ENTREPRENEURSHIP COMPETENCIES REQUIRED BY STUDENTS IN COLLEGES OF EDUCATION FOR ENTRY INTO PIG PRODUCTION ENTERPRISE IN KOGI STATE

BY

LESLIE OLUSHOLA BALOGUN

A DISSERTATION IN THE DEPARTMENT OF VOCATIONAL EDUCATION (AGRICULTURAL EDUCATION UNIT)

FACULTY OF EDUCATION

DELTA STATE UNIVERSITY
ABRAKA, NIGERIA

DECEMBER, 2015

CERTIFICATION

Leslie Olushola Balogun (Mr) a post graduate student in the Department of Vocational Education (Agricultural Science Education Unit) with Matriculation number FOE/11/12/205084 has satisfactorily met the requirements for the course work and research for the award of Degree of Masters of Education (M.Ed) Agricultural Education. We vouch for the originality of this research work, and that it has not been submitted in part or full, for any other degree or diploma of this or any other university.

Dr. J.F.O. Akpomedaye	**Prof. G.M.M. Ugbomeh**
(Head of Department)	(Supervisor)

APPROVAL

This dissertation has been approved in the Department of Vocational Education (Agricultural Science Education Unit) Delta State University, Abraka

By

Prof. G.M.M. Ugbomeh (Supervisor) Date: _____

Dr. J.F.O. Akpomedaye (Head of Department) Date: _____

DEDICATION

This dissertation is dedicated to Almighty God.

ACKNOWLEDGEMENT

The researcher is grateful to all who have influenced the success of this project work in one way or the other. The efforts of Professor G.M.M. Ugbomeh my project supervisor are highly appreciated for his attention, incisive supervision, corrections and guidance that has brought this work to this stage.

The researcher appreciates the efforts of Prof. P.E. Egbule, Prof. C.N. Ikeoji, Prof. A.C. Egun, Dr. J.F.O. Akpomedaye, Mr. V. Ideh and Mr. Omiregua S for validating my instrument; their corrections and suggestions that gave the work a focus. He appreciates the Head of Department, Dr. B.U. Imonikebe for creating the enabling environment for the presentation of the work and general suggestions and guidance.

The researcher wishes to appreciate the non-academic staff in the Department of Vocational Education for their assistance and encouragement during the time of the research. The researcher appreciates the efforts that his wife Mrs. Balogun Florence and Temitope and children Temidayo, Oluwaferanmi, Boluwatice and Oluwasemilore have put into the success of the work. The researcher is grateful to his colleagues in the Department Indakim Markson, Ekighanyubofa, Okuku Ogheneyenrhowo, Umukoro Faith and Umoeshiet Glory.

LESLIE, O.B.

CHAPTER ONE

INTRODUCTION

Background to the Study

Entrepreneurship education involves educational efforts that are aimed at providing learners with appropriate knowledge, attitudes and skills needed for engagement or participation in entrepreneurial activities in the society. Entrepreneurship has become a global trend since the last two decades. A broad range of factors have contributed to the stimulation of interest in entrepreneurship and agricultural activities in the world generally. There is now a world-wide acceptance that future prosperity centres on the creation of vibrant agricultural activities that is deeply rooted in the local economy. For this to occur there is a need to expand the pool of local entrepreneurial talent to develop and manage the live-stock production aspect of the economy. Among the goals of education enshrined in the National policy of Education of Nigeria include the acquisition of appropriate skills and development of mental, physical and social abilities and competencies as equipment for the individual to live in and contribute to the development of the society (Federal Republic of Nigeria, 2004). Entrepreneurship in itself is concerned with creativity and innovation in industry or business, self-reliance, diligence at work, job creation or employment provision for others and productivity for societal development. An entrepreneur in agriculture must be someone who has the qualities that are needed to succeed in any agricultural undertaking. College of Education students should be able to teach entrepreneurial skills to the vocational agricultural students in order to make learners proficient in agricultural productivity and entrepreneurship. Arogundade (2011) recommended that

educational programmes at all levels should be made relevant to provide the youth the needed entrepreneurial skills and that government should give adequate attention to entrepreneurial development in the country. To be able to teach such skills, the Students in the Colleges of Education themselves firstly need to possess, or should be able to effectively perform such skills. Akindugbe (2004) had earlier justified the need for entrepreneurial education for Nigerian students to enable them develop an entrepreneurial orientation and mind set as a necessary preparation for business, vocational and professional lives.

Competencies according to Maxine (1997) is the ability to do something well, while Ojukwu (2002) saw it as the knowledge, skills and behavior that enabled a person meet established performance criteria. This means that competencies are very important for success in pig production. Pig production is receiving prominence in Nigeria, particularly in the South. But pig production in Kogi State has not been given adequate attention. This is due to the religions, economic and other social factors. The Muslims do not eat pork because of religious taboos. Hence, the market demand for pig products is uncertain. Management is a very important factor in progressive and productive husbandry. Poor management results in low productivity while a good management enhances maximum output (Ngoka, 1999, Egbule and Ikeoji, 2006).

The Students in the Colleges of Education therefore need to possess certain entrepreneurial competencies so as to be successful in pig production enterprise. Adeqale, Oladego and Ogunniyi (2005) stated that in Nigeria today, there is a decline in agricultural production because there is an apparent shift of

interest from agriculture to the so –called white collar jobs by students in Colleges of Education.

According to Onu (2011), all over the world and especially among the developing nations of the world, much emphasis is now placed on making education more responsive to the needs of the people by equipping learners with competencies that would make them productive citizens. Equipping the Students in the Colleges of Education with productive competencies especially with entrepreneurial competencies is to reduce the tide of such challenges facing the youth as global financial economic crises, unemployment, job deskilling and poverty (UNESCO 2009). The same UNESCO document emphasized that young people need entrepreneurial competencies oriented anchors that will enable them to cope with the global tension, pressures, unemployment and contradictions in their daily lives. Such competencies are better acquired through vocational education programmes.

One area of vocational education which forms an important aspect of Nigerian economy is agriculture. The National Economic Empowerment and Development strategy (NEEDS) document of (2005) stated that agriculture is Nigeria's source of national wealth after oil, and remains the mainstay of Nigeria's economy. Competencies in Agriculture are provided in different aspect of the programme curriculum, viz, crop production, soil management, fishery, horticulture, and animal production to mention but a few. Entrepreneurial competencies are among the competencies expected to be acquired by Students in the Colleges of Education through their curriculum. According to Uduma (2004), entrepreneurial competencies are the ability of an

individual to exploit an idea and create an enterprise (small or big) not only for personal gain but also for social and development gains.

Entrepreneurs have a vast array of agricultural enterprises to engage in or create business out of and the spectrum ranges from agricultural productivity, agro-based/ agro-allied industries, agricultural processing, through to agri-business. (Tibi, 2004). In keeping with the pace of changing needs, Onu (2011) stated that the National Commission for College of Education is geared towards achieving the following objectives to prepare graduates with the right attitude to, and knowledge/ professional competencies in vocational agriculture; produce teachers who will be capable of motivating students to acquire interest in and aptitude for agriculture; develop in the student teachers the appropriate communication skills for effective transmission of agricultural information to the students in the context of their environment; equip the student teachers with adequate knowledge and ability to establish and manage a model farm effectively; and provide a sound background to enhance further academic and professional progression of the student teachers

The central point of agricultural education in Nigeria and other third world are the production of enough food through the induction of the Youths who are able bodied into farming, provision of livestock and its products, provision of raw materials for local industries and increase in foreign exchange (Ugbomeh, 2000; Egun, 2002). At different times and in diverse ways, the government has spent money to train teachers of agriculture and incentives given to them, so that they can acquire more competencies which will enhance their effectiveness in the teaching of agricultural science in the secondary schools. This will in turn enable the youths to employ modern techniques in

livestock production as they have been taught the needed competencies in livestock management practices (Nwaokolo, 2000).

Pig production is one of such profitable and acceptable agricultural enterprises in Kogi State, where there is paucity of livestock production. There is therefore a very urgent need to train Students in the Colleges of Education in entrepreneurship competencies in pig production. Thus, it becomes necessary to determine how much of such entrepreneurship competencies the Students in the Colleges of Education can identify as important and are capable of performing if they must successfully teach their learners to be competent in performing such competencies in pig production businesses. (Tibi, 2011). This research work is meant to determine the entrepreneurship competencies needed by Students in the Colleges of Education for entry into pig production enterprise in Kogi State.

