EMPLOYABILITY AND OCCUPATIONAL SKILLS REQUIRED BY GRADUATES OF SECONDARY SCHOOLS IN OIL PALM PRODUCTION AND PROCESSING IN DELTA STATE.

BY

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Certification

This work embodied in the dissertation was carried out by **Joseph Iburu Emavwoyan.** It is original and has not been submitted in parts or full for any degree in this or any other university.

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Dedication

This dissertation is dedicated to my late Brother, Mr. Isaac. M. Emavwoyan my wife, Mrs. Esther Emavwoyan and my children Vwegba and Vwede Emavwoyan for their support, encouragement and inspiration.

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Abstract

This study focused on the identification of employability and occupational skills required by secondary school graduates for employment in oil palm production and processing enterprise in Delta State. Six research questions were developed in conformity with the purpose of the study. Two hundred and seventeen (217) Agricultural Science Teachers and fifty-two (52) extension agents responded to the ninety-five (95) items of self-administered questionnaire that addressed the research questions raised for the study. The respondents were selected using stratified random sampling techniques. The six research questions were analyzed using mean, and standard deviation of the four points scale format, while the six hypotheses were analyzed using t-test which was tested at 0.05 probability level of significance. A set of structured questionnaire of task analysis scale inventory was generated from the literature reviewed and developed for the study. The instrument (questionnaire) was validated by three experts and it was observed to have both face and content validity. The questionnaire was subjected to a test of reliability through test-retest method and the result was correlated using the Pearson`s Product Moment Correlation to obtain a coefficient of 0.75. the findings from the study indicated that: (i) thirteen (13) employability skills identified were adjudged appropriate and are required by the secondary school graduates, these skills included writing ,simple mathematical computation, supervisory ability and so on, while the eight –two (82)occupational skills identified were also accepted as appropriate and required by the graduates . They include agitation of bags, examination of seeds, grading of products, and so on. (ii) The result of the null hypotheses tested revealed four of the hypotheses were accepted indicating that there was no significant difference between the mean responses of agricultural science teachers and extension agents in oil palm employability skills, oil palm nursery enterprise, oil palm plantation management, and palm oil marketing enterprise, but there was a significant difference between the

mean responses of extension agents and Agricultural Science teachers in oil palm processing enterprise and palm kernel oil extraction and refining. Based on the findings; it was recommended that (i) the identified skills which were required for proficiency in oil palm production and processing should be incorporated into the Agricultural Science Curriculum of Secondary Schools, (ii) Delta State Government should package the identified job task modules with relevant facilities and integrate them into the state's skill acquisition centres for training the unemployed secondary school graduates and other youths on short course basis to enable them acquire saleable skills in oil palm production and processing enterprises for employment; (iii) The findings of this study should be made public to the organizers of the secondary school programmes so as to be able to know the areas of the programme that required amendments and improvement.

CHAPTER ONE

INTRODUCTION

Background of the Study

The search for jobs has drawn thousands of Nigerian youths from rural areas to urban cities. Apparently, those with the requisite education and skills are quickly absorbed into the job market, while those who possess neither sufficient academic nor vocational skills live on subsistence level and often out of desperation and frustration constitute a nuisance to the society (Okorie, 2000). Morley (2001) posited that the role of higher education has been widely influenced by industry, therefore skills acquisition and development now become very important for harnessing a nation's natural resources and for promoting economic stability. The wealth of a society determines to a large extent, the development of the nation's workforce. Nigeria is endowed with agricultural resources, if these are to be properly harnessed and economically

utilized, there is need for emphasis to be placed on the acquisition of saleable skills. In Delta State, many of the youths who graduated from the secondary schools lack the necessary employability skills required to compete in the rather weak economy and tight labour market (Edukegho, 2004). He added that college graduates have not acquired employability skills necessary for the workforce and as such are not prepared for the demand of the industry. In a similar development, Peddle (2000) asserted that college graduates are expected to learn skills at a faster rate than ever before because of the changing world of today's workforce. Therefore employability skills are essential for the development and advancement of intrinsic potential in an individual. Employability skills therefore are those basic skills necessary for getting, keeping and doing well on a job (Robinson: 2000). These are the skills, attitudes and actions that enable workers to get along with their fellow workers and supervisors. Unlike occupational or technical skills, employability skills are generic in nature rather than job specific and it cuts across industrial job. Hewitt (2005) explained that employability skills are transferable, core, general, non-technical and soft that represents essential functional and enabling knowledge, skills and attitude required by the 21st Century workplace.

Knight, (2003) opined that employability skill most desired by employers were those that were transferable to a variety of situations, specifically the skills of problem solving, communication, teamwork and

critical thinking. Most discussion concerning today's workforce eventually turn to employability skill or job readiness skills that help them fit into and remain in the work environment. He also posited that providing all round development of student's personalities is very important. The employability skills required should be rebuilt around four pillars: learning to know, learning to do, learning to live together and learning to be. For secondary school graduate to function properly in a world of competitive industry in the agricultural sector there is need to provide assistance for them to learn and acquire saleable skills which can enable the individual to become aware of the challenges that are associated with a worthwhile life that will boost their career, stability and fulfillment in the work place.

Shane (2008) stated that over the last decade there has been a steady outcry and reports, urging that the educational sector should consider transferable and employability skills into the heart of Nigerian youths. Amaefule (2011) explained that today's agribusiness environment consist of sophisticated customers in a world beset with intense competition, thin profit and rapidly changing production and business technology skills of the future workforce. He added that institutions and corporations should join hands in drawing attention towards employability skills required by the Nigeria workforce.

Christiansen (2000) argued that occupational skill is an activity that has a discernable structure, that one of the keys to success in today's world of work is career self-reliance, that is the ability to actively manage work life in a rapidly challenging environment and the attitude of being self employed whether inside or outside an organization can also be considered as occupational skill. He added acquiring relevant occupational skills and knowledge to become career self-reliant will enable employees to survive and even thrive in time's of great change.

Skills acquisition promotes personal and national greatness. The status of an individual in a society and by extension that of any nation in the comity of nations may be influenced by the skills possessed by that individual in the nation. Hasselkus (2011) explained that occupational skills are critical for the effective functioning of a team as well as for the individual acceptance in an organization. He posited that change strategies are usually dependent upon the ability of employees to pull together and refocus on the new common goal that is always provided by occupational skills. The two ways to increase productivity is first by increasing the intensity with which we utilize human resources and second is by increasing the efficiency with which we mix and use available resources (Robert, 2008). He emphasized that one regular source of livelihood, a vocation or an activity can be regarded as an occupation. He further added that occupation skills can also be regarded as collective

description of a number of individual jobs performed, with minor variation in many establishments. He also viewed it as a contribution of labour to that part of economic activity that is within the production boundary, which employability skills differ from. It is also a type of work or job that may be found in a number of different types of work or industries. Occupational skill is therefore required by all to fit better to the place of work.

Person (2001) posited that saleable skills brings satisfaction and fun, reward and value, that it add to one's social connectedness and a sense of belonging in a society. Occupational skills is also that which occupies or engages the time and attention, the principle business of one's life, vocation, employment, calving and trade (Ikuigu, 2005). He explained further that is the principle activity in one's life that you do to earn money. Townsend (2007) refers to occupational skills as everything that people do during the course of everyday life. He added that occupational skills are a personally constructed one – time experience within a unique context.

According to the National Policy on Education (FRN, 2004) revised, the national objective of the study of Agricultural Science in secondary schools is to make secondary school graduates of the subject to become proficient farmers and be employers of labour or to get paid employment after leaving school. To achieve this, secondary school graduates should be exposed to the type of

education that will lead to the realization of such goal through efficient and effective teaching of saleable skills.

Another major reason for the inclusion of agriculture in the curriculum of secondary school is to assist the youth to develop the necessary manipulative skills needed to become more functional in the agro business environment. But today, the agricultural science curriculum in Nigeria is primarily concern with academic preparation for entry into university education while neglecting the vocational or occupational aspect of the subject. This had lead to increase in the rate of unemployment among the youths in Nigeria and a higher demand for university education (Ogunrinade, 1991). The guided discovery method of teaching that emphasis learning through practice will help in discovering the potentials of the students faster, therefore should be encouraged; this will help in applying the classroom situation outside the school environment (Omokhagbele, 2002). In a similar development, Apagu(2007) posited that a battle in which people are being forced to accept training against their wish cannot be won; that the inculcation of the appropriate attitude towards skill acquisition and Nigerian indigenous technological education in the youths is very important. He added that the Nigerian youth has to be nurtured early in life especially at the secondary school level towards the creation of good society which rests on skill acquisition.

In Delta State, production of oil palm is now becoming technological based, diverse and dynamically complex that unskilled secondary school graduates find it difficult to obtain gainful employment in the sector. Hammell (2004), explained that problems relating to occupational skills are increasing primarily because entry level applicants in the agro business environment are arriving with deficiencies. According to World Rain Forest Movement (2001), oil palm (*Elaeis-guineensis*) is one the most important economic oil crops in Nigeria especially in Delta State, that the lack of appropriate skills affects hiring and training costs, productivity, quality control and creativity. This present a series of road blocks that slow an organizations progress and any organization with such difficulties cannot plan accurately.

Oil palm production and processing serves as a means of livelihood for many rural families in the Niger Delta, and Delta State in particular. The red palm oil is a common ingredient in the cooking of almost every type of dish prepared in Nigeria. Delta State, a coastal state in the south-south of Nigeria is one of the areas where palm oil is produced in large quantities. Other essential components of oil palm tree like the fronds, the leaves, the trunk and roots as well as the nuts are used for several purposes ranging from palm kernel oil, palm wine, broom and palm kernel cake. All these require adequate skill and knowledge (Daramola, 2002).

Ahmed (2001) highlighted the importance of the economic tree crop in providing direct employment to about four million Nigeria people in about 20 oil palm growing state in Nigeria and indirectly to other numerous people involved in processing and marketing while Iwena (2002) posited that on commercial basis, both palm oil and palm kernel are important products of oil palm which stand out as one of the most important found security crops in Delta state. Butler (2011) stated that a twenty five (25) hactre plantation can yield palm oil worth more than $7000 a year for planters. Oil palm has become the world's number one fruit crop because of its unparallel productivity. He added that it is the most productive oil plant in the world.

To this end, secondary school graduates should be well equipped with the necessary skills to function and transform this raw material from oil palm into finished products. The various opportunities that are existing in the oil palm planting, processing and marketing needs technical skills to avoid low quantity and poor quality oil (Jalani, 2000). He added that scarcity of palm oil at a particular period of the year demand adequate skills into the industry to avoid increase in price.

Olagunju (2002) in a similar development is of the view that palm oil is the principal source of much of the edible oil consumed in Nigeria and the rest of the West African region, that the importance of the crop demand attention. He explained further that extracted oil can be used in the manufacture of baking

fat, tinplate and sheet steel materials, soaps, margarine, candle etc. In light of this, it has therefore become necessary to assess the procedure involved in palm oil extraction, harvesting, production and marketing. This will likely reveal the training needs of secondary school graduates in oil palm production enterprises. The training required in the study area is very important in other to achieve the saleable employability and occupational skills required by secondary school graduates in Delta State.

According to Amaefule (2011) different segment of the oil palm industry where employability skills are required include extraction and processing, palm kernel oil extraction and refining, animal feed formulation and processing, palm wine tapping and processing, oil palm nurseries development and transplanting. Manufacture of soaps and detergent, plantation development and management, harvesting and post harvesting handling.

In recent years, technology has expanded the application of the oil palm trees to the extent of converting the entire biomass harvested from a palm plantation into renewable electricity, biogas and bio-plastics (Omoti, 2004). He added that oil palm logs or trucks are convertible into different industrial raw materials, such as lumber and floor tiles, furniture, insulation materials, packaging materials, interior decorative utility etc. All these demand training where saleable employability and occupational skills are required to function effectively in the workforce of agric business environment.

Raw Material Research and Development Council (2011) opined that Nigeria can generate billions of naira in foreign exchange if oil palm is harnessed and developed with adequate skill needed in the industry. Since there are various sectors of the industry, it is important to decide on which aspect to get involved based on requisite skills. Training will enhance ability to explore the rich potential of oil palm. To this, secondary school graduate in Delta State require skills in the oil palm production and processing to secure employment or be employers of labour.

Secondary school graduates in the context of this study are youths that had completed six years of secondary school under the guidance of a teacher but could not secure admission into higher institution or get employed in any occupation. A teacher in the context of this study is someone who is trained in agriculture and could impart the knowledge and skills to the students through teaching. Ahmed (2001) explained that adequate knowledge and saleable skills are needed by all workers in the agricultural field to achieve success and job satisfaction, Palm oil being one of such where methods of getting these products are very tedious, technical and labourious, it then requires substantial proportion of the labour force with adequate skill and knowledge. The success of the oil palm enterprise depend largely upon how saleable skills are utilized and other associated resources are efficiently used (Ukpabi, 2004). Having recognized the importance of employability and occupational skills among

secondary school graduates emphasis should be placed towards equipping them with the required skills and knowledge.

Statement of the Problem

There is a growing need for secondary school graduates to possess employability and occupational skills for success and stability in their work place, especially in the developing countries. It has been observed that, there is a disconnection between the demands of employment and the level of educational preparation especially at the secondary school level. Employers today are not satisfied with the skill developed or acquired by secondary school graduates, to feature in the agricultural business environment especially in our oil palm production and processing.

Ahmed (2001) highlighted the importance of the oil palm industry in providing employment for about 4 million Nigerians in about 20 oil palm producing states in Nigeria.

Most of these secondary school graduates who roam about in cities and town in Delta State thereby constituting nuisance can now be persuaded to take up employment in the oil palm industries. But they need to be trained in oil palm production and processing skills before they could function effectively.

