils may choose the areas they want to work on but the teacher should give his or her approval before the pupil start doing the work. For example, homework or unfinished may be done as an assignment after school activity.

Self-study assignments which lay a foundation for personal in-depth study can be done in the library for example, pupils may

be required to answer, Explain how a school can be a health promoting community? When an assignment is given as part of fieldwork or research the following task may be given, Find out from schools near your place and write a report on how the health education and promotion programmes are being implemented. Assignment that require experimentation pupils conduct them in a laboratory for example pupils can do food tests were they test different foods for the presence of protein, fat and carbohydrate by using special chemical solution like test for fat, place food to be tested in a test tube such as cooking oil or egg York, ethanol is used (2 drops of oil to 5cm of ethanol) Shake thoroughly to dissolve the fat, then pour the solution into another test tube containing a little water. A cloud white emulsion indicates the presence of fat. Assignment such as field trip, experimentation and research requires that pupils write a report on their findings (Nacimo-Brown, 1994^[39]; Perrot, 1982)^[40]

This method enables pupils to develop; self-confidence and self-discipline, the ability to organize and structure information, scientific attitudes and training in scientific methods, attitudes of self-reliance and self-dependence (MOE, 2006)^[30].

Question and answer method is also referred to as the questioning technique or the Socratic Method. The questioning method is one of the key teaching methods used in the classroom. So a teacher may ask a series of questions to find out how much the pupils know about a topic and to determine what needs to be taught. Testing is also a mode of questioning. A teacher questions pupils on what has been taught previously to investigate what they have learnt. Therefore, for test feedback to be effective test question must be clear, precise, brief, direct, thought stimulating, suitable for the age, abilities and interest of pupils. Questions should start with interrogative words such as who, why, what, when and how.

The teacher must be knowledgeable on the classification of questions in order to be able to achieve all the objectives of asking questions. Questions are classified into categories, in the first category there are four types of questions, Cognitive memory questions involve recollection of facts and procedures. For example, what are the stages in the marketing of food? Convergent thinking questions measure the learning of concepts and principles. The pupil is expected to explain, state relations, and compare and contrast two or more sets of information when answering these types of questions. For example, how should rice be cooked, and why?

Divergent thinking questions probe the area of skills learnt and require originality from the pupil. They involve the pupil's ability to predict, hypothesize, infer or reconstruct responses. For example, Plan a mid-day meal for the following groups of people; expectant mothers, babies 1-12 months, toddlers, and adolescents. Evaluative questions pupils are expected to make a decision on a certain problem and be able to defend or justify their choice. The pupils should have a wealth of information and understanding to answer this type of questions. For example, Suggest suitable meals for vegan and describe the suitable diet for an obese university student (Nacimo-Brown, 1994^[39]; Perrot, 1982)^[40].

The second category of questions is based on the aspect the question is related to and there four types of questions, Fact related questions like which foods are more nutritious. Information related questions like why is it important to eat a

balanced diet. Inference questions such as how would you advise an uncle who spends most of his time seated in office to eat in order to maintain an average body weight? And opinion related questions, do you think it is necessary to prepare meals according to different life stages (Craig, 1984)^[29].

Hands on methods also incorporate competency based teaching which focuses on the specific knowledge, attitudes and skills needed to carry out a procedure or an activity. How the pupils performs for example a combination of knowledge, attitudes and most important skills is emphasized rather than just what information the pupil has acquired. Pupils learn best by actively participating in the learning process rather than just listening. Too much information can overwhelm pupils and cause them to forget what is most important. As the saying goes when I see I forget but when I touch I remember. Pupils are able to process information better when they are comfortable and relaxed not during an examination (Hatcher, 2004^[36]; Roy, 2008)^[37].