Statement of the Problem

Persons and agencies involved in agricultural education have variously expressed concern over the poor pig production level of our agricultural industry (Tibi, 1997). This paucity in pig production is reflected in the equally low level of animal protein consumption in Nigeria. Specifically, it has been established that there is a very low level of pig production in Kogi State. This has led to an almost total dependence of the State on Northern States for supply of farm animal products. Pig is one of the few farm animals that are produced and acceptable in Kogi State. Piggery constitutes the best subject matter option available to agricultural science teachers in terms of animal husbandry component of agricultural science in Kogi State, because it is highly prolific.

The recognition that is given entrepreneurship attitudes and competencies are not sufficiently addressed by training and educational institutions in Nigeria. The curriculums offered in the Colleges of Education in Kogi State are too theoretical and not adequately linked to labour market requirements. Consequent upon this majority of Nigeria Certificate in Education (NCE) graduates can neither depend on their certificates nor distinguish themselves in their various disciplines.

Therefore, there seems to be a gap between the Colleges of Education curriculum and entrepreneurship competencies needed by the students for employment and further studies in their discipline. There is, therefore, the need for investigation into the entrepreneurship competencies needed by Students in the Colleges of Education for entry into pig production enterprise in Kogi State.

Purpose of the Study

The main purpose of this research is to determine the entrepreneurship competencies needed by students in the Colleges of Education for entry into pig production enterprise in Kogi State. The Specific objectives are to:

1. To find out the extent to which students of colleges of education possess the identified entrepreneurship competencies for entry into pig production enterprise in Kogi State.
2. To identify the self-expressed entrepreneurship competencies needed by students of Colleges of Education for entry into pig production enterprise
3. Evaluate the perceived constraints to entrepreneurship competencies development for entry into pig production enterprise.

Research Questions

This study is guided by the following research questions. These are as follows:

1. To what extent do students in Colleges of Education possess the identified entrepreneurship competencies for entry into pig production enterprise in Kogi State?
2. What were the self-expressed entrepreneurship competencies needed by students of colleges of education for entry into pig production enterprise in Kogi State.
3. What are the perceived constraints to entrepreneurship competencies development for entry into pig production enterprise?

Hypotheses

The following null-hypotheses were tested in this study at 0.05 level of significance.

Ho_1: There is no significant difference between male and female students in the Colleges of Education on the level of entrepreneurship competencies possession for entry into pig production.

Ho_2: There is no significant difference between the mean responses of male and female students in the Colleges of Education on the level of entrepreneurship competencies needed for entry into pig production.

Ho_3: There is no significant difference between the mean responses of Students in Federal and State Colleges of Education on the constraints to entrepreneurship competencies development for entry into pig production.

Significance of the Study

The result of this study would be of benefit to the society for the identification and implementation of entrepreneurship competencies would be a sure way of improving the livestock production base of the society by effectively training the Students in the Colleges of Education for the acquisition

of entrepreneurship competencies knowledge and attitude necessary for the development of pig production industry.

The entrepreneurship competencies needed by the students that would be properly identified would help educational planners and administrators in designing programmes for students who have need for entrepreneurship competencies.

The study would be of great assistance in the achievement of the national educational policy objective for agricultural education. Effectiveness in the teaching of entrepreneurship competencies would produce Colleges of Education graduates who would be proficient in pig production, thus meeting the expectations of increased animals' production. This would in turn lead to an increase level of animal protein intake in our national diet.

The result of this study would make for proper identification of entrepreneurship competencies in pig production the proper integration of these entrepreneurship competencies into a well design pre-service programmes for prospective teachers of agriculture would usher in favourable impact in terms of improvement in the entrepreneurship competencies of teachers of agricultural science.

The findings of this study would assist in filling the gap of entrepreneurship competencies needs of students for economic development and thus reduce the cases of unemployment, as students would work hard to acquire one entrepreneurship competencies or the other in pig production that would enable them to secure employment easily in the society rather than just holding the certificate.

Conclusively, the study would increase interest investing in pig production as better entrepreneurship competencies would be taught to students in the Colleges of Education who would take pig production as occupation to increase pig production.

Scope and Delimitation of the Study

The study will focus on entrepreneurship competencies needed by the Students in the Colleges of Education for entry into pig production enterprise in Kogi State. Raising piglet from day old to market seize i.e , breeding, fattening, finishers, slaughter and sales of pork . It would determine the entrepreneurship competencies, level of possession of such entrepreneurship competencies as perceived by the students, and the entrepreneurship competencies needed by the students. It would also determine constraints to entrepreneurship competencies acquisition in the Colleges of Education in Kogi State.

Meanwhile, the students here include final year students in Federal College of Education Okene, College of Education Ankpa, and College of Education (Technical) Kabba 2013-2014 academic session.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter is devoted to the review of relevant and related literature, and in doing so the review of related literature would be discussed under the following subheadings:

- Theoretical Framework
- The Nature And Emergence of entrepreneurship In Nigeria
- Entrepreneurship Competencies In Pig Production
- Management Practices In Pig Production
- Ways Of Improving Pig Production
- SIWES As A Tool For Entrepreneurship Competencies Development
- Constraints To Entrepreneurial Competencies Development
- Review Of Related Empirical Studies
- Summary Of Review Of Related Literature

Theoretical Framework

The theoretical framework used for this study was hinged on the "third-force psychology theory postulated by Maslow (1945), which maintains that the essential inner nature which individual is born is shaped by experience and unconscious thoughts and feelings. Children or young learners should be allowed to make choices that meet their own development. It can be deduced from this theory that vocational education set out to make adequate provision for all individuals, providing all interest and needs.

All learning involves change which comes as a result of experience. Repetition is usually necessary if a learned act is to be performed easily and efficiently, since it often takes several trials to smooth out clumsy actions. The

psychological principles of Maslow therefore, is relevant to the theory of Vocational Education which states that adequate repetitive training and experience in the occupation fixes the right habits of doing and thinking to the degree necessary for employment.

In support of this theory, the skill development strategy for productivity, employment and sustainable development adapted from international labour office has been found relevant (ILO, 2008). The framework is to establish the centrality of skills development to maintain both productivity and employment growth in skills development is as important in combating poverty and exclusion as it is in maintaining a competitiveness and employability (ILO, 2007). Education, training and lifelong learning foster a virtuous circle of higher productivity, more employment of better quality, income growth and development.

As depicted in the central square of frame work, skills development policies are not pursued in isolation, along with technology, labour market, macroeconomic, trade and other policies, these are an integral part of national development strategies. These strategies reflect the aspirations of societies and on the basis of labour standards and institutions make up the countries preparation for and response to global opportunities and challenges (indicated in the top box). External drivers of change, such as trade and investment, regional integration, technological advances and climatic change, offer both opportunities for growth and challenges to existing economic activities. Workforce skills, entrepreneurship and innovation, and the ability to learn and adapt, are among the critical social capabilities that influence competitiveness,

productivity growth and employment in the face of these challenges and opportunities.