The researcher observed that the Delta State government is eager to provide employment for youths and has established skill acquisition centres in various part of the state to cater for training and re-training of youths in the

state, but skill programme in oil palm production and processing is lacking. If these skills in oil palm production and processing are identified and integrated into the various skill acquisition centres, idle youths and secondary school graduate that roam the streets as touts, constituting nuisance can now be trained to earn a living in the oil palm production and processing industry.

The study is therefore undertaken to identify the employability and occupational skills required by secondary school graduates to function effectively in oil palm production and processing in Delta State.

Purpose of the Study

The overall purpose of this study was to identify employability and occupational skills required by secondary school graduates in Delta State to function effectively in the agric-business environment with a view to equipping them with such saleable skills for employment in oil palm production and processing. Specifically the study sought to:

1 identify the employability skills required by secondary school graduates in Delta State for employment in oil palm industry;

2. identify the occupational skills required by secondary school graduate for employment in oil palm nursery practice enterprise;

3. find out the occupational skills required by secondary school graduate for employment in oil palm plantation management;

4 find out the occupational skills required by secondary school graduate for employment in palm processing;

5. examine the occupational skills required by secondary school graduate for employment in palm kernel oil extraction and refining and

6. appraise the occupational skills required by secondary school graduates for employment in oil palm product marketing enterprise.

Significance of the Study

The study is of benefit to secondary school graduates, teachers of Agricultural Science, government curriculum planners and employers of labour in the agro-business environment. Specifically it provides:

Job information to secondary school graduates in Delta State on various area of the oil palm enterprises, where they can make a living such area includes: nursery practices and plantation management, palm oil processing, palm kernel oil extraction and marketing. The secondary school graduates could use the information to select any of the identified enterprises and seek necessary training in any of them at relevant skill acquisition or training centre.

The study will provide information to curriculum planners in agricultural science about employability and occupational skills available in oil palm

production and processing and those required by secondary schools to be developed into packages and recommend to the government for integration into the skill acquisition centres. The study will also provide information to teachers of Agricultural Science on employability and occupational skills required in oil palm production and processing enterprises which were lacking in the syllabus. This could be used to improve the practical teaching and learning process in the oil palm production to secondary school graduates and young farmers club in the field.

This study provided information to officers of the state Ministry of Education on employability and occupational skills required by secondary school graduates for employment into oil palm production enterprises. This could be developed in training modules through the assistance of curriculum planners and used to train interested secondary school graduates at the state skill acquisition centre in oil palm production and processing skills.

Research Questions

The following research questions was answered by the study

1 What are the employability skills required by secondary school graduates for employment in oil palm industry?

2 What are the occupational skills required by secondary school graduates for employment in oil palm nursery practice?

3 What are the occupational skills required by secondary school graduates for employment in oil palm plantation management?

4 What are the occupational skills required by secondary school graduates for employment in palm oil processing?

5. What are the occupational skills required by secondary school graduates for employment in palm kernel oil extraction and refining?

6 What are the occupational skills required by secondary school graduates for employment in oil palm product marketing enterprise?

Research Hypotheses

The following null hypotheses was tested by the study at probability test less than or equal to 0.05 level of significance.

HO_1: There is no significance difference in the mean ratings of the responses of Extension agents and teachers of Agricultural science in employability skills required by secondary school graduate in the oil palm industry.

HO_2: There is no significance difference in the mean ratings of the responses of oil palm extension agents and teachers of agricultural science on occupational skills required by secondary school graduates in oil palm nursery practices.

HO_3: There is no significance difference in the mean ratings of the responses of oil palm extension agents and teachers of agricultural science on

occupational skills required by secondary school graduates in oil palm plantation management.

HO_4: There is no significance difference in the mean ratings of the responses of extension agents and teachers of Agricultural Science on occupational skills required by secondary schools graduates in palm oil extraction and refining.

HO_5: There is no significance difference in the mean ratings of the responses of extension agents and teachers of agricultural science on palm kernel oil extraction and refining skills required by secondary school graduates.

$H0_6$: There is no significance difference in the mean rating of the responses of extension agents and teachers of agricultural science on occupational skills required by secondary school graduates in oil palm product marketing.

Scope of the Study

The study was restricted to the identification of employability and occupational skills required by secondary school graduates in Delta State for employment in oil palm production and processing industry. It covered the employability and occupational skills required in oil palm production and processing and identification of relevant skills typical of nursery practice enterprise, plantation management and processing of oil palm. Others are palm kernel extraction and refining as well as marketing. The data collection for the study will be restricted to the use of questionnaire to obtain information from groups of oil palm extension agents and teachers of Agricultural Science in Delta State.

Assumptions of the study

The Assumptions of the study are: (i) Teachers of Agricultural Science in secondary schools in Delta State have been trained in crop

production including oil palm production and have been teaching crop production in secondary schools. This made this target audience to be very familiar with the employability and occupational skills required for success in oil palm production enterprises. Therefore, they are assumed to be competent in responding to the questionnaire items developed for collecting data for the study.

(ii) Oil palm production extension agents in different area in the field of study are skilled in their various jobs within the oil palm production enterprises. Therefore, they are assumed to be competent in responding to the questionnaire items developed for collecting data in the respective job areas or occupation.

(iii) Secondary school graduate in Delta state are yet to be equipped with requisite employability and occupational skills.

Definition of terms

The following terms are defined as used in the study to avoid mis-interpretations.

Employability: The relative changes of acquiring and maintaining different kinds of employment.

Employability Skills: Job readiness skill ability or knowledge necessary for getting, keeping and doing well on a job.

Intrinsic potentials: Basic knowledge needed to carry out a task or job

Training needs: Basic skills required that are lacking in the curriculum.

Skill gap: Disconnection between the demand of employment and level of preparation of secondary school graduates.

Competency based curriculum: This is planned instructional programme composed of essential task elements of a specified occupation.

Skill: The capacity to carry out pre-determined results often with minimum outlay.

Occupational Skill: A collective description of a number of individual jobs performed, with minor variation in many establishments.

Competency: A skill performed to a specific standard under specific conditions.

Rancidity: These are changes that can occur in taste and odour of palm oil when exposed to light, atmospheric oxygen and moisture.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

The related literature for this study was reviewed under the following sub-heading:

Theoretical framework

Approaches to identification of employability and occupational skills in oil palm enterprises

Oil palm production and processing- An overview

Occupational skills required in nursery practices

Occupational skills required in plantation management

Occupational skills required in oil palm processing

Occupational skills required in palm kernel oil extraction

Occupational skills required in palm oil product marketing

Planning for an enterprise in oil palm production and processing

Policy provision for vocational education and skills acquisition in agriculture in secondary school

Skills development and the millennium development goals

Review of empirical studies

Appraisal of literature review

Theoretical framework

The theoretical framework of this study was based on human capital theory and occupational theories.

Human capital theory was proposed by an American economist Theodore Schultz in (1961) and developed extensively by Becker in (1964). The theory emphasized the need for skill training and retraining, that education or training raises the production pattern of workers through useful acquisition of knowledge and skill development.

With reference to this study, secondary school graduates in Delta State needs useful knowledge and skills to position them into the oil palm production and processing enterprises. The theory posited that expenditure on skill acquisition is costly but should be considered as an investment since it is undertaken with the view to increasing productivity and skill in the work place.

Development of key competency that enable the individual (secondary school graduates) to function effectively and perform assigned duties through planned learning activities, which all ensures a match between the individual and the needs of the industrial leaders.

Occupation in the view of Robert (2008) is a cluster of related jobs which have core skills knowledge to provide a means of livelihood. Many theories have been formulated about occupation. Olaitan (2001) in Akiwaji (2005) identified some of the occupational theories which included; occupational theory of values and occupational theory of body of knowledge.

Occupational theory of value was proposed by Quesnary and other French writers of the 1750s and 1760s but later developed by Marxs in 1861. They were the first economists to propose that occupations have values that attract individuals into it; some of those values may be economics and prestige. Marxs posited that labour-power is a service that creates value, so long as we have spent time doing one thing in order to earn a living. In the case of this study, oil palm production enterprise is of great value to the people of Delta State because many farmers depend on it and spend time on it to create value in order to generate income to meet their basic needs. While occupational theory of body of knowledge as proposed by Kants stated that occupation must have some body of knowledge as a foundation for the skill in which individual is to

be trained. According to Olaitan (2001), occupational theory is relevant as skills process for the purpose of practice and mastering. More so, occupation must have level of proficiency in training without which a professional certificate or recognition cannot be guaranteed. This theory relates to this study in that secondary school graduates must be educated or trained to the level where they will acquire a body of knowledge that makes for success in any oil production enterprise.

Conceptual Model

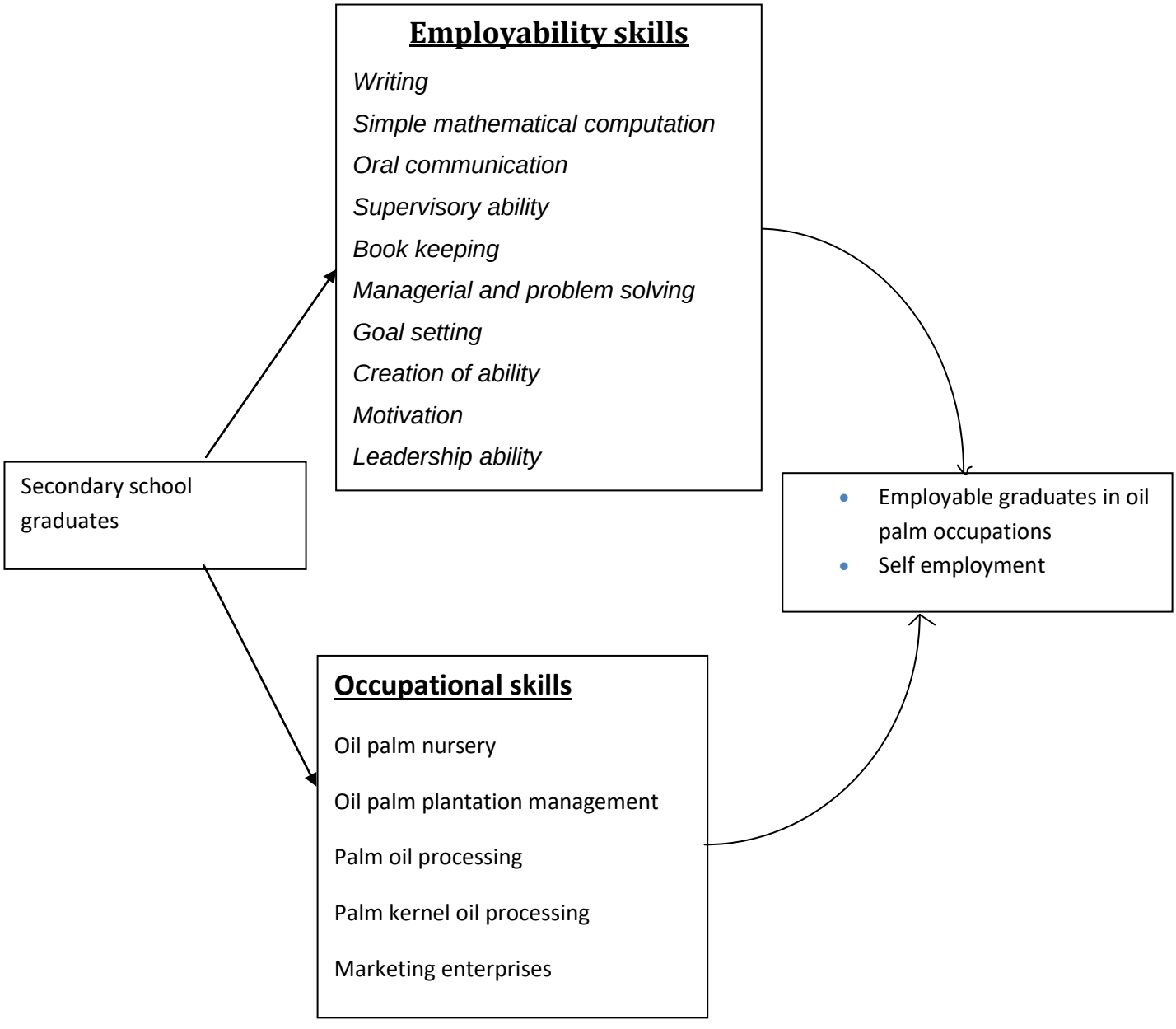

Fig. 2.1 Conceptual Model of employability and Occupational Skills required by secondary school graduation oil palm.

Approaches to Identification of Employability and occupational Skills in Oil Palm Production and Processing Enterprises

There were many approaches that could be used in identifying employability and occupational skills in oil palm production and processing enterprises. These approaches include:

1. Job analysis approach.
2. Competency based approach.
3. Modular approach and
4. Task analysis approach.

Job Analysis Approach

Job analysis according to Olaitan (2003) is a statement of all facts concerning a job which reveals its content and the modifying factors which surround it. It is an attempt of listing all the skills, knowledge and attitude the leaner must be taught if he is to learn the complete trade. Robinson (2010) described job analysis as detailed listing of duties, operation and skills

necessary to perform a clearly defined job, such operations and skill are organized into a logical sequence which may be used for teaching or classification purposes. In the views of Morgeson and Mayfield (2005), steps in job analysis were enumerated as follows:

1. Identify the success on the job.

2. Identify the traits that will predict the criteria for success.

3. Identify what a worker does. They also highlighted the strengths of job analysis as follows

a. Job analysis establishes a priority for selection and placement on the job.

b. It estimates a criteria of job success.

c. It estimates traits which differentiate success on the job from success on the other.

d. It furnishes preliminary estimation of the traits which may be evaluated in selecting persons for the job.