Moreover, competency based teaching requires that the teacher facilitate and encourage learning rather than serve in the more traditional role of instructor. Competency in the new skill or activity is assessed objectively by evaluating overall performance. For competency based teaching to occur, the skill to be taught first must be broken down into its essential steps (in demonstrations). Each step is then analyzed to determine the most efficient and safe way to perform and learn it. This process is called standardization. Once a procedure such as baking has been standardized, competency-based skill development and assessment instrument can be designed. An essential component of competency based teaching is coaching, which uses positive feedback, active listening, questions, and problem solving skills to encourage a positive learning climate. To use coaching the teacher must first explain a skill or an activity and demonstrate it using an anatomic model or real teaching aids. Once the procedure has been demonstrated and discussed, the teacher then observes and interacts with the pupils to provide guidance in learning the skill, monitoring progress and helps the pupils overcome problems. The coaching process ensures that the pupils receive feedback regarding performance (Barry and King, 1994^[38]; Oconnor and Lages, 2007)^[46].

Note that when using hands on method in teaching food and nutrition the role of the teacher continually change throughout the teaching process. For example, the teacher is an instructor when presenting a classroom demonstration, a facilitator when conducting small group discussions or using role plays and shifts to the role of a coach when helping pupils to practice a procedure, and when objectively assessing performance the teacher serves as an evaluator. According to humanistic theory, this kind of teaching will create and produce confident pupils and individuals who can independently pursue knowledge by constantly pushing and extending the boundaries of knowledge. The emphasis in the humanistic theory of learning is to teach pupils how to make their education meaningfully applicable to their life so that they adapt to the novelties that they encounter in life, for example, the rising incidence of degenerative illness and infectious diseases.

However, no method, strategy, approach or technique is better than the other but it all depends on the teacher's ability to sustain motivation (Maslow, 1970)^[44] during a lesson. The

fatigue which accompanies boredom and which destroys motivation should be avoided by a planned variety of teaching and learning activities. The cardinal key to meaningfully understood topic is motivation which is defined as a person's aroused desire for participation in a learning process. Therefore, motivation can hugely increase pupils' learning rate as it arouses, sustains and energizes them. So different methods used to sustain motivation will make the lesson more meaningful and understood rather than boring.

Some of the ways that will help the teacher to sustain motivation are; by giving frequent, early and positive feedback that supports pupils' belief that they can do well. Ensure opportunities for pupils that are neither too difficult nor too easy. Help pupils to find personal meaning and value in the Food and Nutrition content. Create an atmosphere that is open and positive by promoting pupil-teacher interaction. Avoid creating intensive competition among pupils. The teacher should understand the different socio-economic and cultural backgrounds of the pupils (Clayton, 1965) ^[20].

First and foremost the teacher should plan the lesson very well. In practical lesson for example, pupils must be involved in the planning of the exact assignment and schedules the evaluation. Like in the entrepreneurship lesson the teacher should ask the pupils what items they can make, discuss the material involved, time frame, how to advertise the products and how to cost them and how will be the raised money be used. Discussing what is to be done will make such activities not to be alien.

The planned lesson must be seen by pupils as the part of the sequence eventually leading to attainment of the desirable ends. The teacher should show the relevance of what is being taught to the real world by bringing in real objects, show videos of applications, go for field visits and role play (Morse, 1962). Interest must be shown by the teacher by being enthusiastic as the lesson is being presented. The teacher needs to speak with energy, move about the room, put some body language into the lesson and show the pupils that he/she is excited about what he/she is teaching. The level of communication during the lesson ought to be pitched carefully so that there is no comprehension gap between the teacher and the pupils.

Nursing on curiosity is another way of sustaining motivation. The teacher should induce questions rather than delivery of facts. Pupils learn best when they contribute to discussions. The teacher should give the feedback during the lesson; this is the knowledge of the correctness and incorrectness. The clearer the feedback and the closer it comes after the act the more efficient the pupil can be. The teacher should try by all means to manage and control the class with praise rather than criticism.

Making use of pupils' creativity and self-expression is another way of sustaining motivation. The teacher can ask a pupil to demonstrate on how to make a queen cake. Demonstration will give the pupil an opportunity to practice and use the materials, ideas, skills and ways that he/she is learning. Tasks set by the teacher should be appropriate to the pupil's level of ability (Deau, 1994) ^[21].