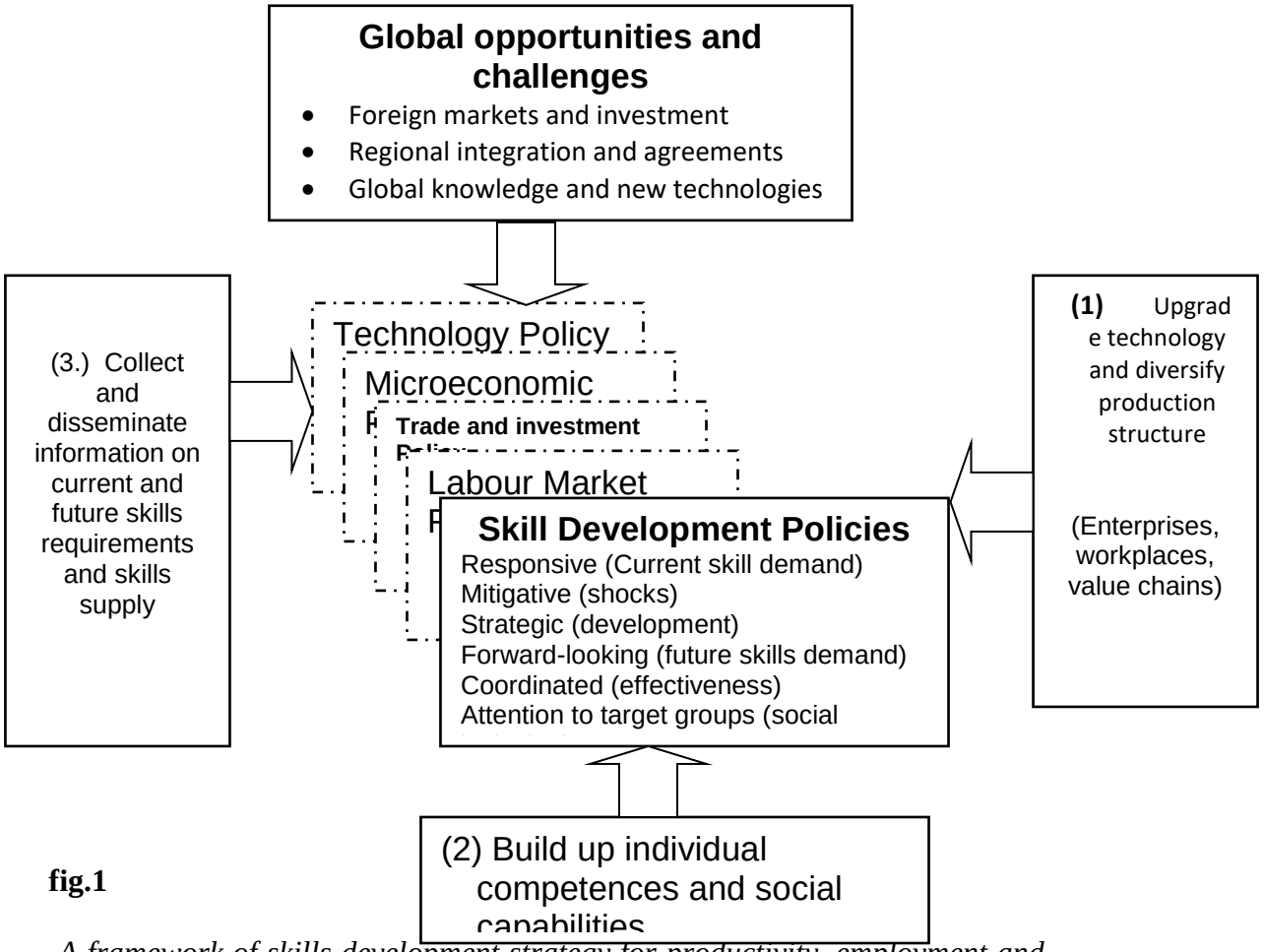

fig.1

A framework of skills development strategy for productivity, employment and sustainable development. Sources: ILO (2008)

Ifegbo (2004), in his own view noted that entrepreneurship is a process of organizing, managing and assuming risks of a business, consists of effective utilization of ideas, information and facts that help a learner acquire competencies needed for firm career commitments such as setting up businesses, marketing services or being productive employers in organizations like in agricultural enterprises. The competencies are essential in tackling unemployment and poverty challenges. The curriculum of Colleges of Education should therefore, contain entrepreneurship competencies for the acquisition of skills knowledge that would enable learners in the Colleges of

Education make use of existing resources to produce goods and services on graduation (Onu, 2011).

The issue of competencies in vocational subjects such as agricultural education as taught in the Colleges of Education is in line with the National Policy on Education (FRN, 2004), revised edition. The idea of competencies holds on the standard and recognition of qualification based on the performance needed of individuals to do their work successfully and satisfactorily. Competencies have become a major issue in our educational system in recent time following concern that a skill gap existed which was affecting the economic wellbeing of the nation.

Hager (1994), said that competencies depend upon knowledge, understanding, experience and executive ability. As a crucial distinction, it highlights factors such as intention, judgment, decision making, disposition, and habit of mind. It includes the orientation of the individual towards what he/she is doing (Black and Wolf, 1990).

Nature And Emergence Of Entrepreneurship

Entrepreneurship is the act of being an entrepreneur, which can be defined as "one who undertakes innovations, finance and business acumen in an effort to transform innovations into economic good". Entrepreneurship is the willingness and ability of an individual to seek out investment opportunities in an environment and be able to establish and run an enterprise successfully based on the identified opportunities so as to meet the ever changing needs of the society (Akpomudjere, 2012).

Entrepreneurship has assumed super importance for accelerating economic growth both in developed and developing countries. It promotes

capital formation and creates wealth in countries. It is hope and dream of millions of individuals around the world. It reduces unemployment and poverty and it is a pathway to prosperity.

Entrepreneurship is a dynamic process of vision, change, and creation. It requires an application of energy and passion towards the creation and implementation of new ideas and creative solution. Essential ingredients include the willingness to take calculated risks, in terms of fine, equity, or career the ability to formulate an effective venture team, the creative skill to marshall needed resources and fundamental skill of building solid business plan, and finally, the vision to recognize opportunity where other see chaos, contradiction, and confusion. (Afolaya, 2000).

Entrepreneurship is an integrated concept that permeates an individual's business in an innovative manner. It is the perspective that has revolutionized the way business is conducted at every level and in every country. (Akpomudjere, 2012). The return of democracy in 1999 ushered in a period of economic reforms and a renewed focus on enterprise development as the only viable means to sustainable growth. Nigerian leaders initiated a massive programme of disinvestment and financial deregulation aimed at boosting business development across the micro, small and medium enterprise (MSME) space.

According to Hisrieh and Shepherd (2009), one of the primary reasons why Nigeria struggles to keep up with the developed world despite its considerable human and natural resources is lack of progressive and holistic policies. Nowhere is this more apparent than in the case of education. However, in pursuance of the Millennium Development Goals (MDGs) and its

indigenous 2020 target, the Nigerian government has in recent years made tangible efforts to enforce Universal Basic Education (UBE) and Mass adult-literacy progammes that it hopes would allow Nigerians to compete in the business world. The focus on education, particularly on vocational training and skills development, is a conscious effort to engender entrepreneurial vigour among its substantial population of 150 million, more than half of which lives in extreme poverty. Private and international aid agencies have collaborated with extended support in this direction, the United Nations transfer of Knowledge through expatriate National scheme, for instance, Educating potential entrepreneurs and equipping them with the skills necessary for success remains a key priority.

Olise (2011) identified different importance of entrepreneurship to individuals involved in it, among which are the following; it is a means of livelihood for individuals by way of employment for the entrepreneur and his employees, it keeps individual busy, it helps in improving standard of living, entrepreneurship forms the means by which individuals get their various demand satisfied through the provision of goods and services by business, it forms a practical training ground for employee, it encourages employees to establish business thereby allowing talented and creative ones to display their talents and creative abilities to their advantages, and it helps individual to get improved goods and service as it creates competition among business.

Entrepreneurship is important to the nation in various ways as examined by Olise (2011) to include: it reduces the economic problem of unemployment in a community, state of the nation; it trains people and aids entrepreneurial development for the good of the community and nation; it helps a nation to have

improved foreign reserves and balance of payments and balance of trades, via increase in Gross Domestic Export GDP and exportation, it helps in the revamping of a nation's poor economy and to improve the good ones; it helps in the utilization of a community or a nation's resources; it aid a nation wealth building it helps to improve efficiency and effectiveness in operations; it allows a nation resources utilization, while keeping down resources wastage in a nation; entrepreneurship brings industrialization and economic development to communities and nations; and it helps support the much needed industrial production of the real sector of an economy.

Many economic importances are accruable from pig production. According to Ngoka (1997), some of such economic importance includes: higher level of biological and economic efficiency in their production, pigs have high fecundity, high early maturation rate, short gestation period, biochemistry and amino acid characteristics efficient in meeting protein requirements of the populace, productions are cheap and affordable, efficient converter of feed into carcass of high quality and quantity, wastes from pigs are of high economic importance in crop production, as they add nitrogen, phosphorus and potassium to the soil when applied as manure, pig carcass yield a high percentage of dressed meat and a high proportion of edible parts produce high litter size methane is produced from pigs dungs, shorter time is needed to build up a herd of hog compared with other farm animals, pork is a very good source of energy, the digestibility of pork is as high as 97 percent, fresh pork has 15-20 percent protein (amino acids for tissue and muscle formation), it is rich in minerals such as phosphorus and iron (P and Fe); and, it contains vitamin A in its pure form and is also rich in vitamin B.

Entrepreneurship Competencies In Pig Production

The term entrepreneurship is derived from a French word "entrepreneur" which means the one who undertakes the task of production at a gain or loss (Ankinola, 2001). In the view of Osuala (2004), entrepreneurship means the process of bringing together creative and innovative ideas and combing them with management and organizational skill in other to combine people, money and resources to meet an identified need and thereby create wealth investment opportunities, establish and run an enterprise successfully (Ojukwu, 2002).