Competency Based Approach

Competency based approach to programmed development in the view of Taba (1982) lays emphasis on what knowledge, skills attitudes and judgment which are severally required for successful performance of task rather than all the components comprising the tasks. Taba further stated that the competency based approach involved the identification of relevant work skills and using them to carry out some work. Competency in the opinion of Ogwo (2002) is

characterized by clearly stated, attainable and measurable objectives, followed by identified knowledge and skills that learners love to master within a given time frame. This approach, he continued is performance oriented, that is it emphasizes the acquisition of knowledge and performance on the job.

Also competency is the result of integrated learning experiences in which skill abilities and knowledge interact to form learning bundles that are related to the task for which they are assemble (US. Dept of Edu.2001). Ezeani (1979) stated that competency model involves the following steps:

i, Identification of all tasks to be learnt.

ii. Identification of the competencies required in order to carry out a particular function effectively and using the identified competencies as a basis for teaching and learning.

iii. Arrangement of tasks or job in appropriate courses.

iv, Organize knowledge and skill for each task or job into a hierarchy.

v, Determine what one needs to know for mastery of each knowledge or skill.

Task Analysis Approach

A task was explained by Olaitan (2003) as logically related set of actions required for the completion of a job. He described task analysis as listing of all the steps involved in each task in term of what the person does when performing the steps for accomplished the job. Task analysis is the

procedure of breaking down job activities to determine the teachable content in terms of operations, tools, processes and technical information to be organized in a sequence of difficulty (Robinson, 2010). In the opinion of Olaitan (2003), the following are the steps in developing a task:-

i the breaking of an occupation into various tasks;

ii the breaking of task into specific leaning activities;

iii the validation of activities through a review of job functions to be performed;

iv the identification of materials and methods for performing each activity;

v the implementation of activities. The strengths of task analysis as outlined by Morgeson and Mayfield (2005) includes:

i It helps to make decision about structuring a learning environment.

ii It makes content selection process in any work valid.

iii It helps in specifying instructional objectives.

iv It is useful in the designing of instrumentation activities.

v It helps in determining teaching strategy.

vi It is useful in evaluating performance, the skill required for success by any secondary school graduate in any of the oil palm enterprises were identified by the study through job analysis. The skill for each enterprise could be packaged into the enterprises based on their entry level knowledge.

Modular Approach

Many jobs can be packaged into saleable modules. In the opinions of Anyanwu, Nzewi and Akudolu (2004). A model is a self contained independent unit of a planed series of learning activities deigned to help students accomplished certain well defined objectifies.

Olaitan (2003) defined modular approach to curriculum design as a unit of curriculum based on the development of entry level competencies of students. He added that in modular approach, the total curriculum of a given field is divided into unit referred to as modules. Modules are of equal length that will take approximately specified hours of instructional time to achieve. Modules could also form the basis of a continuing education program where the specified hours of instruction say, 30 hours is common denominator.

The strengths of module or approach include:

i, breaking down contents of the syllables down into the basis.

ii, it enables teachers to order instruction and work towards the realization of clearly stated performance;

iii, It helps the teachers to get students to demonstrate their skills rather than write answers to question in science practical's, creative acts etc. this can facilitate the discovery and development of the individual student talent and capabilities; and

iv, module can be used as a unit for the student progress comparability of standard.

From the approaches reviewed, this study identified with job analysis approach and modular approach. The skill required for success by any secondary school graduate in any of the oil palm enterprises were identified by the study through job analysis. The skill for each enterprise could be packaged into enterprises based on their entry level knowledge.

Occupational Skills required in Oil Palm Nursery Enterprise

An oil palm nursery site is a land normally flat to gently undulating terrain, accessible with good roads set aside for raising seedlings (Heriansyah, 2001). Like most tree crops, oil palm require a nursery stage during which good nursery management is required to ensure the production of good and healthy seedlings that are uniform in size for plantation establishment.

Pre-Nursery Stage

A pre-nursery is where seeds are germinated before raising in the polythene bag or ground nursery (Nicolas and Culbertson 2010). Nicolas and Culbertson recommended that a pre-nursery site should be designed in such a way that trees shade it seedling are held together in a small area for the first two to three month, later the seedling are planted out in the large polythene bag where they remain for 7-10 months before field planting. In the pre-nursery, polythene bags must be filled within 2cm of the bag rim and placed in the nursery beds at least four weeks before the planting date to allow settling. The

soil use here must be free draining, friable loam with a sand content not exceeding 60% and free from contamination.

The filled poly bags should be arranged in bed of 8-10 bags width and of a convenient length. The bed should have wooden frames to prevent bags from toppling over. If oil palm fronds are used as shade it is necessary to spray the fronds with herbicides and pesticides to ensure that they are not instrumental in introducing any past and diseases.

In planting of germinated seeds, it should be completed as soon as possible, not later than (I)one day after receipt. Care must be taken to ensure that in the process worker should differentiate between the plumule and radicle to avoid planting the seeds upside down. The seed is planted at 4cm depth with the radical pointing down and lightly covered with soil, Planting holes can be made with a stick (Heriansyah, 2001).

Main Nursery Stage:

According to lmarhiagbe (2001) to establish a good nursery, certain important conditions have to be addressed, site selection, land preparation, maintenance, managing etc.

In site selection, he said choice must be based on the land characteristic, soil properties, vegetation and climatic condition. The soil must be well drained and fertile, water logged and permanent water table at or near the surface must be avoided, gently sloping land and accessible to vehicles is recommended. In

land preparation, necessary ploughing and harrowing of the soil must be done to provide lose friable soil which can be directly filled into the bag prior to poly bag filling, a basal fertilizer must be thoroughly mixed with the soil before filling. Imarhiagbe (2001) recorded the following land preparation for plantation crops:

i, Clearing of undergrowth.

ii Felling of trees on the cleared land.

iii, Cross-out trees and stump them.

iv Burn and pack partially burnt materials.

v, Plough and harrow.

vi, Mark out the field

Spacing of poly bags in the nursery is done to minimize light competition between palms and easy access to the palms for pest and disease control, weeding and manuring. Spacing depends on the duration seedlings are expected to be kept in the nursery. Prior to transplanting the seedling to the large poly-bags, workers should prepare planting holes. The seedling which should have been given a good soaking while in the pre-nursery beds is held in one hand while the poly bag is pulled from the base by the other hand. The detached seedling is placed in the hole in the large poly bag filled with soil, and the soil gently but firmly compacted around the root mass, care must be taken to ensure that the planting is level with the pre-nursery soil level (Chan, 2008).

Mulching of the bag surface with palm kernel shell should now be carried out and heavy watering should follow immediately.

Nursery Management

The common nursery management operations are watering, weeding, mulching, culling and fertilizer application (Chan, 2008).

Watering: The most important factor in achieving success in oil palm nursery is the availability of sufficient water to ensure optimum growth of the seedlings. Accordingly this is needed to support rainfall especially during the dry season, it can be carried out through the use of watering cans, hoes, or mechanical operated irrigation facilities like overhead sprinkles or underground perforated pipes the poly bags soil in the nursery must be thoroughly moist with no dry patches to allow un-impended growth and to prevent any dehydration of seedling. The watering should be carried out twice a day for 30 minute to be capable of applying 6.5mm water to each batch per day. (Chan, 2008).

Weeding: weeds in the nursery area should be eradicated since some of the weeds may harbor pest or are host for diereses. It is necessary to keep the poly bags completely free of weeds which compete for nutrient, moisture and sunlight and to provide hygienic conditions in the nursery. Since mulching with palm kernel shell can greatly help to keep down weed growth in the large poly

bags, any weed appearing can be quickly and easily hand weeded. However weeds on the ground and surrounding nursery area should be

eradicated through chemical spraying (Owolarefe 2007).

Mulching: This can be carried out with dry leaves, palm kernel shell, dry grasses, discarded polybags or any other form of vegetable matter.

Culling: culling is possibly one of the most important procedures to be carried out in the nursery to ensure that only the most uniform nursery palm which are likely to give the highest yield are planted in the field. Selection or culling at this stage is carried out as the seedlings are about 7months old.

Fertilizer Application: Foliar application is the drenching of the seedling with foliar fertilizer solution and should be carried out early morning or late afternoon application should made after normal watering. For solid application, fertilizer should be evenly spread on the surface of the polybag soil at least 2-4cm away from the base of the seedling. For solid fertilizer it should be carried out when seedling are dry, i.e., in the morning before watering and in the afternoon after watering in the morning. (Heriansyah, 2000).

Fencing: the major type of fences utilized for nurseries are the conventional barbed wire fence and the electric fence.

Conventional Fence: the specification for the conventional fence depends on the species of animals which it is required to keep out for examples, a four stand barbed wire fence, with wire space at 0.3,0.6,0.9 and 1.2m from the

ground should be adequate to control cattle and goats however the introduction of used fishing net fencing to prevent animals from going into the nursery area is being practiced in some of the estates.

Electric Fencing: Where there is a range of wild mammalian pest, an electric fence is possible the best form of defense. Wire of 250-300kg breaking strain has been found to be the most suitable.

Lining: Lining is carried out to space the polybags evenly in the nursery, so that seedling have good access to sunlight and to achieve the most efficient system and cost of irrigation. Polybags are lined at 0.9m triangular spacing to give each seedling the optimum growth space. All seedling rows must be straight along the axis at 60o to each other and parallel to irrigation lines.

Occupational Skills required in Oil Palm Plantation Management

Plantation is a permanent site of nurturing the young seedlings to maturity prior to harvesting (Ebohon 2000). He said plantation establishment involves the following processes: site selection, land preparation, planting techniques, transplanting and plantation management.

Site Selection: The choice of site according to Ebohon (2000) is very vital and is based on land characteristics, soil properties, vegetation as indicated by the following:

i. The land must be level and gently sloping
ii. The land must be well drained and fertile, water logged or stagnant water

area must be avoided.

iii There should be good soil structure texture qualities and good water holding capacity.

iv The site should be accessible to vehicles and man to facilitate the supervision and evacuation of produce.

Land Preparation: Land clearing according to Ebohon (2002) involves the removal of the vegetation in the area mapped out to be planted. This could be by manual, mechanical or the used of machine like bulldozer, plough and harrow. However, he maintained that the method used is determined by factors like size of the land to be cleared, nature and types of soils, the operations involve broadly under-brushing of existing shrubs, felling of existing trees and burning of trash. This operation is carried out 2 to 3 months before the time of burning.

Lining Out and Pegging: According to Ebohon (2000), the next stage is lined out with wooden pegs on planting point at a triangular spacing of 9m x 9mx9m given a density of about 140-150 palms per hectare the palm rows should run in a north south direction. This orientation and planting arrangement permit maximum solar interception by the individual palm. Ebohon pointed out that simple survey tools are normally use in the process like measuring tapes, ranging poles, ropes, etc. ranging poles and tapes are used to established the baseline.

Cover Plant Establishment: Since the land is usually left bare after burning of trash, erosion may cause serious problems, therefore it may be necessary to plant legume covers to protect the soil from erosion and to check the invasion of troublesome weeds. The leguminous cover crops widely planted are calopogonium, mecunoides, peuraria phaseoloides and centrosema pubescens seeds often mixed in a ratio 2:2:1. The leguminous seeds are sown in drill or by broadcast into the land. It may be necessary to soak the seeds in water for 24 hours before planting to facilitate early germination. (Owolarefe 2007).

Planting Technique: planting in plantation according to Dunkett (2000) is normally carried out when the rainfall is steady. Planting is normally in the morning and evening. The following technique is required. Dig hole big enough to accommodate ball of earth. Separate top soil from sub soil.

* Lift poly-bag seedlings carefully to planting point to avoid disturbing the ball of earth.
* Tear off poly-bag carefully and slide ball of earth into planting hole.
* Make sure that surface of ball of earth levels up with soil surface.
* Fill gap with top soil and ram gently with stick to avoid water logging and ensure firm establishment of seedling (chew 2000).

Weeding and Sanitation: Dunckett (2000) explained that in plantation management, weeds are slashed back (softweed) or dug up (hard weeds) logs and debris were removed from palm circle and each block should be

methodically cleaned up.

Bunch Application: Empty fruit bunches are normally applied over the field after weeding and sanitation. According to Duckett (1999) EFB provides substrate for soil organic matter replenishment.

Supplying: He explained that this is the replacement of dead stand or failure in the previous planting.

Watering and Irrigation: Ebohon stated that this is the artificial supply of water to the crops in case of dry spell. The use of watering cans, hoses or rotary sprinkler is found adequate to cover vast area of land.

Pruning: Pruning according to Duckett is the removal of undesirable branches to allow for maximum performance of the shoot. He pointed out that pruning is desirable to provide for easily formation of fruits and avoid pest and diseases.

Fire Control: Owolarefe (2007) said there is no significant approach, to this he said ensure very wide fire tracing of about 9.5 meters in width should be cleared around the plantation at the end of the rains. The edge of the surrounding bush next to the fire trace should be burn backwoods' away from, the plantation. One meter radius clean ring weeding around each palm should be carried out 2or 3 times every year (Chew, 2000)

Fertilizing the Plantation: The application of fertilizer is essential for oil palm to give maximum growth and yield. Fertilizer is applied on a clean weeded base (Chew, 2000)

Harvesting: Oil palm harvesting can be carried out on the 4th year after planting if they are given the proper care and management (Futch, 2006). He emphasized the correct time of harvesting to be when few of the fruits become loosen and can be dislodged. He added further that, about 2-3 loose fruits at base of the palm shows that the bunch is ripe for harvest. Kwasi (2002) identified some of the skills in harvesting to include:

* identification of the ripe bunch involving regular inspection;
* dropping of the ripe fruit or bunch with knife or go to hell;
* the harvesting technique; and
* post harvest transport with head pan, basket or wheel barrow.