Group discussion will help pupils to find value in what they are learning. The teacher should write different questions on pieces of papers give to various groups to find the answers and later give a presentation. The teacher should also use practice recall method. In an introduction of the new lesson teacher ask

few questions based on the previous lesson. This will help pupils to be alert and be involved in the lesson and not to be passive spectators.

The discovery method also known as inquiry approach is yet another way of sustaining motivation. The importance of this method is that concepts and skills learnt become meaningful, retained longer and most available for future use. The experience of data gathering is intrinsically rewarding, strengthens the pupils' faith, builds self-confidence which encourages the pupil to make creative intuitive leaps and practice in the logical inductive processes as involved in discovery strengthens and extends these cognitive skills (Pretty, 2009) ^[23]. Therefore motivation is regarded as a prerequisite of effective learning.

Now, one would wonder why it is necessary that Food and Nutrition must be effectively taught in schools. Well, it was revealed in the findings of this study that what is taught in food and nutrition are issues that affect people's daily life. These are food related diseases like malnutrition, obesity, anaemia, diabetes mellitus and cancer which are more common today than they were in the past. They are not communicable diseases because they are not caused by microbes instead, such diseases come from inside a person's body hence cannot be passed from one person to another. A non-communicable disease may be caused by the way a person lives such as not eating a balanced diet and not getting enough exercise or sleep (Laurson *et al.*, 2014)

Over time, such habits may affect one or more parts of the body and when this happens other parts of the body can no longer do their jobs properly and the whole body gets affected by the damaged organ. Many non-communicable diseases are called chronic diseases because they last for a long time, they may start when a person is young, may begin slowly and a person may show no symptoms of diseases for years. For instance, one disease of the circulatory system begins when cholesterol or other fatty matter collects in the arteries and coats the walls. The fatty matter makes the arteries narrow and the condition is called atherosclerosis. In this condition blood cannot flow through the arteries as easily as it should hence the heart must pump harder to keep the blood moving (Alwan *et al.*, 2010)

Sometimes the arteries may become completely blocked and blood cannot flow through them at all as a result some tissues cannot receive the nutrients and the oxygen they need and the cells in those tissues start to die. This may result into heart attack. People's health habits can make them likely to get non-communicable diseases like eating lots of foods that are high in animal fats, getting too little exercise or being overweight.

Truly speaking the causes of these diseases are not entirely due to factors beyond our control but due to violation of the laws of health. Most of these health problems are preventable or at least can be postponed (Richard, 2009). What people need is knowledge, skills and values to cope and deal with non-communicable diseases and that is exactly what Food and Nutrition education offers.

Also most illness and deaths are due to infections, poor or non-existent sanitation and public health services that have allowed infections to spread. Poverty and inadequate food lowers people's resistance, and limited medical understanding mean that there are few effective treatments. All these facts result in a high incidence of infectious diseases and premature death.

According to, Abraham Maslow (1943) theory of basic needs, food is essential for human existence just like the air we breathe or the water we drink. The food that we eat is utilized in the body and assimilated substances are used for growth and maintenance of the tissues. A living organism is a product of nutrition. Lack of good nutrition and optimal health has led to the situation under study. This means that food has power to build or destroy life.

According to Contento, 2001, one way to help control diseases and maintain good health is to teach children about these diseases and good nutrition habits during adolescent years. This will help pupils to understand that food and nutrition as a preventive care are indispensable part of their life. Hence the school must take active role in changing or reconstructing society and pupils must be active participants making positive changes in the existing social situation (Andiyike, 2000) [1].

In fact people who started the Home Economics Association in 1899, were trying to improve American health and hygiene practices for both rural and urban families various communities. To make this effective the college for Home Economics was established in 1919 at university of Cornell. They published women magazines and pamphlets for distribution, radio and television were also used as an outreach medium. These were ways of sensitizing the public on the importance of Home Economics as a subject in educational institutions and the American society. Consequently, pupils taking this subject in schools started changing their eating habits and life style such as practicing good hygiene and proper and health food handling.