Competencies according to Maxine (1997) are the ability to do something well. While Ojukwu (2002) saw it as the knowledge, skills and behaviours that enable a person meet established performance criteria. This means that a competency is very important for success in business. Kano (2010) remarked that competency is a criterion for success. Therefore, entrepreneurship competencies in pig production are many and varied; general, technical, managerial and marketing competencies as identified by Etonyeaku (2011). The general competencies are the fundamental abilities and Know-how that the individual has in his or her area of specialization.

In pig production, the students in Colleges of Education are expected to be acquainted with all the management practices that are relevant in handling the pig from piglet to market size. Such activities include; pre-breeding, breeding, farrowing, weaning and fattening till market weight (Ngoka, 1997; Akpobome, 1999). Furthermore, technical competencies involved technical know-how relevant to an entrepreneur area of interest in business. Having specific knowledge of job and techniques that are required to perform

organizational role is necessary. Therefore, Students in the Colleges of Education should strive to attain mastery so as to understand the secret of success in pig production enterprise. Technical competencies here includes the ability to organize the farm, take risk, critical thinking and problem solving as the problem emanates, ability to set goals, among others (Hisrich, 2002)

Similarly, managerial competencies cannot be undermined in the successful running of pig production enterprise. Management involves planning, organizing, coordinating and controlling of activities of an enterprise. Management is the process of getting things done through and with people. It is the process of achieving, organizing, communicating, controlling, staffing and motivating. Managerial competencies are highly required by all students in the Colleges of Education in their bid to manage pig production enterprise (Uzoka, 2007; and Ika, 2009).

Moreover the pig production enterprise requires marketing competencies of a successful venture. Competencies such as ability to make decision from analysis and proffer solution to marketing problems identify relevant marketing strategies, collecting and collating information about market competitors, ability to increase products and customers, have good customer relation among others (Unanka, 2007). It is therefore imperative for students in the Colleges of Education to be equipped with self sustaining capabilities especially now that the Nigerian economy is moving towards a direction where only individuals who are self-reliant can really survive. The national Policy on Education (FRN, 2004) stressed the need for acquisition of appropriate knowledge and skills necessary for securing paid employment in an establishment or be self employed.

Management Practices In Pig production

Management practices in pig production enterprise are those daily activities that are involved in handling, feeding, caring, treating and the like for the healthy living, growth, development and the general wellbeing of the animals. In the piggery industry, good management encourages the production of more piglets that are heavy and healthy at birth. There is markedly lower mortality, reduced number of runts and abnormal piglets, better milks production, and high weaning percentage (Ngoka, 1997).

The development of livestock industry in Nigeria depends largely on the improvement of environmental and genetic attributes of the animal (Akpobome, 1999). Fertility in pigs is a complex biological phenomenon which is controlled by several reproductive factors, such as age and sexual maturity. The breeding season, the number of breeding seasons, the number of eggs shed in each oestrus, number of eggs implanted and fetuses surviving at a time (Hafez, 2007). Gilts should be breed for the first time when they are 6-8 months of age and boars when they are 7-8 months of age (Wiliamson and Payne, 2008). The average gestation length of a pig is 114days. The pig has a heat period of 2-3days and heat cycle of 19-21 days.

Adikaibe (2000) reported that farrowing of pigs varies from breed to management practices adopted. He noted that at subsistence level, farrowing stood at 1-1.7 per year per sow while at semi-commercial to commercial levels, it was 1.8-2per year per sow Stein-bark (2003) observed that litter size number at birth stood at 6 local breed, 8.9 for large white and 9.2 for land race. Gilts should be selected from the best milking mothers, largest litters, larger and faster growing females without defects and well developed udder of 10-12 teats.

Boars for breeding should have rugged masculine appearance, free from defects, from large and disease-free litters and also fast growing (Goodman, 2008). In some cases, sows experience reproductive failures, a situation where production level falls below the expected norm or standard. Stein-bark (2005) gave the signs of reproductive failure as anoestrus, failure to mate, bleeding at mating, repeat breeding, abortion, fewer pigs per litter and failure of pregnant sows to farrow. Reproductive failures may be caused by genetic nutritional and managements factor. James (1998) stated that management practices in pig production include the following: Pre-breeding management; Breeding – Gestation period; Farrowing period; Farrowing to Weaning; and Weaning to market.

Signs of Heat

According to James (1998), the following are signs of heat: Restlessness, Mounting on other females and frequent attempts to urinate. Eusebio (2000) sharing the same view stated that; the sow or gilt in heat gives a characteristics grunt and/or shows restlessness. The external genetia, the vulva, begins to swell. During this phase, the female will accept the male when he attempts to mate with her. Producers must decide on the breeding system to be used, cross breeding hogs for slaughter is a recommended practice. Crossbred pigs generally grow faster and use feeds more efficiently. The sows have larger litters and are better mothers. One major way of arranging the breeding is multiple farrowing. Multiple farrowing is arranging the breeding program so that group of sows farrows at regular intervals throughout the year. Multiple farrowing usually result in higher average price received for hogs on a yearly basis. The chances of selling at better prices increased as the number of

marketing during the year increased. Select replacement gilt at 4-5 months of age. Separate gilt from finishing hogs and feed separately. deworming of sows and gilt should take place before breeding. They should also be sprayed for external parasites at this time. Boar should be purchased at least 45-60 days before use. Buy boar from healthy purebred herd that have good performance record. To prevent spread of disease, isolate boar from the rest of the herd when he is first brought to the farm. New boars should be treated for internal and external parasites. Semen test of the boar or test breed it on a few market gilt before the breeding season begins to be sure he will breed.

The age of the boar is a factor in determining the number of times the boar can mate per day or week. Mating a boar to many females in a short period of time will deplete the sperm reserve and reduce the boar's sex derive. Conception rate and litter size can be increased by using more than boar on each female. This is easier to do when using hand- mating or artificial insemination. With the improvement in technology, there is a trend toward more use of artificial insemination in commercial swine herds. Some advantages of artificial insemination include:

i. Increases ability to bring superior genetics to the herds.
ii. Makes use of semen from a superior boar to inseminate many more sows than is possible with natural mating.
iii. Reduces risk of disease transmission
iv. Makes it possible to bring new bloodlines in to the herds

Breeding – Gestation Period

Gilt should be bred when they are seven to eight months of age and weighs 113-136kg. Gilts have larger litter when they are bred during their

second heat period rather than during their first heat period. Conception rates can be increased if gilts on confinement are moved outside lots by the time they weight 79-80kg. Gilts will begin cycling heat period earlier if a boar is placed in an adjoining lot, allowing the gilt to see and smell the boar. Boars should be eight to nine months before being used in breeding program.

Allowing sows to have fence line contact with boars stimulates estrus. When using hand mating or artificial insemination, sows and gilts should be checked for standing heat at least once a day. Checking of standing heat once a day will increase the conception rate. Gilts should be bred at least twice at 12 hours intervals after standing heat is detected. Breed sows at least twice at 24 hours intervals after standing heat is observed. Breed the first on the first day of the standing heat. Breed at the above recommendation intervals would increase the conception rate. Gilt and sows should be kept separately during gestation period. Boars of the same size and age can be run together during the off-breeding season. Provide shade if the animals are on pasture. Avoid over-heating the animals and be sure that plenty water is available. Separate breeding herds from the other hogs on the farm to avoid disease problem.

Farrowing Period (care of sow and baby pigs)

Gerald (2009) highlighted the following about farrowing:

a. Facilities

- ✓ The farrowing pen should be clean, disinfected, dry and warm prior to farrowing. A period of at least 7days should be allowed after disinfecting the pen before the sow is brought into farrow.
- ✓ Baby pigs are accustomed to temperature of 33-35^{0c} (Donald and Eberhard, 1999) and since their temperature regulators are not fully functional until

after 7-10 days of age, supplemental heat should be provided. The best way to do this is with an infrared heat lamp. Temperature at pig level under the lamp should be 33-35^{0c} and can be reduced by approximately 1^{0c} per day down to 21^{0c}. The house temperature should preferably be 21-23^{0c}. Excessive temperature and lack of oxygen, as indicated by painting, should be prevented with good ventilation and sprinklers. Breeding such as shavings, sour grass, and sand should be maintained dry, fine and not abrasive. If piglets' knees are skinned up, then protection is needed by antibiotic spray.

b. Piglets

It is estimated that at least 25 percent of the live pigs farrowed never reach market and that another 10 percent are born dead (Gerald, 2009) due to problems during farrowing. This mortality can be greatly reduced simply by having someone present at the farrowing to perform the following:

i. Place a non slippery rubber mat (e.g. car floor mat) under the rear of the sow to give the new born baby piglets a more stable surface so as to prevent leg, feet and/or spraddle leg problems.

ii. Immediately the piglets are farrowed help those that show difficulty in breaking the placenta. Clean and dry each piglet with clean rags and paper, towel and place it under heat lamp. Once the piglets are warm, place each on a breast to ensure colostrums consumption within 30 minutes of farrowing.

iii. Clip the piglets needle teeth and cut the navel cord leaving about 2.5-3.75cm (1-1.5in.), which should be deepened in a 7 percent iodine solution.

iv. Once farrowing is completed, make certain all piglets are nursing. If there are too many piglets for the number of functional teats then transfer the extra piglets to another sow, after the extra have received colostrums. The latest transfer should be done in 3-4 days of age without masking odours.

c. The Sow

i. On the day of farrowing the sow should have no feed, but she should have plenty of fresh clean water.

ii. If the sow shows sign of mastitis, metritis, and agalactia (MMA) such as virginal discharge, a fever above 39^{0c}, milking problems or fails to pass the placenta within 3-4 hours, call your veterinarian. Treat the sow with combiotic (penicillin- dihydrostreptomycin or other appropriate antibiotic plus oxytocin).

iii. The length of time required to farrow should be recorded. If a sow required more than 3-4 hours during farrowing, she should be considered for culling, as this sow will produce more stillbirth than sows that farrows in less than 4hours.