Kwasi (2002) explained that each tree is visited for harvesting every 10-15 days as fruit bunches ripens throughout the whole year. He added that during harvesting, the stalks of the palm fronds underlying a bunch are first cut, thereafter the stalk of the bunch is cut and it is allowed to fall freely into the ground. Some fruits scatter in the process and they are hand- picked. Futch (2008), explained further that a lot of time and energy goes into oil palm harvesting. Such an enormous amount of energy is required for harvesting oil palm, that even cutting a single frond alone using the sickle cutter (the Malaysian knife) required a lot of skill and energy.

Occupational Skills required in Palm Oil Processing Enterprises

Palm oil processing is a major source of income and employment to a large proportion of the resource poor rural population in Nigeria especially in Delta State. It revealed further that the success or failure of a processing depends largely upon how labour and other associated resources are efficiently used. Ukpabi (2004) added that efficient processing technique will increase the quality and quantity of food available for consumption and trade. Omoti, (2004) identify and evaluate palm oil processing enterprises to carry out the following in their processing industry.

Sterilization, stripping, digestion and pressing, clarification, purification, drying and storage. **Sterilization**: According to Ego (2011) identify this as the first step in the processing of palm oil. That sterilization inactivates the lipases in the fruits, and prevent building of free fatty acids (FFA) this involve the use of high steam sterilization to facilitates fruits being stripped from the bunches. It also soften the fruit mesocarp for digestion and release of oil, and conditioning of nuts to minimize kernel breakage.

This also involves the use of high temperature, wet-heat treatment to loose fruit. The wet heat weakens the fruit stem and makes it easy to remove the fruit from bunches on shaking or tumbling in the threshing machine (Ego, 2010). **Stripping:** Stripping or threshing involves separating the sterilized fruits from the bunch stalks. Sterilized FFBs are fed into a drum Stripper and

the drum is rotated, causing the fruits to be detached from the bunch. The bunch stalks are removed as they do not contain oil.

Kwasi (2002) explained that the stalks can be transported to the plantations for use as fertilizers in mulching near the palms, and also given ash as potash fertilizer and fuel for boilers. Kwasi added that stalks which have fruits still attached on them are called hard bunches and have to be recycled back for further cooking.

Digestion and pressing: After stripping the fruits, they are moved into a digester where, the fruit are reheated to loose the pericarp. The steam heated vessel is rotated about to cause loosening of the pericarps from the nuts. The digested fruit is drawn out, while freshly stripped fruits are brought in. the fruits are passed into a screw press, where the mixture of oil, water, press cake or fibre and nut are discharged.

Clarification: A mixture of oil, water, solids from the bunch fibres is delivered from the press to a clarification tank. The mixture containing the crude oil is diluted with hot water to reduce its viscosity. A vibrating screen helps remove some of the solids. The oil mixture is heated to 85-90c and allowed to separate in the clarification tank. Ukpabi (2004) explained that settling time of 1-3 hours is acceptable where the oil from the top is skimmed off and purified prior top drying in the vacuum dryer. The final crude palm oil is then cooked and stored.

Rancidity

Oil and fats get spoilt and become rancid. Rancidity is promoted by light, atmospheric oxygen and moisture which lead to changes in odour and taste. Therefore, the tanks, jerricans and barrels used in storage must be filled as full as possible taking into consideration the co-efficient of cubic expansion. (Edem: 2002). He added that maximum duration of storage is six months at thirty degree centigrade. (30^0C.)

If palm oil solidifies in the tanks, jerricans and barrels, it cannot be liquidified even by force heating. In the vicinity of the heating coils, the oil melts, scorched, discoloured and become rancid.

Occupational Skills required in Palm Kernel Oil Extraction and Refining

Palm kernel oil extraction and refining is a major source of income and employment to a large proportion of the resource poor rural population in Nigeria especially in Delta State. Evidence from Owolarefe (2007) revealed that in recent time, its production has drastically downsized due to a number of social economic and political factor along with the technological know how in the industry. Omoti, (2004) explained that the method of getting palm kernel oil and refining is very tedious and laborious therefore requires appropriate skills and knowledge to carried out. He added that the success or failure of this processing unit depends largely upon how labour and other associated resources are efficiently used.

An efficient processing technique that involves functional skills increases the quality and quantity of food available for consumption and trade (Ukpabi, 2004). Omoti (2004) stated that Nigeria has enormous potential to increase her production of palm kernel oil through application of improved processing techniques and skills. He added by outlining the following as skills involved in palm kernel oil extraction:

- Separation of nut from the press cake in a depericarper.
- Cracking of the nut in a centrifugal cracker to release the kernels.
- Separation of the kernels from the shells using a combination of winnowing and hydro-cyclones.
- Drying of kernels in silos to a moisture content of about 7percent.
- Crushing of the kernel in a crushing plant.
- Filtering of oil produced as crude palm kernel oil (CPKO)
- Refining of crude palm kernel oil into refined palm kernel oil (RPKO). The palm kernel cake derived as a by product here is also a major ingredient in livestock feed manufacturing.

Omoti (2004) also opined that improved technologies that meet both growth and sustainability goals can be effectively used by oil palm processor. He added efforts should be made to raise the production level to increase the standard of living of farmers; this can only be achieved by introduction of

improved farm equipment and technologies as well as increased availability and utilization of more energy and power in the processing unit.

Occupational Skills required in the Marketing of Oil Palm Products

Marketing of oil palm products is an important aspect of oil palm production and processing enterprises requiring a lot of skills to carry out. A market is viewed by Okoh and Akintola (2005), as a means by which the exchange of goods and services take place as a result of buyers and sellers being in contact with each other, either directly or through a mediating agent or institution. Nwauwa (2012) put forward that marketing is the exchange of activities conducted by individual and organizations for the purpose of satisfying human wants. They stressed further that marketing requires management of seven functions. They include market delineation which describes the characteristics of potential customers, purchasing motivation reveals why they buy, product adjustment, matches the design of the product with buyers, needs and wants, physical distribution determines the most effective means of moving the products to customers, communication involves making consumers aware of the products and persuading them to buy them. Transaction functions include activities at the point of purchase. Post transaction refers to activities after the purchase that ensures satisfaction with the products.

In his contribution, Ekane (2007) posited that market is any arrangement whereby buyers and sellers are in close touch with one another for the purpose

of business transaction. This means the farmer should offer for sale various palm products of different sizes, colour, and volume for sale to get the people's choice and patronage. He further suggested that farmers should advertise their products and fix their prices based on production cost. Murray (2002) added that marketing activities include fixing of prices, transportation of goods to the market and storage. Marketing of oil palm products therefore requires specialized skills and training not only for reason of profit making but for its perishable nature.

Cascio (2007) defines market as the sum of all transactions that take place between buyers and sellers of a particular type of product. They stressed that it exists between and among people, businesses, government and other nations of the world. Marketing according to Okoh and Akintola (2005) involves a series of business activities associated with the transfer of commodities or services from the producers to the consumers towards the creation and delivery of a standard of living. They argued that it requires various marketing institutions to perform certain marketing functions or activities. They include buying, selling, transporting, storing, grading, financing, risk-bearing and market information.

This study is concerned with the performance of business activities that direct the flow of oil palm products for sale from the producers to the consumers. The oil palm products that could be offered for sales include palm

oil, crude palm kernel oil (CPKO) and refined palm kernel oil. Others are palm kernel nut, palm kernel shell and palm kernel cake. Marketing of oil palm products involves activities which the farmers must carryout to sell their products. Such activities include assembling, packaging of goods, naming, labelling and advertising in order to create consumer awareness.

In the marketing of oil palm products it is necessary that skills such as ability to grade the product, transportation, financing, storage, risk-taking, market information should be observed in order to achieve profit maximization. Legge (1992) maintained that marketing is the science or art of offering products to purchasers in a market in such a way as to maximize the revenue received. He stressed further that marketing provides the language in which people can talk about how purchasers react to products, why they buy them, when they buy them and what they will pay for them. Murray (2002) noted that marketing products requires skills and those who possess such skills break even in the market. He named the skills to include ability to determine when to sell or store the products for maximum profit, keeping of records of sales and purchases made, making choice in the type of transport to be used depending on the quantity, container, warehouse to be used for storage. Barnett (2007) added that several skills are needed for an individual to succeed in the marketing drive for its products. Such basic skills in his own opinion include the ability to calculate time of production, search for market, grading and

storage of the product, record of financial transaction and reconcile sales and purchase record to identify profit and loss and break even. Ekane (2007) stated that there are several basic skills necessary for an individual to succeed in the marketing of a product, this include finding buyers or searching for market, grading and standardization of products, storage of the products, distribution and transportation of products, risk management, recording of financial transaction, selling of the products and pricing power. Murray (2002) noted that strategies to adopt in marketing a product include grading, identifying customers, using sales promotion as a tool, keeping products in secured and ventilated containers for marketing and fixing prices of the various products.

Barnett (2007) enumerated the under listed marketing skills to include:

i. record of numbers of produce.

ii keep produce secured and ventilated in containers for market.

iii notice customers on the arrival of produce.

iv identify suitable wholesales and retail agents.

v assist customers in handling and transporting produce.

vi keep records of produce sold and care of the unsold produce.

Planning for an Enterprise in Palm Oil Production and Processing

Planning can be described as intelligent preparation for action. Planning was defined by Keith (2008) as the selection of enterprise objectives and departmental goals and finding ways of achieving them. Planning, he said

depends on what to do, how to do it and who should be involved and how decisions should be made. According to Abby (2002), planning is the business of identifying goals and objectives and of working out ways and means of achieving them. He also pointed out that it is a process of setting out in advance a pattern of action. Experience has shown that in order to produce any objective plan for the achievement of meaningful production in oil palm production and processing enterprise, the oil palm farmers must be clear in their mind about the type and scope of production they envisage with emphasis on superior planting material and good nursery management. This will enable them to put their expertise, time and resources into the best use. Duckett (2000) explained that the return on investment in a new oil palm plantation begins after the unproductive periods which can last two to three years. He added that this period can be shortened if early producing genetic materials are used, good agronomic practices in the field and using vigorous nursery plant in an advanced state of development. He went further to state that good planning could be accomplished only when the necessary facts are available to the planners. This implies that in oil palm production enterprises the farmers must be familiar with the essentials required or actions required for success in their enterprises.

Olaitan (2001) explained farm planning as a deliberate attempt by farmers to arrange and document enterprise activities in order. He added that

before implementing the plan activities farmers should consider things like farm land, its topography, the crop to grow, resources or facilities to be made available for successful farm operation and market demands for the crops to produce. They further stated activities involved in planning to include: Formulating specific objectives for the enterprise, revising the objective periodically, drawing up programmed, plan for the different enterprise, deciding on the enterprise to adopt, budgeting for the farm, planning for the procurement of inputs and selecting farm operation. Yalokwo (2002) identified step in planning to include: Identification of opportunities, determination of mission goals and objectives, evaluation of alternative course of action, policy plan formulation, quantification and communication implementation and review of plan in addition to planning activities identified.

Oil palm production enterprise involves capital, land and labour investments. In view of Shamoudin (2008) opined that the farmer should state the size of his enterprise. This implies that the farmer should state the capital, land and labour requirement of his farm. This will guide him to plan for personnel and funds. Okoh and Akintola (2005) state that prospective farmers in any enterprise should state sources of income for operation, identify personnel's as well as consumers or market for the product.

Jalani (2000) stressed that oil palm production and processing enterprises should embrace well integrated capital intensive, high volume and

high extraction rate in their production and processing method in other to encourage high transformation of oil palm industry in the country. Nicolas and Culberton (2010) opined that improved technology can boost the enterprise in Nigeria, that this can meet both growth and sustainability. He added that however most technologies are designed for developed rather than developing countries. Nevertheless, most farmers in developing countries used imported seed materials 0btained from research station in the developed world but without a corresponding application of package which are meant to be used with them. Therefore in planning for oil palm enterprises efforts should be made to encourage the improved farm equipment and technologies and market demand for the produce.

Policy Provision for Vocational Education and Skill Acquisitions in Agriculture in secondary schools

Vocationalisation of secondary education has been a policy issue since manual training or training for the various trades moved from industry business and field agriculture to the educationally system (Ikeoji, 2007). It generally refers to the diversification of a previously liberal arts or general academic curriculum of the secondary school to include an increased amount of vocational and technical areas or the teaching of applied subjects or vocational courses that aim at improving learner's capacity for employment (Akyeompong, 2002). World bodies such as UNESCO have not only endorsed

vocationalisation but provided some policy objectives and guidelines. The general conference of UNESCO held in Paris at its 18th session made recommendations concerning technical and vocational education (TVE). Nigeria, along with many other countries has pursued this programme along the UNESCO initiatives which specified that secondary education curriculum must cater for the differences in talents, provides trained manpower in the applied science, and inspire its students with a desire for self improvement and achievement of excellence. The policy provides for the study of agricultural science in secondary schools to make secondary school graduates of the subject to become proficient farmers and employers of labour or to gain paid employment after leaving school. To achieve this policy, secondary school graduates should be exposed to the type of education that will lead to this goal.

This policy was also designed to correct the major defects of the old system which place emphasis on rote-learning and lack of technical skills, and the inability to sufficiently prepare young ones for citizenship role in the society (Olawepe, 2001). The objective of the policy favours vocationalisation of secondary education and agricultural science which has increased training opportunities for the rising numbers of secondary school graduates, with a view of preparing them for self-reliance and self employment through the promotion of practical skills necessary for agriculture. To appreciate the policy in line with this study, the inadequacies in the curriculum of secondary school

graduates in agricultural science is reviewed and critically analyzed towards inspiring secondary school graduates and addressing the inadequacies especially in oil palm production and processing.