When the subject was introduced in Zambia in 1915 by Mable Shaw at Lubwa mission in Luapula Province its aim were to equip women and girls with skills that would enable them to manage their homes and families efficiently. Shaw's teaching incorporated aspects of good traditional customs in that area as part of the curriculum hence she taught lessons that were related to real community life.

So issues of nutrition education are not new in Zambia but all that is needed is to tackle the problem according to what is prevailing now thus lack of knowledge to the right recipient on how to live health and prevention of diseases. People will not change their beliefs and habits concerning food unless they are convinced that changes will benefit them and their children. And the only person who can convince them is the teacher because he is always right. For sure a school can provide a good setting for new health information and technologies to the community. So when the school strongly comes in through the subject of Food and Nutrition and be ready to offer it as a compulsory subject starting from grade one the public will be easily convinced.

Therefore, the teaching and learning of Food and Nutrition in schools will help pupils to know that modern health and nutrition education can greatly improve their quality of life and live at full potential. They will realize that people, who live healthy, live at their full potential physically and mentally hence they will be moved to extend their love to people around them, to the community and to the entire nation.

5. Conclusions and Recommendations

Based on the findings of this study which sought to establish the significant skills for effective teaching of Food and Nutrition, it has emerged that the best methods of teaching food and nutrition are hands on methods (learning by doing)

which includes approaches such as practical lessons, demonstration, projects, assignments and group discussions. Firstly hands on methods are based on adult principles which mean that it is interactive, relevant and practical. Moreover it requires that the teacher facilitate the learning experience rather than serve in a more traditional role of an instructor or lecturer. Secondly it involves the use of modelling to facilitate learning a standardized way of performing a skill or an activity. Thirdly it is competency based. This means that evaluation is based on how well the pupil performs the procedure or activity not just how much has been learned. Fourth, it relies heavily on the use of real objects and other teaching aids to enable pupils to practice the skill. Thus by the time the teacher evaluates each pupil performance using the checklist, every pupil should be able to perform the skill competently. This is the ultimate measure of teaching. The role of the teacher in hands on method changes continually throughout the teaching process. The teacher becomes an instructor when presenting a classroom demonstration, a facilitator when conducting a small group discussions or using a role play and the teacher shifts to the role of the coach when helping pupils to practice a procedure, and when objectively assessing performance, the teacher saves as an evaluator. However, no method, strategy, approach or technique is better than the other but it all depends on the teacher's ability to sustain motivation during a lesson. Some of the ways that will help the teacher to sustain motivation are; by giving frequent, early and positive feedback that supports pupils belief that they can do well. Ensure opportunities for pupils that are neither too difficult nor too easy. Help pupils to find personal meaning and value in the Food and Nutrition content. Create an atmosphere that is open and positive by promoting pupil – teacher interaction. Avoid creating intensive competition among pupils. The teacher should understand the different socio-economic and cultural backgrounds of the pupils. So different methods used to sustain motivation will make the lesson more meaningful and understood rather than boring. Therefore, the effective teaching and learning of Food and Nutrition in schools will help pupils to know that modern health and nutrition education can greatly improve their quality of life and live at full potential.

Based on the findings the following recommendations emerged from this study ;(1) The government through the ministry of general education should fund schools so that they buy equipment, materials and ingredients needed for practical lessons.(2) The government through the Ministry of General Education should make food and nutrition a compulsory subject from primary level.(3) The government through the Ministry of General Education should start training teachers in food and nutrition as a stand- alone course in colleges and universities.(4) The government through the Ministry of General Education should start conducting surveys on the practical methods of teaching food and nutrition.(5) The government through the Ministry of General Education should carry out the needs assessment to determine how well Food and Nutrition education meet the needs of the pupils and society.

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