Day after Farrowing

a. The Sow

Begin feeding the sow 0.0-1.8kg of nursing sow ration and increase the level 0.9-1.8kg per day until the desired level 3.6-5.5kg is reached within 7days (David, 1991). The sow should be checked if signs of MMA are evident. Treat as previously recommended.

b. Piglets

Check each piglet for sign of injury, piglets' 2-3days of age:

i. Treat baby pigs for anaemia 1.5-2ml injectable iron (myofer) or with iron solution or paste.

ii. Partition in farrowing pen/crates may be removed to allow two litters to run together.

iii. For reduction of bacteria scours, inject each piglet with Tylan 50 or other appropriate broad spectrum antibiotic. If your farm has a history of Mycoplasma pneumonia or staph problems then treat with lincomix for 3 consecutive days, if bacteria scours are evident, consult your veterinarian.

iv. If the piglets are not receiving adequate nourishment from the sow, transfer some of the piglets to another sow and give 0.5kg for each additional piglet (Church, 2008).

v. If there is no other nursing sow to transfer the piglet to then the piglets should be bottle-fed using cow's milk, sweetened with glucose. Soft drink or beer bottles and infant bottle nipple are suitable for feeding the piglets.

vi. Fresh milk should be provided every 2 hours for the first week, every 4 hours in weeks 2 and 3 and every 6 hours in weeks 4 through 8 weeks.

vii. Creep feed should be made available 7days of age. The creep should be changed daily so that it does not become stale and unpalatable.

viii. Castration should be done between 2-3 days and 2 weeks of age at the latest to minimize stress on the piglets. To prevent infection, treat with aureo spray blue lotion, cooper's wound spray or an antibiotic power (BNT).

Piglets 7-10 days of age:

- Seven days after farrowing, sow should be receiving desired level of feed 3.6-4.5kg and the piglets should be contented. If the piglets seem to never get full, the sow may not be producing sufficient milk and she may need more feed. A general rule to thumb to follow is to feed 1.8 to the sow plus 0.8kg for each piglet in the litter.
- Start feed piglet pre-starter by placing a small handful twice each day near the heat lamp.

Piglets 14-16 Days of Age:

- Treat the piglets with injectable iron or with iron paste (optional if diet or sod available).
- The sow and her litter can now be removed from the farrowing pen/crates and placed in the nursery.
- When the litters are mixed in a nursery (to minimize fighting and disease problems) the litter should not be more than one week different in age, do not mix more than 4 litters per pen.

Piglets 21-35 Days of Age

- Piglets should be dewormed with tramisol, panacur, ivomec, or water soluble tramisol. Then the sow should be dewormed at the same time. Repeat again at 30-50 days intervals.
- It is important to know that the piglet's antibodies are derived from colostrums and that these antibodies are depleted 2-3 weeks of age. Since the young pigs cannot produce adequate numbers of antibodies until they are 5-6 weeks of age, changes, which will stress the piglets, should be avoided during 3-4 weeks of age.

Piglets 42-50 Days of Age

- Pigs should be weaned according to the facilities, labour capabilities, and objectives of the operation.
- Prior to weaning, feed the sow according to phase IV below in sow programme and remove the sow from the piglets at least 3days prior to the time they are to be moved from the nursery. Do not move the piglets from the sow.
- The first 2-3 kg of feed should be pre-starter feed medicated with one of the broad-spectrum antibiotics (e.g. aureomycin). Gradually switch to the starter from the pre-starter feed by mixing the pre-starter and starter half and half and feed over a 3-day period. On the fourth day, the piglets should be fed only starter feed.
- If swine dysentery and/or mycoplasma pneumonia is a problem, then repeat the lincomix or tylan injection.
- Prior to moving the young pigs from the nursery at about 7-8 weeks of age, spray them for lice and mange mites.

Phase IV (Weaning)

Three days before weaning, reduce the sows' feed 0.9-1.4kg per day so that she is consuming 1.4kg on the day the pigs are weaned. Maintain the sow on this level for 3days. On the day of weaning, switch the sow to a dry sow ration and 2days after weaning begin increasing her feed by 0.7-0.9kg per day, continue increasing her feed until the sow is consuming 2.7- 3.1kg per day. This will bring the sow into heat 4-7 days after weaning.

Source: Caribbean Agricultural Research and Development Institute Manual (2001).

Piglets 51 - 58 days of age: Deworm piglets as recommended previously 30days after the first deworming, if re-infestation re-occurs then deworm at 30-50days intervals.

Weaning to the Market: From weaning to market, most management centers on feeding and facilities; during this stage hogs are usually raised on confinement or on pasture. Confinement requires more capital investment but hogs gain a litter faster under confinement conditions. In confinement fogging systems are often used to cool hogs.

Good pasture can reduce the need for protein supplement in the ration, placing a nose ring in the snout of hogs that are on pasture helps to keep them from rooting in the sod. Care must be taken when placing the nose-ring to prevent injury to the bone structure of the nose. Hogs can be kept from getting too hot on the pasture if shade is grouped for them. Hogs should be grouped in uniform size lots by weight. Groups should not be large than 50-75 head. Weight range should not be more than 20 percent above or below the average weight group. Hogs should be marketed at 90.7-108.9kg.

Feeding systems: "Limited feeding and full feeding are the two methods of feeding pigs from weaning to market" (Gerald, 2009). Limited or restricted feeding should not be practiced until the pig weighs approximately 55kg. Limited feeding at a level of 80-90 percent of full feed usually improves feed efficiency about 7percent, but reduces average daily gain 10-12 percent. Limited feeding takes between 7 and 14days longer to get pigs to market weight: However, carcasses grade better as they have less back fat and a higher percentage of lean cuts.

Table 1: A Limit Feeding programmed for market pigs

Type	Ration to feed	When to feed	How to feed	Quantity of feed consumed in this period
Weaner pigs	18% pig starter	From 14kg for 12 weeks or until weaners reached 30kg.	Twice daily or self feed	34kg
Grower pigs	16% pig grower	From 30kg-55kg, from 55kg to market weight	Twice daily or self feed restricted feed to 2.3kg per day feed half in morning and evening	136kg

Total Feed Consumed 260kg. **Source:** Caribbean Agricultural Research and Development Institute Manual (2001)

Table 2: A "Full Feeding" Programme for market pigs

Type	Ration to feed	When to feed	How to feed	Quantity of feed consumed in this period
Weaner pigs	18% pig starter	From 14kg for 12 weeks or until weaners reach 30kg	Twice daily or self-feed	34kg
Grow pigs	15%pig grower	From 30kg 55kg	Twice daily or self-feed	90kg
Grower pigs	14% pig finisher	From 55kg to market weight	Twice daily or self-feed	163kg

Total Feed consumed = 287kg.

Source: Caribbean Agricultural Research and |Development Manual (2001)

Ration formulation for different classes of pig

In order to reduce the cost of production, feeds are compounded, using locally available materials. Palm kernels, wheat offal, Soya beans, Maize, vitamins, Oyster shell and mineral premixes, etc.

Preparation of the Ration

The soya bean is first roasted and spread on the floor to cool, the roasting is to reduce the prussic acid content of the soya beans. The palm kernels are crushed with a grinding machine. Maize grains are coarsely crushed

mechanically with a grinding machine with soya beans. These feed materials are then hand mixed with shovel or mixer.