However, Lamb and Vickers (2006) posited that if vocationalisation of secondary education must be viable it must address the following challenges; provides adequate equipment and materials and operate in such ways that ensure that they can be maintained and replaced. Among the core subjects to be offered in vocational and technical education, agricultural science is the most popular of all and a look at the enrolment of students in senior secondary school reveal an ever-increasing number and presence of students. This study therefore is propelled to make secondary school graduates in Delta State to acquire the necessary skills that will make them more functional and productive in the agro business environment and reduce the pressure on higher education. The present stand of the federal government of Nigeria to urgently replace aging farmers with young hands comes under focus in this study also. Young secondary school graduate will now compete and survive in the agricultural environment and the need to increase productivity and reduce production cost thereby inculcating the value of respect for manual work and dignity of labour. Policy makers in developing countries has realized that diversification of the secondary school curriculum would motivate changes in the attitude towards self-employments and further education and even ease the transition to work

(Lamb and Vickers 2006). Therefore the various opportunities existing in agriculture especially in oil palm demands special focus and technical skills to avoid low quantity and quality of edible oil consumed in Nigeria and the rest of the world.

Skill Development and the Millennium Development Goals

Researchers wondered whether the hue and cry about falling standard of education in Nigeria could be linked to skill acquisition at school. Shane (2008) stated that when functional skills are lacking in any production system, the outcome is poor quality output, which undermines capacity building and sustainable development in any nation. He added that Nigerians, both the leadership and the followership have come to accept the bare truth that Nigeria is not developing as it ought to since independence. This he said explained why government has moved from one system of education structure to another in search of excellence in its educational products. Fafunwa (2002) stated the society has a right to determine and shape its educational system in such a way that it prepares the citizens to contribute to the development of their society in which they lives. Adefaye (2005) added that seventy-five (75) percent of secondary school leavers in Nigerians do not go further in higher academic pursuit, that it is disturbing to have a situation where many youths who are physically strong to render services towards national development are thrown

into the ranks of the unemployed in the community. He added that it is worth mentioning that the problem of Nigerian youths can be reduced to a very large scale through relevant vocational education programmes, where relevant skills are acquired. Adefaye (2005) explained that despite the country's abundant resources, Nigeria had continued to manifest abysmal industrial performance record because of the country's inability to synergies its resources to spawn an organic productive sector capable of engendering sustainable development and alleviate wide spread poverty. World Bank (2006) in his comment on Nigeria's state of un-industrialization says the nation predicament is heavily dependent on her inability to come up with a competent and dedicated workforce. He added that skill acquisition through functional vocational and technical education at this point stand very tail in helping the nation get out of the problem of lack of appropriate man power and therefore, needs just refocusing to produce the desire result.

Vocational education through the years has been responsive to the needs of the society in skill acquisition. When geographic and occupational mobility of workers, accelerated and improved technology required a higher degree of trained skills, society turned to the vocational schools to supply its need for trained workers. In light of the above, it becomes obvious that the contemporary society of today require functional workforce with appropriate skills to move society forward. Lack of dedicated and competent workforce is

Nigeria head-ache and the most militating force against the nation technological, industrial and any type of national development (Olawepe, 2001). Vocational education results in skills that are expected to prepare people to come up with products or render services in areas of local needs, not only in modern imported technologies. Adefaye (2004) added that there is nothing wrong with acquiring skills in basket weaving in school along the use and maintenance of computers, television, automobiles and so on, provided there is demand for the weaving and use of basket in Nigeria along with the millennium development goals. Adefaye (2005) lamented that the absence of opportunity for works is one of the causes of much of the present social and industrial unrest in the society today because the product of the schools lack the required skills to function in the industries. The inability of the educational system to provide the youths with the demand of industries has led to the turning out of restless and disconnected generation of youth. The millennium development goals (MDG) therefore is a palliative initiative of the United Nations endorsed in 2000 in new York towards a functional intervention in our educational system under the millennium declaration, the world made an agreement that, developing countries should be committed to good governance and development policies based on science and the scaling up of best practices in the world. Most specifically, government of developing countries agreed to review and reforms polices for their impaction on hunger and remove the

constraints that impede development and progress. Ifad (2001) explained that education if better equip under the millennium development goal will help citizens participate in activities that improve agricultural productivity and their social status within the household and the community. Skill acquisition will provide a pathway directed to reduce unemployment among youths.

Review of Empirical Studies

In a study carried out by Akwaji (2006) on work skill required by secondary school graduates for success in cassava processing enterprise in Cross River State, four research questions were developed in conformity with the purpose of the study.

Four sets of questionnaire were developed and used for collection of data from One hundred and ninety five (195) respondents. The findings from the study indicated that seventy one (71) work skill items were needed for the processing of cassava into garri, seventy seven (77) work- skill items were needed for processing cassava into starch. He recommended that the work skill item identified by the study be packaged and integrated into skill acquisition centre for preparing secondary school graduates and other youths for success in any of the cassava processing enterprise.

Egbo (2006) conducted a study to identify work skills required by secondary school graduate for entry into pig production enterprise in Enugu

for purpose of his study, three research questions were developed in consonance with the purpose of the study. Three sets of structured questionnaire were generated from the literature reviewed and developed for the study. The questionnaires were used for collecting data from one hundred and forty (140) respondents. He found out that fifty four (54) work-skills were required in pig breeding management forty two (42) work-skills in pig rearing to market weight and twenty nine (29) work- skills in pig processing and marketing. It was recommended that the work-skill modules with their corresponding skills identified by the study could be packaged into training programmed and integrated into states skill acquisition centre by Enugu state government for training unemployed secondary school graduates and other interested youths in pig production enterprises.

In a study conducted by Onuka (2003) on work-skill modules for improving the employment opportunities of secondary school graduate in poultry occupation in Abia State, he made use of the questionnaire to obtain information from sixty seven (67) respondents he found out that in marketing any product, the respondents agreed that the following skills were required in the study and they include, record the number of produce, keep produce secured and ventilated in container for market, fix prices for produce, identify suitable wholesalers and retail agents and four others.

In a study carried out by Dumbiri (2005) on work-skill required by graduate of secondary school for employment in fish enterprises in Delta State, he made use of the questionnaire to elicit information from 105 respondents. He discovered that with regard to planning activities, the following under-listed skills were required for the study: establishment of policies, identification of alternative course of action choosing course of action, creating procedures of rules for workers and three others.

In a study conducted by Uzomah (2009) on work skill required by secondary school graduate for entry into poultry production enterprises in Delta State, he made use of the questionnaire to obtain information from 366 agricultural science teachers. He discovered that eighty six (86) occupational work skills were required by secondary school graduates for entry into poultry production enterprise.

Appraisal of Literature Review

The view of related literature on employability and occupational skills in oil palm production needed by graduates of secondary schools for employment in oil palm enterprise was carried out in this chapter. The review covered the following area: Human capital development and occupation theories that make up the framework. Relationship of the theories to the studies: Approaches to identification of employability and occupational skills in oil palm production

and processing which include: Task analysis approach, Job analysis approach, competency based approach, and the modular approach. The study identified with the use of job analysis approach for developing the employability and occupational skills in various enterprises in oil palm production and processing, and arranges the skills into workable modules used for training of secondary school graduate in oil palm production and processing enterprises. The review also presented the various opinions and view points of authors in oil palm productions and processing in the following areas, oil palm nursery practices, plantation management, oil palm processing, palm kernel extraction and oil palm marketing. The related literature reviewed guided the development of the questionnaire items for the study which will be used to gather data that will help to generate required skills in oil palm production and processing enterprise that could be used to train secondary school graduates so as to equip them with production skills for jobs in any of the oil palm production and processing enterprises. The secondary school graduates were only exposed to some rudimentary knowledge about oil palm production in secondary schools. This knowledge was grossly inadequate and cannot bridge the gap between the word of knowledge and world of work for any job in the oil palm industry, because the students were unskilled. Therefore, this study would fill the gap between the knowledge the graduates acquired while in the school and the skills required in the various enterprises for employment in oil palm industry.

The various skill acquisition centres who were expected to train secondary school graduates for job in the oil palm industry will also be equipped to provide for a multi-trade path in related skills training packages. This will help the skill acquisition centre to meet the requirement in the oil palm business environment and with emphasis on workforce preparation.

CHAPTER THREE

RESEARCH METHODS AND PROCEDURES

This chapter describes the methods and procedures used in this study based on the following sub-headings:

Design of the study

Area of the study

Population of the study

Samples and Sampling technique

Instrument for data collection

Validation of instrument

Reliability of the instrument

Method of data collection

Method of data analysis

Design of the study

The study adopted a descriptive survey research design. In the views of Olaitan, Ali, Eyo and Sowande (2000), a survey research design is the plan, structure and strategy that the investigator adopts to obtain solution to research problems and test the hypotheses formulated for the study. They further stated that it guides the investigator in the process of collecting, analyzing and interpreting observations. This was therefore considered appropriate for the study since it will obtain data from oil palm extension

agents and teachers of Agricultural Science through the use of a structured questionnaire on employability and occupational skills required by secondary school graduates for employment in oil palm production and processing enterprises in Delta state, Nigeria.

Area of the study

The study covered Delta State which is made up of three Senatorial districts namely:

1) Delta-South Senatorial Districts
2) Delta-Central Senatorial districts
3) Delta-North Senatorial districts

Although the people of the State are endowed with vast areas of land suitable for oil palm production, the cultivation is more prevalent in Delta North and Delta Central senatorial districts where the land is most adaptable for oil palm production. Most people in this zone where the land is more adaptable developed interest in oil palm production because of its economic value. Therefore the study is directed towards Delta Central and Delta North senatorial district, toward helping to improve the economy and employment situation of the youths in the State.

Population of the study

The population of this study consisted of all the Agricultural Science teachers in the public secondary schools in Delta State. The total number of

Agricultural Science teachers in the public secondary schools in the State is Six hundred and seventeen (617) teachers (Post Primary Education Board, Department of Research and Statistics, 2007/2008.) The population also included the one hundred and five (105) extension agents of the Agricultural Development Project (ADP) who were engaged in agricultural extension services in Delta State (Agricultural Development Project Research and Evaluation Department (2009).

Sample and Sampling techniques

The sample for this study consisted of two hundred and seventeen (217) Agricultural Science teachers and fifty two (52) extension agents. The two hundred and seventeen (217) agricultural science teachers represented 35.2% of the entire population of Agricultural Science teachers in the public secondary schools in the State and the fifty two (52) extension agents above represents approximately 50% of the population of extension agents in the State Agricultural development projects (ADP).

To obtain the sample for this study, stratified random sampling technique was employed. This method involves a division of the population into sub-groups based on geographical regions for the purpose of this study. The population was later clustered into two, Delta Central and Delta North senatorial districts of the State. From each of the clusters, four (4) local

government areas were randomly selected and the Agricultural Science teachers and the extension agents were used as samples for the study

Instrument for Data Collection

A questionnaire method of data collection designed as task analysis scale inventory was used for the purpose of data collection for this study. Two hundred and sixty nine copies task analysis scale inventory was administered on the respondents who were the Agricultural Science teachers were randomly selected from the public secondary schools in the Senatorial Districts under study. The other fifty two (52) copies were administered on the extension agents in the two senatorial districts of the State. The questionnaires were in six categories one focusing on employability skills in oil palm industry and the other five focusing on an enterprise in the oil palm production and processing, such as oil palm nursery occupation, oil palm production management, oil palm processing, palm kernel oil extraction and oil marketing.

The questionnaire for each of this category was in two parts: part 'A' was structured to collect information on personal date of respondents while part 'B' was to obtain information on employability skills required for success in each of the oil palm enterprises. Part 'B' was further divided into different sections each focusing on a major area of occupational skill in oil palm production and processing. Section (1) comprises of employability skill in oil palm industry while section (2) comprises of "occupational skills required in oil

palm nursery practice" which involves A1 – occupational skills in oil palm germination process enterprise. A2 – oil palm pre-nursery activities. A3 – management activities in the nursery and A4 – marketing of nursery seedlings.

Section (3) comprises of "occupational skills required for oil palm management activities" which involves A1 – site selection and land preparation activities. A2 – oil palm transplanting activities. A3 – planting in the permanent field activities and A4 – oil palm harvesting and handling activities. Section (4) comprises "occupational skills required in oil palm processing activities" which involves A1 – Fruit handling and processing. Section (5) comprises "occupational skills required in palm kernel oil extraction activities while section (6) comprises "occupational skills required in oil palm marketing enterprise which involves A1 – grading and marketing of oil palm. The respondents gave their own appropriate responses. A mean score value of 2.55 was used as a bench mark for accepting or rejecting an item as required. Oil palm nursery practice, oil Palm plantation management, oil palm processing, palm kernel extraction and refining and oil palm marketing enterprise in Delta State. Each questionnaire item was assigned a four point response scale of highly appropriate (HA = 4), Averagely Appropriate (AA = 3), Slightly appropriate (SA = 2), and not appropriate (NA = 1)

Validation of Instrument

The instrument was first validated by the Thesis Supervisor and two other experts, one from the Vocational Department of Delta State University, Abraka and another from the Delta State University, Anwai Campus Asaba. The consideration was on the content and face validity of the instrument by making appropriate corrections and comments on the instrument that were affected. They also proffered suggestions for improving the instrument towards meeting the purpose of the study. The suggestions from the experts were integrated into the modified copy of the questionnaire.