Table 3: Water Requirement of pigs

Type of pig	Water Requirement for each Kilb of Feed/in Litre
Fattening pigs	2.5
Lactating sow	5
Dry sow	3
Piglets	Water always available

Source: Solon (1999)

Housing and Equipment

Good housing is essential for protection of pigs from bad weather, predators and intruders (Bill, 1999). A good pig house should: provide adequate protection from weather, predators, have sufficient space for the animals and workers and also for storage of feed, water and equipment; be properly lighted and well ventilated; be durable but not very expensive since the cost of housing and equipment will be charged to proceeds of the enterprise; and make for easy cleaning and sanitation, i.e. the house should have been a ready source of water and the land must be well drained. In pig production, the following housing units are needed; breeding and gestation unit, farrowing unit and growing-finishing unit.

Breeding Unit

Breeding unit for a typical boar is divided into two, i.e. sleeping and exercise yard. The excise area should measure 4m x3m and the sleeping area should not be less than 2m x3m (Bill, 1999).

The Farrowing Unit

Each farrowing unit should contain 8-10 farrowing pens or stalls, each pen should measure about 1.52m x2.4m. A closed type of building with walls

that are 2.5 to 3m high and with windows on the eastern and western sides is recommended, so that the windows can be open and closed at night or on cold days. Each farrowing pen should be equipped with farrowing rails placed 0.2mm from the ground and 0.2m from the walls and there should be 1.5m to $2m^2$ creep area equipped with heat lamps.

Growing-Finishing Unit

Growing finishing pigs are mostly raised on concrete or slated floor pens. The hot environmental temperature in the tropics calls for an open type of housing. The thatched or corrugated iron roofs are 2.4 to 3m high at the highest point and about 1.8-2m at the eaves. Concrete floors should not be too smooth and should slope 3-4cm m^{-1} to the drainage gutters in the alley. Pens should be 2.4 to 3m wide and not longer than 9.2m.

Diseases and their control

The key to maintain a healthy herd is good management. This has to be supported by knowledge of the way diseases are transmitted and conditions following their outbreak and spread (Akpobome, 1999). Williamson and Payne (2008) opined that profitable animal production demands efficient husbandry of healthy animals, as disease remains a profit limiting factor in most tropical countries. They noted that one of the major problems confronting pig producers in the tropics, especially in humid regions, is high mortality rate experienced. In subsistence management system, mortality stood at 22%, in semi-commercial 10% whereas 8% was for commercial. Adikaibe, (1990) observed that piglet mortality for large white was 21.4% and 22.2% for landrace.

According to Uzoukwu (1996), major problem of pig production efficiency was diseases and pests. He observed that pigs had a bad reputation

right from the time of Jesus, when Jesus cast out demons from the demonic, the pig was considered the only suitable animal to harbor demons. Since then pigs have been known to carry a disproportionate amount of diseases. Animal health condition depends on the capability of the animal to resist the infection pressure of micro-organism in the environment of pig Health problems are costly to the farmer by the way of reproductive problems, poor baby pig survival , stunting and death.

Poor environment conditions are often associated with respiratory diseases in pigs. Lynch (2009) confirmed that high level of air-borne gases, and dust, reduced ability of the macrophages in the lungs to kill bacteria and hence render the animal more susceptible to infection. He noted that when pigs are exposed to 50ppm of ammonia, growth rate was reduced by 12%. This level also aggravated nasal turbinate shrinkage (atrophic rhinitis) in young pigs infected with Bordetella brouchiseptica.

Pond and Maner (2004) reported that mixing with strange animals, crowding, humidity, light and ventilation affects the performance of pigs. Devandra and Fuller (2009) noted that sound nutrition, good housing, skilled husbandry, proper sanitation and good vaccination schedule can be used to avoid much anxiety over the possible consequence of diseases or death in the farm symptoms of diseases in pig include, poor disposition, loss of appetite, respiratory disorder, high temperature and scouring.

Diseases of pigs which are of economic importance include hog cholera, enteritis, brucellosis, atrophic rhinitis, swine crysinpelas and mastitis. External parasites include screw worms, Intestinal threat-worm, whipworm kidney worm, long worms, cocridia and trypanosomiasis.

Pig production systems

Jean (1992) identifies three systems of raising pig as following:

1.) Intensive system

2.) Semi-intensive system

3.) Extensive system

Intensive system

All pigs should be raised on concrete floor or on some other forms of flooring such as one made of slates that can be cleaned daily. This should ensure that internal parasites can be adequately controlled and that labour costs are reduced to a minimum. Concrete floors should not be too smooth or the pigs may skid on them, nor should they be too rough. Litter may or may not be used according to the circumstances. If slated floor is favoured, the slates may extend over the dung passage or covered the entire area of the pen. One of the most suitable and cheapest pen is one that is half covered by a roof so that the pig can be sheltered if necessary. The roof should be 2.4-3m at the highest point and 1.8-2.1m in height at the eaves. It can be made of thatch or a conventional material such as galvanized iron. A layer of thatch (5cm) attached by netting wire beneath a galvanized iron roof will improve the micro climate of the pen. Alternatively the galvanized iron can be painted black on the underside with aluminum paint on the top side, or aluminum roofing material can be used that is painted black on the underside. The pen can be constructed of any suitable material. But perforated are superior to solid material wall. Due consideration must be given to both free circulation of the air and provision of shelter from cold, driving rain.

Intensive pig production may be small scale (5 sow herd or up to 100 stock/year), Medium scale (10 sow herd or up to 200 stock/year) or large scale (greater than 200 stock year) in most developing countries. A survey of 136 commercial pig farms in Nigeria in 1980 showed that 69% were small scale, while only 200ft, and was large scale. This system of pig farming can be combined with fish farming and vegetable production. Such an operation enhances efficiency of resource use to increase output. Fish ponds can be fertilized with pig manure, generating algal growth which can then be utilized by fish. Pig houses can be constructed above the ponds so that the manure can drop straight into the fish ponds. Tilapia species of fish are most commonly used often mixed with small population of carp and cat fish. Pig manure can be used as organic manure to enrich soil for vegetable gardening. While residues from vegetable products are in turn fed to pigs. A simple and very flexible system for the smaller farm is a series of pens that can be adapted for farrowing, fattening or breeding stock according to the dictate of the farm policy.

Semi-intensive system

There are many varieties of semi-intensive system. This system can only be practiced in those regions of the tropics where the kidney worm and other internal parasites can be adequately controlled. Usually breeding pigs are raised outside on grass and fattening pigs are raised intensively in buildings. The most common system is to allow the gilts and the in-pig sows to graze with or without the boars. They must be rotationally grazed around a series of paddocks. These should be located on well-drained soils, low-lying marshy areas being fenced off, provided with adequate shade and a water supply and be well fenced, preferably with pig netting. Mud wallows inevitably become centres of parasite

infection and if used, they should be frequently cleaned and dried out in the sun. Sows that root should be nose-ringed.

Sows with litters housed in portable sheds, can also be rotated across grazing. The shed can be fenced with portable mesh or an electric fence or alternatively, the sow can be tethered. This system is labour intensive as feed and water have to be carried to the pigs, but in regions free of the kidney worm the young pigs are usually very healthy.

Breeding pigs or fatteners can run in semi-covered yards, fresh litter being thrown into the yard daily. This is a form of deep litter management (Ray, 2002).

Extensive system

All pigs can be put out on grazing or in a semi-covered yard. Rotation is essential on grazing and labour costs are high. It is doubtful whether this is a very suitable managerial method in the tropics. One reason is that it needs more supervision and skilled labour than intensive methods, and both are in short supply in most tropical countries. Another reason is the possible infestation with kidney worm.

Factors militating against Pig production

Eusebio (2000) stated the disadvantages of pig raising as follows:

Pork is not internationally accepted food

Consumption of pork is forbidden by certain religions and pig production is not encouraged in Muslim countries in tropical Africa and Asia, whereas, milk or poultry products are generally acceptable.

Suburban pollution

As a result of pigs having single stomach and require only a small space, they are usually raised on a backyard scale in suburban communities where kitchen left-over's plentiful. As a consequence, the surroundings of these communities may swarm with flies, which could cause excessive pollution. To minimize the problem, pig manure and other waste can be utilized in the production of methane as practice in Taiwan, Philippines and other countries.

Susceptibility to parasites and diseases

In many underdeveloped countries in the tropics, there are still a number of pig producers who raised pigs in a traditional scavenging system. Scavenger pigs are not only susceptible to parasites and diseases but they are also carrier of diseases e.g. swine cholera and plague. In humid tropical countries the climate environment encourages the development and spread of parasites and diseases throughout the year. In temperate countries, seasonal climatic changes reduce the overall incidence of parasites and diseases.

Competition with people for food grains

Increases in the price of cereals during the last decade in some countries may have been partly due to an increase in number of large-scale commercial pig farms. Pigs are more efficient converters of maize or sorghum into edible meat more than ruminants. In some countries, large scale pig producers taking advantage of this have used large quantities of grain, particularly as there is a fast turnover of capital invested in pig production. As a result maize and other grains are sometimes hoarded because they command better prices as pig feeds than as human food. However, Obioha (1997) states that prejudice, weather condition, tradition and popularity are other factors influencing its consumption and production.

Common reproductive problems

James (1998) stated that Mycotoxins in feeds can cause swelling of vulva that is not associated with estrus. Feeds should be examined for the presence of mycotoxins. Contaminated feeds should not be fed to breeding herd.

There are number of causes of higher abortion rates among these are diseases including brucellosis, leptospirosis, Pseudorabies, porcine parvovirus or any other disease that causes a fever in sows that causes of abortion includes mycotoxins high level of carbon monoxide from unvented heaters and environmental stress.

A higher rate of still births may be caused by several factors. Larger litters normally produce more still birth: older sows have more still births. Over-weight sows or gilts. High temperature above 21-24^{o}C in the farrowing house or carbon monoxide toxicity can also increase the rate of still birth in the herd. Leptospirosis, eperythrozoonosis or porcine parvovirus are also a higher rate of still births. Reducing the average age of the sow herd, good nutrition during gestation, keeping sows cool in farrowing house, vaccination and good disease control can help to reduce the incidence of still births in sow breeding herd.

Nutritional Health Problems

Anaemia: Anemia is a condition caused by a lack of iron in the diet. It affects mainly baby pigs when sows milk does not have enough iron for the needs of the nursing pigs. Symptoms appear in pigs from one to two weeks of age. Signs of anemia are poor growth, roughened hair coat and difficult breathing. Sudden death of apparently health pigs is also a symptom.

Hypoglycemia: hypoglycemia is a condition caused by a lack of sugar in the diet. It has a high death rate symptoms include shivering, weakness, unsteady

gait, dullness and loss of appetite. The hair coat becomes rough. Diarrhea may be developed in some pigs. Death occurs within a day and a half after the symptoms appear.

Parakeratosis: Parakeratosis is caused by a lack of zinc in the diet. High calcium content of the diet increases the need for zinc. The disease affects older hogs more frequently than younger ones. Symptoms include rough, scaly skin, and slower than normal growth. The condition has the appearance of mange.

Poisoning: Moldy feed is a common source of poisoning in hogs. Pitch, lead mercury pesticides, some plants, salt and blue algae are other possible causes of poisoning.

Rickets: Rickets is caused by lack of calcium, phosphorus or vitamin D in the diet. An improper ration of calcium to phosphorus in the diet may also cause rickets. Symptoms include slower than normal growth and crooked legs. Control and treatment is accomplished by providing proper amount of calcium and phosphorus in the correct ratio. Supply of vitamin D in the diet or be sure that the pigs are exposed to the sunlight.

Health problems:

Frank (2002) identified the following as infection diseases in sows:

Lameness: We have noticed a particular problem of lameness occurring in the weaning to service period. Bulling by dominant individuals, especially close to the feeders, has been very apparent. This extra interaction within the group tends to bring more sows into oestrus, which leads to riding by other sows. This contributes to the leg problems, which can multiply when sows are chased by dominant individuals and then sleep on wet dung-covered concrete.

Coccidiosis: This is a parasitic disease of the intestinal tract of animals caused by coccidian protozoa. The disease spreads from one animal to another by contact with infected feces or ingestion of infected tissue. With sows being housed in a strawed accommodation, there is now almost constant re-infection of the herd as the sow forage through the bedding. During the summer months there is usually a marked increased in the condition commonly seen as a scouring among suckling piglets from ten days of age. Having been infected by oocysts shed in the sow's faeces, the piglets tend to show a loss of thrift, their growth rates stall and they become hairy and lose condition. This means they take longer to reach a satisfactory weaning weight but few losses tend to occur.

Worms: With straw housing systems, the worm eggs remain in close proximity to the sows and are easily picked up as they root through their bedding. Therefore, even worm free sows entry the group will soon become infested with worms and even with regular, routine worming, the problem will quickly return as the sows become re-infected.

Lice and Mange: This is an ecto-parasite that caused skin infections on body of pigs. In a strawed housing if mange occurs in only a few sows, it could soon spread through the herd as the housing conditions are highly suited to the transfer of the mites and lice from sow to sows.

Swine Dysentery: Another disease that is difficult to control in a straw yard is swine dysentery, but all enteric disease can easily spread in such housing. Sows tend to harbor swine dysentery and then pass this on to their progeny in the farrowing house. If the disease is a problem within the herd, it may be necessary to implement a regular routine treatment programme to control the disease in growing/finishing section.

Ways of Improving Pig Production

Kirkwood (2003) stated that pig production can be improved by improving fertility of weaned sow. He covered the use of nutrition, PG600, Regumate, spilit weaning and skip a – heat as tools to synchronize a short weaning-to-estrus interval while maintain or improving farrowing rate and subsequent litter size. The emphasized the fertility of primiparous (First litter) sows: However, his recommendations are applicable to other parities. Primiparous sows are single out because, in many cases, these sows experience the following:

- A longer weaning-to-estrus interval and a decrease in second parity litter size,
- A greater impact of summer heat or short lactations on weaning-to-estrous interval and second parity size.

The quality and quantity consumed of the lactation diet are vital to fertility. Roy (2002) shows that data from pig CHAMP database that indicated the overall average intake of primiparous sows during lactation was 4.5kg per day. This figure is much lower than the six to eight kg per day, recommended and can have a major impact on re-breeding. He stressed that the composition of the lactation diet is as important as the quantity consumed. “Sows do not require a percentage of lysine in their diet; sow requires a certain number of grams of lysine in their diet. Percentages will not meet the sow’s requirements when intake varies” He also pointed out that nutrients must be correctly proportioned relative to one another. When sufficient intake of balance diet has been established and a breeding problem still exists, it may be necessary to use

intervention strategy, intervention strategies can only be used where they are cost effective and specific problem has been identified.

Reducing piglet mortality:

Proverb (2009) stated that estimates indicated that 35percent of all piglets born alive die before weaning and that another 10-12 percent are born dead. Many of these losses can be minimized simply by having someone present at farrowing, and others can be saved if the causes are identified. The following information is extracted from anillinois study in Smith (1999) and may be helpful in reducing pig mortality.

Causes of Death	**Percentages**
Crusting	30
Starvation	20
Born weak	15
Diarrhea	10
Chilling	5
Others	20

Relationship between birth weight and survival

The following figures dramatically correlate birth weight and survival as presented by (Minnetonka, 2001).

Weight range	**Survival %**
Under 0.9kg	45
0.9-1.1kg	68
1.1-1.3kg	75
1.3-1.5kg	82

1.5-1.8kg	86
1.8kg and above	88

Source: Anon feedstuffs Vol. 48:7 in Minnetonka, (2001)

Not only do piglets with a heavier birth weight survive better, but the heavier the survivor, the better the ultimate performance. For this reason, feed is gradually increased in the last trimester or gestation (76 days after breeding) since this is the period in which 75 percent of the litter weight is attained.

Role of Iron for Piglets

- ✓ it prevents anaemia in piglets
- ✓ it quicken the blood clothing
- ✓ it reduces the rate of mortality
- ✓ it is a source of minerals
- ✓ it increases the milk production in sow

The use of Artificial Insemination (AI)

Artificial insemination is the introduction of semen from the boar to the virginal of the sow or gilt by the farmer. This is done without allowing the boar to mate with the sow. Serres (1992) stated that this can be achieved in different ways:

1.) Sperm is collected, diluted and divided up in an artificial insemination centre (AIC). Following Instructions from the farmer, doses of the semen are transported to the piggery and introduced by an inseminator. Otherwise, following instruction from a farmer or in response to a request prior to this, doses are sent to the farm and introduced by the farmer.

2.) Sperm is collected by the farmer from one of the farm boars. The farmer proceeds to dilute and divide up the semen himself as well as inseminating the sows.

Advantages of artificial insemination include:

1.) Economic: Whether semen is provided by AICs or by farmers. Artificial insemination reduces costs associated with the purchase of boars if batch for farrowing programmes are adopted.

2.) Health: The need for boars that may carry disease organisms is reduced or removed.