Reliability of the Instrument

To determine the reliability of the employability and occupational skills required for employment in oil palm production and processing enterprise, a test – retest method of establishing reliability was employed in establishing the reliability of the instrument. Consequently, the instrument was administered twice to a sample of 30 respondents outside the study area within the period of two weeks. The first copy was issued out on the first day of visit to these teachers and extension agents. After an interval of two weeks, the second copy was issued to the same selected respondents. The two sets of scores obtained were paired. The paired scores generated were tested for reliability using Pearson's Product Moment Correlation Coefficient or Pearson (r) coefficient statistic.

The computed Pearson's Product Moment Correlation Coefficient was 0.75. This is an indication of significant coefficient of reliability at 0.05 level of confidence or error margin.

Method of Data Collection

Two hundred and eighty-five copies of structured questionnaire were administered on the respondents with the help of one research assistant from each of the senatorial districts of Delta State. The two hundred and thirty copies were distributed to randomly selected Agricultural Science teachers in public secondary schools from the senatorial districts under study. The other fifty five copies were administered on the extension agents in the two senatorial districts of the State. After two visits to each research assistant two hundred and seventeen (217) copies were recovered for the agricultural science teachers while fifty two (52) copies were received from the extension agents, which represent 94% return for agricultural science teachers and 95% return for extension agents.

Method of Data Analysis

The data collected from the field was analyzed using the frequencies, percentages, mean and standard deviation statistics to answer the research questions and the t-test statistics for testing the hypotheses at probability of 0.05 level of significance and the relevant degree of freedom

The mean for the value will be 4 + 3 + 2 + 1 = 10/4 = 2.50.

Any item with a mean rating of 2.50 and above was accepted as required, while any item with the mean rating below 2.50 was rejected or not required. The null hypotheses of no significant difference was tested using t-test statistics of probability equal to or less than 0.05 level of significance and relevant degree of freedom.

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

This chapter dealt with the presentation and analyses of data in order to answer the research questions and test the hypothesis formulated. The findings of the study were also presented and discussed.

Table I: Background Data of the Respondents

Characteristic		Agricultural Science Teachers		Extension Agents	
		Frequency	Percentage	Frequency	Percentage
Sex	Male	124	57.14	40	76.92
	Female	93	42.86	12	23.08
Qualification	OND	-	-	13	25.00
	NCE	22	10.14	6	11.54
	HND	11.52	11.52	15	28.85
	B.Sc	45	20.74	12	23.08
	B.Ed	106	48.85	4	7.69
	M.Ed	19	8.76	2	3.85
Experience	0-5 yrs	22	10.14	5	9.62
	6-10yrs	33	15.21	7	13.46
	11-15yrs	65	30.00	19	36.54
	16-20yrs	55	25.35	12	23.08
	Above 20yrs	42	19.35	9	17.31

Table 1 above shows that data was collected from two hundred and seventeen (217) Agricultural science teachers and fifty two (52) extension agents sampled for the study. The table also shows that One hundred and twenty four (124) of the respondents were male representing 57.14% of the Agricultural science teachers sampled for the study and ninety three (93) representing 42.86 of the agricultural science teachers were female. While 40 representing 76.92% of the fifty two (52) extension agents were males and twelve (12) representing 23.08% of the fifty two (52) extension agents were females. Based on Educational Qualification, the table shows that majority of the respondents had B.Ed (106) about 48.85% of the Agricultural Science Teachers sampled for the study and twenty two (22) representing 10.14 of the two hundred and seventeen (217) Agricultural Science Teachers had NCE. While majority of the extension agents had HND (15) about 28.85 of the sampled extension agents.

The table 1 on the frequency of responses based on experience indicated that the frequency 65 represented 30% of the sampled Agricultural Science Teachers, who are in the years bracket of 11 -16 while the frequency of nineteen (19) was 36.54% of the extension agents of the same years bracket of 11 to 16.

Research Question 1

What are the employability skills needed by secondary school graduates for employment in oil palm industry?

Table 2: Mean Responses of Agricultural Science Teachers and Extension Agents on Employability Skills required by Secondary School Graduates for Employment in Oil Palm Industry (N=269)

S/n	Employability skills	$\bar{x}$	SD	Remark
1	Writing	3.67	0.62	Accepted
2	Simple mathematics Computation	3.67	0.62	Accepted
3	Oral Communication and listening	3.21	0.86	Accepted
4	Supervisory ability	3.40	0.88	Accepted
5	Book Keeping	3.07	0.88	Accepted
6	Managerial and problem solving ability	3.13	1.06	Accepted
7	Measurement evaluation ability	3.27	0.80	Accepted
8	Goal setting and interpersonal relation	3.27	0.88	Accepted
9	Problem solving ability and self-esteem	3.67	0.62	Accepted
10	Creative thinking	3.47	0.74	Accepted
11	Functioning negotiation and teamwork	3.60	0.63	Accepted
12	Motivation	3.53	0.74	Accepted
13	Leadership ability	3.33	1.11	Accepted
	Total	**3.41**	**0.21**	

The result form table 2: shows that the mean response ranged between 3.07 to 3.67, while the standard deviation ranged between 0.62 to 1.11. The result then revealed that all the items were appropriate as employability skills needed for employment in oil palm production and processing industry.

Items on “writing” “simple mathematical computation” problem solving ability and self esteem had the highest mean score value of “ $\overline{X}$= 3.67, and SD= 0.62” “ $\overline{X}$ = 3.67 and SD = 0.62” “ $\overline{X}$ = 3.67 and SD = 0.62 respectively.

Research Question 2

What are the occupational skills required by secondary school graduates for employment on oil palm nursery practice?

Table 3: Mean responses on occupational skill required by secondary school graduate on oil palm nursery (N=269)

S/N	Skills Needed in Oil Palm Germination Activities	$\bar{x}$	SD	Remark
1	Identifying and selecting well developed seeds	4.00	0	Accepted
2	Soaking of seeds in cold water for 3 days with regular changing of water.	2.73	1.03	Accepted
3	Drying of seeds under shade for one to two hours	3.06	0.96	Accepted
4	Storing dried seeds in polythene bags in a cool place at room temperature	3.67	0.49	Accepted
5	Examining of seeds every two weeks to detect germination	3.86	0.35	Accepted
6	Selecting the sprouted seeds for potting	3.60	0.63	Accepted
7	Sowing of seeds in polythene bags at 15 percent moisture content	3.53	0.83	Accepted
8	Arranging the polythene-bags in wooden boxes	3.01	0.92	Accepted
9	Placing the wooden boxes in a germinator for 80 days	2.60	0.17	Accepted
	Skills required in oil palm Per-nursery activities			
10	Filling of seed boxes or tray with top soil rich in humus	3.65	0.63	Accepted
11	Agitating the bags to consolidate the soil	3.60	0.63	Accepted
12	Detecting the position of the plumule and radical in the seed	3.60	0.63	Accepted
13	Sowing of the seeds in black polythene bag with plumule up and radical down	3.46	0.91	Accepted
14	Providing good shade	3.46	0.72	Accepted
15	Water regularly morning and evening	3.66	0.61	Accepted
16	Application of mulching materials like coconut husk, dried grasses, palm kernel shell or straw for mulching	3.60	0.62	Accepted
	Skills required in oil palm nursery management			
17	Arrangement of the seedling in a level ground	3.80	0.41	Accepted
18	Watering of the seedling with a watering can twice daily	3.60	0.82	Accepted
19	Application of fertilizers NPK Mg. 12:12:17:2 at required rate of 14g per seedling	3.80	0.41	Accepted
20	Spray Dithane M – 45 or Captan against diseases every two weeks	3.80	0.41	Accepted
21	Regular watering	3.80	0.41	Accepted
22	Thinning of nursery to avoid weak stand or plant	3.60	0.63	Accepted
23	Selecting of disease affected ones	3.60	0.73	Accepted
	Skills required in marketing of seedlings			
24	Carry out market survey to identify demand for nursery seedlings	3.73	0.79	Accepted
25	Sorting and grading of the seedlings according to age and growth	3.40	0.82	Accepted
26	Fixing of price for seedling	3.93	0.25	Accepted
27	Provision of management services to the unsold seedlings	3.80	0.56	Accepted
28	Reconcile production and sales records to identify profit and loss	3.94	0.26	Accepted
	Total	**3.55**	**0.34**	

Table 3 indicated that all items scored a mean value of 2.73 to 3.94 and standard deviation of 0.28 to 1.03. This result indicated that all the items were appropriate as skills required by secondary school graduates in oil palm nursery practice. The item on “Reconcile production and sales records to identify profit and loss” had the highest mean score value of ($\overline{X}$=3.940 and SD = 0.26) on marketing of oil palm seedlings.

On oil palm nursery management; “Arrangement of the seedling in a level ground, application of fertilizers and regular watering had the highest mean score of ($\overline{X}$=3.50 and SD = 0.41) respectively. In pre-nursery activities of oil palm, the item “water regularly morning and evening had the highest scores ($\overline{X}$=3.66 and SD = 0.61) and on germination activities the item “soaking of seeds in cold water for 3 days had the highest score of ($\overline{X}$=2.73 and SD = 1.53).

Research Question 3

What are the occupational skills needed by secondary school graduates for employment in oil palm plantation management?

Table 4: Mean responses on occupational skills required by secondary school graduates for employment in oil palm plantation management (N=269)

	Skills required in site selection and land preparation activities	$\bar{x}$	SD	Remark
29	Assessing soil fertility	3.93	0.25	Accepted
30	Clearing and uprooting stumps of trees	3.80	0.56	Accepted
31	Plough and harrow the land foe establishment of the site	3.75	0.75	Accepted
32	Marking of field 9m x 9m triangular	3.33	0.86	Accepted
33	Digging of holes to receive seedlings 25cm in diameter and 30cm deep	3.46	0.63	Accepted
34	Filling of the holes with manure and top soil	3.86	0.45	Accepted
	Skills required for transplanting activities			
35	Dig hole big enough to accommodate ball – of – earth.	3.53	0.83	Accepted
36	Separation of top soil from sub soil	3.06	0.79	Accepted
37	Lifting poly-bags seedling for planting with care to avoid disturbing the ball of earth	3.66	0.61	Accepted
38	Tearing off of poly bags carefully to slide ball of earth	3.86	0.35	Accepted
39	Leveling of ball of earth into planting hole	3.86	0.35	Accepted
40	Ring mulching of the seedling	3.60	0.63	Accepted
41	Watering morning and evening	3.60	0.41	Accepted
	Skills required in planting oil palm in the permanent field			
42	Planting of seedlings in the plantation with poly-bags base cut open	3.53	0.51	Accepted
43	Ring mulching after planting in the hole	3.66	0.43	Accepted
44	Application of water morning and evening	3.60	0.63	Accepted
45	Setting wire netting round each seedling to prevent rodent attack.	3.53	0.63	Accepted
46	1 – 2m ring weeding at the plant	3.26	0.96	Accepted
47	Application of NPK 10:5:10 at a rate of 500g per palm	3.60	0.82	Accepted
48	Supplying where necessary	3.86	0.35	Accepted
49	Planting leguminous as cover crops between rows.	3.33	0.72	Accepted
	Skills required for oil palm harvesting activities			
50	Printing palm fronds to expose bunch base for cutting	3.46	0.74	Accepted
51	Cutting of the bunch from the tree using cutlass or bamboo pole knife (BPK)	3.80	0.41	Accepted
52	Picking of scattered fruits	3.73	0.59	Accepted
53	Conveying palm bunches and collected fruits to collection centre.	3.86	0.35	Accepted
54	Loading and off loading of palm bunches into and out of transport containers	3.93	0.75	Accepted
55	Weighing of fresh fruits on a scale checking for quality	3.72	0.45	Accepted
	Total	**3.64**	**0.22**	

The result from table 4: had shown that all items scored the mean value of 3.06 to 3.93 and standard deviation of 0.25 to 0.75. This result indicated that all the items were appropriate as skills required by secondary school graduates in oil palm plantation management in Delta State. The item on "assessing soil fertility, had the highest mean score value of ($\bar{X}$=3.93 and SD = 0.29) on site selection and land preparation. Item on "Tearing off of polythene bags carefully to slide ball-of-earth into planting hole" had the highest mean score value of ($\bar{X}$=3.96 and SD = 0.35) on the transplanting activities in oil palm plantation management enterprise. While the item on "cutting of the bunch from the tree using cutlass or bamboo pole knife (PK)" also had the highest man score value of ($\bar{X}$=3.90 and SD = 0.41) on oil palm harvesting activities in plantation management enterprise.

The supply of vacant spaces in the field where necessary as a skill had the highest mean score of ($\bar{X}$-3.86 and SD = 0.35). Filling of vacant spacing remains a common practice in oil palm management.

Research Question 4

What are the occupational skills required by secondary school graduates for employment in oil palm processing enterprise?

Table 5: Mean responses on occupational skills needed by secondary graduates for employment in palm oil processing enterprise (N=269).

	Skills required for oil palm fruit handling and processing activities	$\bar{x}$	SD	Remark
56	Bunch chopping with axe or matchet	3.82	0.51	Accepted
57	Fruit sorting – removing fruits from spike lets	3.62	0.72	Accepted
58	Fruit boiling – to sterilize or cooking of threshed fruits	3.42	0.63	Accepted
59	Fruit digestion – to rupture oil bearing cells to allow oil pounding	3.43	0.71	Accepted
60	Mash digestion – releasing of palm oil from the digested material	3.52	0.51	Accepted
61	Oil purification – boiling mixture of oil and water to remove impurities	3.86	0.35	Accepted
62	Rancidity - Controlling light, Oxygen and moisture to avoid change in taste and odour	3.53	0.83	Accepted
63	Fibre nut separation – separating de-oiled fibre from palm-nuts	3.73	0.59	Accepted
64	Second pressing – recovering residual oil	3.66	0.72	Accepted
65	Nut drying – sun drying nuts for later cracking	3.53	0.83	Accepted
	Total	**3.68**	**0.17**	

Data presented in the table above revealed that all items scored the mean value of 3.42 to 3.86 and standard deviation of 0.63 to 0.35. The result indicated that all the items were appropriate as occupational skills needed by secondary school graduates for employment in oil palm processing enterprise.

The item on "boiling mixture of oil and water to remove impurities" had the highest mean score value of ($\bar{X}$=3.86) Indicating that it is the most appropriate skill needed in oil palm processing enterprise.

Research Question 5

What are the occupational skills required by secondary school graduates for employment in palm kernel oil extraction and refining enterprise?

Table 6: Mean response on the occupational skills required by secondary school graduates for employment in oil palm kernel oil extraction and refining enterprise (N=269).

	Skills required in Palm kernel oil extraction	$\bar{x}$	SD	Remark
65	Nut cracking – separation of kernel from the shell	3.80	0.77	Accepted
66	Separation of the cracked shells and palm kernel	3.86	0.51	Accepted
67	Drying of the kernel in silo	3.26	0.96	Accepted
68	Crushing of the kernel in a crushing plant	2.73	1.09	Accepted
69	Heating or cooking	3.66	0.48	Accepted
70	Filtering of palm kernel oil as crude palm kernel oil (CPKO)	3.66	0.81	Accepted
71	Refining of crude palm kernel oil into refined palm kernel oil (RPKO)	3.80	0.41	Accepted
72	Storing as RPKO (Refined Palm Kernel Oil)	3.80	0.77	Accepted
	Total	**3.57**	**0.39**	

Data presented in table 6 indicated that mean response ranged between 2.73 to 3.86; while standard deviation ranged between 1.09 to 0.51. The result also revealed that all the items were appropriate as occupational skills for palm kernel oil extraction and refining.

The item on "separation of the cracked shells and palm kernel" had the highest mean score value ($\overline{X}$= 3.86, and SD = 0.51). This indicates that it is the most appropriate skill required by secondary school graduates for palm kernel oil extraction and refining enterprise.

Research Question 6

What are the occupational skills required by secondary school graduates for employment in oil palm marketing enterprise?

Table 7: Mean responses and occupational skills required by secondary school graduates for employment in oil palm marketing enterprise (N=269).

	Skills required in oil palm marketing activities	$\bar{x}$	SD	REMARK
73	Grading of the products according to quality	3.86	0.35	Accepted
74	Fix prices for the products	3.93	0.25	Accepted
75	Searching for market for the processed products	3.80	0.41	Accepted
76	Keep purchases and sales records	3.86	0.51	Accepted
77	Keep all financial records including income and expenses	3.93	0.25	Accepted
78	Keep the inventory of the unsold products	3.86	0.35	Accepted
79	Transporting purchased products to the buyers	3.20	0.86	Accepted
80	Evaluation of services to customers	3.80	0.41	Accepted
	Total	**3.78**	**0.24**	

The data presented in table 7 revealed that all items scored between mean value of 3.20 to 3.93 and standard deviation of 0.25 to 0.86. The result revealed that all items were appropriate as occupational skills for oil palm marketing enterprise in Delta State.

The item on "fix prices for the product and keep all financial records including income and expenses had the highest mean score value of ($\bar{X}$=3.93 and SD = 0.25), which indicates most appropriate as occupational skill need for oil palm marketing enterprise in Delta State.

Research Hypothesis I

HO_1: There was no significant difference in the mean ratings of the responses of extension agents and teacher of agricultural science in employability skills required by secondary graduates in oil palm production and processing.

Table 8: ***T-test analysis of the mean ratings of the responses of extension agents and teachers of agricultural science on employability skills required by secondary school students***

Group	**N**	**$\overline{X}$**	**SD**	**Df**	**t-cal**	**t-val**	**Remark**
Extension Agents	52	45.46	5.85	267	1.40	1.90	Accept Null hypothesis
Agricultural Science. Teachers	217	44.20	5.86				
Total	269	44.44					

Table 8 Shows that the observed t-calculated is 1.40 and the critical t-value is 1.96. The observed t-calculated is less than the critical t-value, therefore the null hypothesis is retained. This shows that there is no significance difference between the response of extensions agents and teachers of agricultural science on the employability skills needed by secondary school students in oil palm production and processing.

Research Hypothesis 2

HO_2: There was no significant difference in the mean rating of the responses of oil palm nursery extension agents and teachers of agriculture on occupational skills required by secondary school graduates in oil palm nursery practices.

Table 9: ***T-test analysis of the mean rating of the responses of extension agents and teachers of agricultural science on occupational skills required by secondary school graduate in oil palm nursery practices.***

Group	N	$\overline{X}$	SD	Df	t-cal	t-val	Remark
Extension agents	52	96.70	7.95	267	1.28	1.96	Null hypothesis Accepted
Agricultural science teachers	217	94.41	8.61				
Total	269	94.85					

Table 9: shows that the observed t-calculated is 1.28 and the critical t- value is 1.96. The observed t-calculated is less than the critical t- value, therefore the null hypothesis is expected. This indicated that there was no significant difference in the mean ratings of the responses of the extension agents and the teachers of Agricultural Science on the occupation skills required by secondary school graduates in oil palm nursery practices.

Research Hypothesis 3:

HO_3: There was no significant difference in the mean rating of the responses of extension agents and teacher of agricultural science on occupational skills required by secondary schools graduate in oil palm plantation management.

Table 10*: T-test analysis of the mean ratings of the responses of the Extension Agents and the Teachers of Agricultural Science on occupational skills required by secondary school graduates in oil palm plantation management*.

Group	N	$\overline{X}$	SD	Df	t-cal	t-val	Remark
Extension agents	52	107.3	11.30	267	.59	1.96	Null Hypothesis Accepted
Agricultural science teachers	217	106.2	11.76				
Total	269	106.4					

Table 10: Indicates that observe t-calculated is .59 and the critical t-value is 1.96. The observed t-calculated is less than the critical t-value, therefore the null hypothesis is accepted or retained.

This is an indication that there is no significant difference between the responses of the extension agents and the teachers of Agricultural Science on occupational skills required by secondary school graduates in oil palm plantation management.

Research Hypothesis 4:

Ho_4: There was no significant difference in the mean rating of the responses of the Extension Agents and teacher of Agricultural Science on the occupational skills required by secondary school graduates in oil palm processing.

Table 11*: T-test analysis of the mean ratings of the responses of the Extension Agents and the Teachers of Agricultural Science on occupational skills required by secondary school graduates in oil palm processing*

Group	N	$\overline{X}$	SD	df	t-cal	t-val	Remark
Extension agents	52	26.86	4.41				
Agricultural science teachers	217	27.99	3.06	267	2.20	1.96	Null Hypothesis
Total	269	27.71					Rejected

Table 11 Shows that the observed t-calculated is 2.20 and the critical t-value is 1.96. The observed t-calculated is greater than the critical t-value, therefore the null hypothesis is rejected.

This is an indication that there is a significant difference in the mean ratings of the responses of Extension Agents and Teachers of Agricultural

Science on the occupational skills needed by secondary schools graduates in oil palm processing.

Research Hypothesis 5:

Ho_5: There was no significant difference in the mean rating of the responses of the extension agents and the teachers of Agricultural Science on occupational skills required by secondary schools graduates in palm kernel extraction and refining enterprise.

Table 12: ***T-test analysis of the mean rating of the responses of the Extension Agents and the Teachers of Agricultural Science on occupational skills required by graduates of secondary schools on oil palm kernel extraction and refining enterprise.***

Group	N	$\overline{X}$	SD	df	t-cal	t-vab	Remark
Extension agents	52	27.23	3.76				
Agricultural science teachers	217	28.03	2.86	267	-1.70	1.96	Null Hypothesis Accepted
Total	269	27.88					

Table 12 shows that the observed t-calculated is -1.70 and the critical t-value is 1.96. The observed t-calculated is less than the critical t-value, therefore the null hypothesis is retained.

This indicates that, there is no significant difference between the mean rating of the responses of the Extension Agents and the Teachers of Agricultural Science on the occupational skills required by graduates of Agricultural Science in secondary school on oil palm kernel extraction and refining enterprise.

Research Hypothesis 6:

Ho_6: There is no significant difference in the mean rating of the responses of extension agents and teachers of agricultural science on occupational skills needed by secondary schools in oil palm marketing enterprise.

Table 13: ***T-test analysis of the mean ratings of the responses of the Extension Agents and the Teachers of Agricultural Science on occupational skills required by secondary school graduates in oil palm marketing enterprise.***

Group	N	$\overline{X}$	SD	df	t-cal	t-critical	Remark
Extension agents	52	25.42	2.61				
Agricultural science teachers	217	24.77	2.61	267	1.61	1.96	Null Hypothesis Accepted
Total	269	24.90					

Table 13 shows that the observed t-calculated is 1.61 and the critical t-value is 1.96. The observed t-calculated is less than the critical t-value, therefore the null hypothesis is retained.

This is an indication that there is no significant difference between the mean rating of the Extension Agents and Agricultural Science Teachers on the occupational skill required by secondary school graduates in oil palm marketing.

Discussion of Results

The findings of this study are discussed as follows:

Table 2 presents employability skills:

From the study, it was shown that the thirteen employability skills amongst others such as simple mathematical computation, supervisory ability, creative thinking, functional negotiation and writing were appropriate as skills required by secondary school graduates for employment in oil palm production and processing enterprise in Delta State. The finding agreed with the opinions of Billing (2003) who said that employability skills are job readiness skills that help individual to fit with and remain in the work environment, that they are basic skills necessary for getting, keeping and doing well on a job.

Consequently the mean value for it requirement ranges from 3.07 to 3.67which is far above the cut-off point (2.50).

Table 3 presented an array of occupational skills required in oil palm nursery enterprise, it was observed that all the 28 items (skills) identified were appropriate and required by the secondary school graduates for proficiency in oil palm nursery enterprise. Some of these include identification and selection of well developed seeds, arrangement of polythene bags in wooden boxes, agitation of the bags to consolidate the soil and thinning to avoid weak stands.

The mean value for its requirement ranges from 3.01 to 3.86. This is in agreement with the finding of Heriansyah (2001) that oil Palm requires a

nursery stage during which good nursery management is required to ensure the production of good and healthy seedling that are uniform is size for plantation establishment.

The findings on pre-germination (pre-nursery) greed with view of Nicolas and Culbertson (2010) who said that a pre-nursery site should be designed in such a way that trees shade it, and held closed in a small area for the first two to three months with regular application of water morning and evening.

The above analysis on table 4 corroborate with the report of Chew (2000) on oil palm plantation management, who noted that fertilizer application pruning and setting wire-netting are essential for oil palm to give maximum growth and yield.

The study also identified ten occupational skills in oil palm processing enterprise required by secondary school graduates in oil palm processing enterprise. The findings on oil palm processing confirmed the opinions of Ukpabi (2004) that efficient processing technique will increase the quality and quantity of food available from oil palm. Omoti (2004) outline the processing stages in oil palm to include: Fruit fermentations, Bunch chopping, Fruit sorting, Fruit boiling or sterilization, Fruit digestion, Mash pressing and oil purification.

The findings on palm kernel oil extraction were in agreement with the views of Omoti (2004) who stated that Nigeria has enormous potential to increase production of palm kernel oil with improved processing techniques and skill. He added by outlining the following as skills from press cake cracking of the nut in a centre forgal-cracker.

Separation of the kernels from the shells using winnowing and hydro cyclones

Drying of kernels in silo

Crushing of the kernel in a crushing plant and filtering of oil

The findings on occupational skills required in oil palm marketing enterprise which includes price fixing, grading of the product and maintaining quality to avoid rancidity were in agreement with the opinion of Okoh and Akintola (2005) who posited that marketing involves a series of business activities associated with the transfer of commodities or services from the producers to the consumers towards the creation and delivery of a standard of living.

They enumerated the under listed marketing skills as very important. Ability to grade the products, transportation, financing, storage and market information.

Generally, the above analysis corroborate with World Bank report (2006) that Nigeria state of un-industrialization is heavily dependent on her in ability to come up with a competent and dedicated workforce. That skill acquisition

through functional vocational and technical education at this point stand very tail in helping the nation get out of the problem of lack of appropriate man power. Vocational agricultural education for farming especially in oil palm production becomes very critical and important because of the inherent potential of the oil palm tree. (Ahmed, 2001).

The result of the six (6) hypotheses tested showed that the t-test calculated for hypotheses 1, 2, 3 and 6 were less than the table values. These findings have led to the acceptance of the four hypotheses and this means the rejection of the alternative hypotheses. While hypotheses 4 and 5 had a t-test calculated greater than the critical value, hence these hypotheses were rejected.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary of Research

The main purpose of this study was to identify the employability and occupational skill required by secondary school graduates for employment in oil palm production and processing enterprise in Delta State. To achieve this purpose, answers were provided to the following questions.

1. What were the employability skills required by secondary school graduates for employment in oil palm industry?
2. What were the occupational skills required by secondary school graduates for employment in oil palm nursery enterprises?
3. What were the occupational skills required by secondary school graduates for employment in oil palm plantation management?
4. What were the occupational skills required by secondary school graduates for employment in oil palm processing enterprises?
5. What were the occupational skills required by secondary school graduates for employment in palm kernel oil extraction and refining?
6. What were the occupational skills required by secondary school graduates for employment in oil palm marketing enterprises?

Self administered job analysis inventory were used to gather data from the selected sample of agricultural science teachers and extension agents in Delta North and Delta South Senatorial District of Delta State.

The completed copies of the questionnaire in form of job analysis inventory were collected from the respondents by the researcher, collated and coded manually. Data gathered were analyzed using frequencies percentage, means, standard deviation, and the t-test. The hypotheses sated were tested using t-test.

Main findings

The findings of this study include the followings;

1) Thirteen (13) employability skills amongst others such as simple mathematical computation, supervisory ability, creative thinking, functional negotiation and writing were appropriate as skills required by secondary school graduates for employment into oil palm production and processing. The result also shows that there is no significant difference in the mean responses of Extension Agents and Agricultural Science Teachers to the employability skills identified.
2) Twenty-eight (28) occupational skills were identified as occupational skills required for oil palm nursery activities. Some of these include identification and selection of well developed seeds, arrangement of polythene bags in wooden boxes, agitation of the bags to consolidate the

soil and thinning to avoid weak stands. It was observed that there was no significant difference in the mean rating of Extension Agents and Agricultural Science Teachers in oil palm nursery activities.

3) Twenty-seven occupational skills in oil palm plantation management were also identified as required by secondary school graduates. These include assessment of soil fertility, application of water morning and evening, and ring mulching of the seedlings. The differences in mean responses of Extension Agents and Agricultural Science Teachers were also not significant.
4) Nine occupational skills in oil palm processing enterprise were identified as required by secondary school graduates in oil palm processing and production. These include fruit fermentations, bunch chopping, fruit sorting, fruit boiling or sterilization, fruit digestion. The result showed that there was a significant difference in the mean responses of extension agents and agricultural science teachers to the identified occupational skills in oil palm processing and production.
5) Eight occupational skills were identified in palm kernel oil extraction and refining enterprise which includes Nut cracking, heating or cooking and refining of crude palm kernel oil.
6) Eight occupational skills were identified in palm oil marketing enterprise. These include grading of the products, fixing of prices,

searching for market and evaluation of services were adjudged appropriate.

Conclusion

Base on the findings of this study, the following conclusions were reached:

1. That the study has successfully identified the employability skills required by secondary school graduates for entry into oil palm production and processing enterprise.
2. That the various occupational skills identified in oil palm nursery enterprise plantation management enterprise, oil palm processing enterprise, palm kernel extraction and refining enterprise and oil palm products marketing enterprise were required, by secondary school graduates in oil palm production and processing enterprise.

Implications of the study

Going by the need for skills in oil palm production and processing enterprise in the process of vocationalising the secondary school education, this present study has far reaching implications for students of Agricultural Science, Heads of crop and tree crop units in the government owned Ministry of Agriculture in Delta State, the Agricultural Science Teacher as well as the Extension Agents in updating existing literature and knowledge in the area of students skill development.

The findings of this study have far reaching implications on the achievement of goals of the students' skill in the secondary school programme and curriculum. This study will benefit the academics and the agricultural science teachers as well as the state extension agents in their job performance and efficiency.

Improved training of teachers and extension agents will mean improved handling of these work-skills in the field of practice. The skills identified and addressed will lead to enhanced performance of secondary school graduates in the state.

Limitations of the Study

The followings are the limitations of this study;

(1) There were psychological variables that were beyond control like attitude of respondents to questionnaire could not be predicted but the large sample size and the four point scale type of the instrument helped to control the attitude of the respondents.

(2) The perception of the private schools Agricultural Science teachers in the state was not covered, but with the large sample size of the public school Agricultural Science teachers also helps to control the situation.

(3) The responses of extension agents may be affected by their low educational qualification due to the scope of the project.

Recommendations

The following recommendations are hereby made for future implementation.

1. The student's employability and occupational skills which were required for proficiency in oil palm production and processing should be incorporated into the Agricultural Science curriculum of secondary schools.
2. Delta State Government should package the identified job task modules with relevant facilities and integrate them into the state's skill acquisition centres for training the unemployed secondary school graduates and other youths on short course basis to enable them acquire saleable skills in oil palm production and processing enterprises for employment.
3. The findings of the study should be made public to the organizers of the secondary school programmes so as to be able to know the areas of the programme that needs amendments and improvement.

Contribution to knowledge

This study has contributed to knowledge with regard to oil palm processing and production in the following ways:

(1) The study has identified thirteen employability skills required for the processing and production of oil palm such as simple mathematical computation, supervisory ability, creative thinking, functional

negotiation and writing can be incorporated into the secondary school Agricultural Science curriculum.

(2) The study has also identified eighty - two (82) occupational skills required for the production and processing of oil palm. These include fruit fermentations, bunch chopping, fruit sorting, fruit boiling or sterilization and fruit digestion which could be incorporated into the curriculum to enhance the employment of secondary school graduates.

(3) Data have been generated as employability and occupational skills that could be incorporated into the skill acquisition centres for the short term programme for secondary school graduates

Recommendation for further research

The following are recommended for further studies.

1. It is suggested that, a study on the employability and occupational skills required by graduates of Agricultural Education in the university in oil palm production and processing be carried out to compare the findings with that of the present study.
2. Identification of training needs of the management of skill acquisition centres that are expected to implement the job task modules on the various oil palm production and processing acquisition centres in Delta State be looked at.

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Appendix 1

Reliability

The formula is represented computationally as

$$r = \frac{\Sigma x y - \frac{(\Sigma x)(\Sigma y)}{N}}{\sqrt{\left(\Sigma X^2 - \frac{(\Sigma x)^2}{N}\right)\left(\Sigma y^2 - \frac{(\Sigma y)^2}{P}\right)}}$$

for the interpretation of this formular Rxy – correlation coefficient between x and y.

Σxy – sum of scores/products of deviation scores for x and y.

nsx, sy – standard deviation of x and y scores.

Making use of the above formular to compute, the two sets of scores, will produce a reliability coefficient of 0.75.

Appendix II

Population of the study

Senatorial districts	**No of L.G.A.**	**No of Sec. Sch.**	**No of Agric. Sc.**	**No of add. Extension agent**
Delta North	9	135	215	35
Delta South	8	54	161	30
Delta central	8	154	241	40
Total	**25**	**432**	**617**	**105**

Source: Post Primary Education Board, Research and Statistics Department (2007/2008).

Appendix III

Vocational Education
Department (Agric. Sc. Unit),
Delta State University,
Abraka.

Dear Respondent,

Request to Respond to a Questionnaire

I am a post graduate student in the above Department of the Delta State University, currently undertaking a research project titled; Employability and occupational skills required by graduates of secondary school in oil palm production and processing in Delta State.

The attached questionnaire schedule is to elicit the necessary information. You are please requested to respond to the items as objectively as possible. Every information supplied will be treated as confidential and will be used strictly for this research.

Thank you for your anticipated co-operation.

Yours sincerely,

Joseph Iburu Emavwoyan
PG/06/07/121732

Appendix IV

QUESTIONNAIRE
DELTA STATE UNIVERSITY, ABRAKA. DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION; AGRICULTURAL SCIENCE UNIT

Project Focus: Employability and Occupational skills in oil palm production and processing enterprise needed by secondary school graduates in Delta State. **Part One: General Information**: Please complete the information below as appropriate:

Name of establishment or School: _____

Sex: Male ( ) Female ( )

Qualifications: OND ( ) NCE ( ) HND ( ) B. Sc. ( ) B. Sc, Ed ( ) M. Ed ( ) Others ( )

Position: Extension agent [ ]

Agricultural Science Teacher [ ]

Year of Experience [ ]

Part Two **Section One**

Employability and Occupational skills in Oil Palm Production and Processing required by graduates of secondary school in Delta State.

Instruction: Please tick [√] the response option on the level at which each employability and occupational skills item is required by secondary schools graduate for employment in oil palm nursery enterprise in Delta State.The options are Highly Appropriate (HA = 4) Averagely Appropriate (AA = 3), slightly Appropriate (SA = 2) and Not Appropriate = 1)

Section One

Employability Skills

S/n	*Employability skills required*	HA	AA	SA	NA
1	Writing				
2	Simple mathematics Computation				
3	Oral Communication and listening				
4	Supervisory ability				
5	Book Keeping				
6	Managerial and problem solving ability				
7	Measurement evaluation ability				
8	Goal setting and interpersonal relation				
9	Problem solving ability and self-esteem				
10	Creative thinking				
11	Functioning negotiation and teamwork				
12	Motivation				
13	Leadership ability				

Section Two

Occupational Skills

Occupational Skills required in Oil Palm Germination Activities

s/n	*A1: Skills required in Oil Palm Germination Activities*	HA	AA	SA	NA
1	Identifying and selecting well developed seeds				
2	Soaking of seeds in cold water for 3 days with regular changing of water.				
3	Drying of seeds under shade for one to two hours				
4	Storing dried seeds in polythene bags in a cool place at room temperature				
5	Examining of seeds every two weeks to detect germination				
6	Selecting the sprouted seeds for potting				
7	Sowing of seeds in polythene bags at 15 percent moisture content				
8	Arranging the polythene-bags in wooden boxes				
9	Placing the wooden boxes in a germinator for 80 days				
	A2; Skills required in oil palm Per-nursery activities				
10	Filling of seed boxes or tray with top soil rich in humus				
11	Agitating the bags to consolidate the soil				
12	Detecting the position of the plumu				

	le and radical in the seed				
13	Sowing of the seeds in black polythene bag with plumule up and radical down				
14	Providing good shade				
15	Water regularly morning and evening				
16	Application of mulching materials like coconut husk, dried grasses, palm kernel shell or straw for mulching				
17	Any other, please specify				
	A3: Skills required in management				
18	Arrangement of the seedling in a level ground				
19	Watering of the seedling with a watering can twice daily				
20	Application of fertilizers NPK Mg. 12:12:17:2 at required rate of 14g per seedling				
21	Spray Dithane M – 45 or Captan against diseases every two weeks				
22	Regular watering				
23	Thinning of nursery to avoid weak stand or plant				
24	Selecting of disease affected ones				
25	Any other please specify				
	A4: Skills needed in marketing of seedlings				
26	Carry out market survey to identify demand for nursery seedlings				
27	Sorting and grading of the seedlings according to age and growth				
28	Fixing of price for seedling				
29	Provision of management services to the unsold seedlings				
30	Reconcile production and sales records to identify profit and loss				
31	Any other, please specify				

Section Three
Occupational Skills Needed In Oil Palm Plantation Management Enterprise

	A1 Skills needed in site selection and land preparation activities	HA	AA	SA	NA
1	Assessing soil fertility				
2	Clearing and uprooting stumps of trees				
3	Plough and harrow the land foe establishment of the site				
4	Marking of field 9m x 9m triangular				
5	Digging of holes to receive seedlings 25cm in diameter and 30cm deep				
6	Filling of the holes with manure and top soil				
7	Any other please specify_____				
	A2: Skills required for transplanting activities				
8	Dig hole big enough to accommodate ball – of – earth.				
9	Separation of top soil from sub soil				
10	Lifting poly-bags seedling for planting with care to avoid disturbing the ball of earth				
11	Tearing off of poly bags carefully to slide ball of earth into planting hole				
12	Leveling of ball of earth into planting hole				
13	Ring mulching of the seedling				
14	Watering morning and evening				
15	Any other please specify _____				
	A3: Skills required in planting oil palm in the permanent field				
16	Planting of seedlings in the plantation with poly-bags base cut open				
17	Ring mulching after planting in the hole				
18	Application of water morning and evening				
19	Setting wire netting round each seedling to prevent rodent attack.				
20	1 – 2m ring weeding at the plant				
21	Application of NPK 10:5:10 at a rate of 500g per palm				
22	Supplying where necessary				
23	Planting leguminous as cover crops between rows.				
24	Any other please specify				
	A4: Skills required for oil palm harvesting activities				
29	Printing palm fronds to expose bunch base for cutting				

30	Cutting of the bunch from the tree using cutlass or bamboo pole knife (BPK)				
31	Picking of scattered fruits				
32	Conveying palm bunches and collected fruits to collection centre.				
33	Loading and off loading of palm bunches into and out of transport containers				
34	Weighing of fresh fruits on a scale checking for quality				
35	Any other please specify_____				

Section Four

Occupational Skills required In Oil Palm Processing Enterprise

	A1:Skills required for fruit handlingand processing activities	**HA**	**AA**	**SA**	**NA**
1	Bunch chopping with axe or matchet				
2	Fruit sorting – removing fruits from spike lets				
3	Fruit boiling – to sterilize or cooking of threshed fruits				
4	Fruit digestion – to rupture oil bearing cells to allow oil pounding				
5	Mash digestion – releasing of palm oil from the digested material				
6	Oil purification – boiling mixture of oil and water to remove impurities				
7	Fibre nut separation – separating de-oiled fibre from palm-nuts				
8	Second pressing – recovering residual oil				
9	Nut drying – sun drying nuts for later cracking				
10	Any other please specify _____				

Section Five

Occupational skills required In Palm Kernel Oil Extraction Enterprise

	A1: Skills required in Palm kernel oil extraction				
1	Nut cracking – separation of kernel from the shell				
2	Separation of the cracked shells and palm kernel				
3	Drying of the kernel in silo				
4	Crushing of the kernel in a crushing plant				
5	Heating or cooking				

6	Filtering of palm kernel oil as crude palm kernel oil (CPKO)				
7	Refining of crude palm kernel oil into refined palm kernel oil (RPKO)				
8	Storing as RKPO (Refined Palm Kernel Oil)				
9	Any other please specify____				

Section Six
Occupational Skills required In Oil Palm Marketing Enterprise

	A1: Skills required in oil palm marketing activities	HA	AA	SA	NA
1	Grading of the products according to quality				
2	Fix prices for the products				
3	Searching for market for the processed products				
4	Keep purchases and sales records				
5	Keep all financial records including income and expenses				
6	Keep the inventory of the unsold products				
7	Transporting purchased products to the buyers				
8	Evaluation of services to customers				
9	Any other please specify				