3.) Genetic: this is the major advantage as boars from AICs are of both higher genetic potential and greater variety which will be difficult to find on individual farms.

Castration: Castration is the removal of the testicles of the pig Arilewola (1998) said it serve the following advantages:

i. It is useful to control breeding.

ii. It makes the animal easier to handle.

iii. It leads to effective feed utilization pigs

iv. Carcass in castrated pigs tends to be higher in fat content than those of boars.

v. It has higher producer prices and more beneficial to the consumers.

Breeding systems

Breeding systems are those methods of breeding animals (so that the offspring possess the desired characteristics) used by breeders. The terms crossbreeding, out breeding and inbreeding are commonly used by breeders for

the systems of mating their livestock. The system of mating is particularly important in pig improvement since the use of correct system can greatly increase production (Eusebio, 2000).

Out-breeding: In out-breeding the mating is brought about by pairing pigs that possess unlike or dissimilar ancestries or pedigree. Out-breeding tends to produce litters with greater vigour and productivity.

Cross-breeding: the expression of hybrid vigour of individual pigs that possess different groupings of the various pair of unlike genes is increased to a maximum by cross-breeding. Some of the genes which influence vigour may exist in homozygous form or in pairs of the same genes, cross-breeding results in heterozygous individuals in which most pairs of genes contain one of the dominant genes that influence vigour.

Inbreeding: If the system of mating is brought about by pairing related individuals or those with a similar pedigree. In this system the similarity of the animals' within the group is increased. If strict selection is practised, inbreeding may be useful for the purpose of eliminating defects. It brings out the desired character in a pure form and this character may then be retained. Many improvements achieved in pig production during the past years have resulted from improved breeding and the use of productive breeds in upgrading, pure-breeding and out crossing and to the practice of strict selection.

Breeds of pigs

Domestic pigs differ from wild ancestors and even among themselves with regard to general conformation, colour size, disposition and other characteristics. Breeds of pigs have been developed to meet certain geographical

conditions and to satisfy partial economic values. Basically, pigs can be classified as lard, bacon or pork (Williamson and Payne, 2008).

In Nigeria there are few indigenous pigs. The predominant ones have evolved largely by adaptation to tropical environment. It has been observed that many countries with humid tropical environment have imported exotic breeds to improve the native pig and no doubt, considerable improvement has been made by grading up to such an extent that perhaps the native pigs are no longer the typical indigenous pigs of many years ago. In some cases, Importation of exotic breeds and cross-breeding with them to increase production has resulted in the loss of valuable traits in the indigenous stock as for example, infertility, prolificacy and mothering ability (Devendra and Fuller, 2009).

Upgrading native pigs with high productive exotic breeds usually result in heavier weaners and grow faster growth fattening stock when compared to their native parents. Local breeds of pigs are preferred to exotic ones because they are relatively cheap and abundantly available to the farmer. They have small size and litters which are suitable for small-scale and extensive type of pig rearing. The indigenous breeds are tolerant to local conditions of climate and diseases.

Some indigenous breeds found in the tropics include: Ashanti (Ghana), Bakosi (Cameeroon), Iberia (Congo), Jalajala (Philippines), Hawai (China), Cuina and Cardo (Mexico), Bantu (South Africa), Canto (Malaysia), Plau (Brazil), Balimese (indonesia) and Kwai (Thailand) (Devendra and fuller, 2009), these breeds are small, black, brown, white or pied in color. However, there is no reliable report on indigenous pigs of East central and South Africa.

It was reported that all domestic pigs of the east, central and South Africa have originated from imported stock.

Pigs in tropical areas are prolific, their sows are good mothers, and they grow slowly and are poor converter of feed. In Nigeria the predominant exotic breeds include the large white and landrace.

Large White: Its ancestors can be traced to the large white pigs of heavy bone and great length and a skin that had dark pigmented spot (Eusebio, 2000). Large white sows are prolific giving large sized litters. The breed is widely distributed in Africa and is used extensively for cross breeding. For instance, the large white crossbreed with landrace female is the most popular cross for commercial production.

Landrace: it originated by crossing of large white boars with native pigs. After years of breeding and selection by pig progeny testing stations, the landrace is characterized by a solid white colour, which is sometimes freckled and about f16 or 17 pairs of ribs. The landrace has a higher level of susceptibility to stress than some other breeds. It is highly favoured for cross breeding purposes.

Hampshire: Hampshire pigs are black with white belt around the forequarter of the body. Other features of Hampshire are a long, straight face and erect ears. At maturity, breed is medium sized. Hampshire is prolific and good nursing mothers. Feed conversion of this breed has been found to be superior under test-station condition. They are excellent for use in final cross-breeding, especially where carcass leanness is important.

Duroc: Durocs are characterized by solid colours that range from a very light godent to a dark red that approaches the colour of mahogany. The duroc excels all other breeds in muscle quality and probably has the lowest incidence of stress

mortality. It has mothering ability and litter size is moderate. The desirable characteristics of the Duroc include ability to adapt to varied conditions in the environment, sturdiness and the ability to thrive well even on plain kitchen refuse. The breeds' efficiency in converting feed consumed into life weight has been responsible for its increasing popularity among pig farmers in the tropics.

Berkshire: The breed is easily identified by its black coat and characteristic white feet and nose. It is a smaller, early-maturing pig which was first developed in England for the pork trade. In the tropics, it has proved very hardy and cross well with the indigenous stock. However, the Berkshire breed is on the decline on a worldwide basis which may be due to its carcass that is relatively fatty.

Agricultural Extension Methods of Enhancing performance of Pig Farmers

Teaching is the imparting of information and extension teaching guides the learning process so that the farmers learn more and better. Extension teaching methods are devices, which facilitate learning by farmers so that they become interested in, learn about, develop skills in, and make use of new agricultural technology (Youdeowei, Ezediftrna; Ochapa 2008). Some methods used in extension teaching are given below:

Mass method

The mass method includes those methods which use audio-visual approach, e.g. television and films, those that are primarily audio e.g. radio and those that use print media and rely primarily on literary skills.

The Radio: the radio is perhaps the most powerful means of education and entertainment in the tropics especially in Africa. Its use for news and entertainment restricts its educational use but radio continues to be a valuable extension teaching method. The extension worker needs expertise in radio but

not in broadcasting. Agricultural news items for radio should be short, precise, and clear to fit the available time slots.

Television: Like radio television has become an important teaching method in the countries with transmitters and where the farmers have access to receiving sets. The television has the added advantages that the learner can both see and hear the teacher but it is expensive and information may have to be edited to fit into the time schedule.

Cinema Vans and public address system:

In most African countries, the Ministry of Agriculture and information provides cinema vans, which have substituted almost perfectly for television in bringing visual entertainment and agricultural information to rural people. A cinema van can show an agricultural film to a large audience in two or more villages each night. The films demonstrate new techniques that the people can apply in their own farms. The public address system can be used to make announcements and bring agricultural information to a number of villages in one day.

Newspapers: Print media can be used to pass on information to farmers but its use is limited especially in non-literate population.

Bulletins, leaflets, Pamphlets and circular

Letters: Extension bulletins, leaflets pamphlets and circular letters given limited amount of specific information. They serve mainly as reference material to supplement other extension methods.

Posters: poster are particularly useful because they convey information pictorially and reach non-literate farmers, Large, simple designs work best.

Group Methods: Extension teaching aimed at groups includes meetings, formal lectures, discussions and panel groups, agricultural shows, tours, field days and demonstrations.

Demonstrations: The demonstration method is used to teach a new skills or a new ways of doing something.

Individual Method: Extension workers in most African countries need to reach individual farmers in order to convey new methods and information. There is little money to provide mass or group teaching methods and farmers are not always able to make use of them when they are provided. For these reasons, extension workers rely on: farm and home visits, personal letters; consultation and telephone calls.

Farm and Home Visits: The extension worker goes to a village to become acquainted with some of the farmers. Visits sometimes re-established old relationships and extensionist may be invited by a farmer or group to solve specific problem or explain a new government policy (Youdeowei, *et al.*, 2008).

Training and Visit Approach

This method was develop by the World Bank and implemented in India but is also relevant to Africa. The extension worker combines frequent visits to the farm with weekly or bi-weekly training to learn the necessary recommendations and practices for the farm operations of that week. This ensures frequent intercommunication between trainers, extension workers and farmers; but as an intensive system it can quite be expensive

Office call: A farmer with a problem needing immediate solution will go to the extension worker's office in search of a solution but only highly motivated farmers will make an office call.

SIWES As A Tool For Entrepreneurship Competencies Development For Students.

The Students Industrial Works Experience Scheme (SIWES) is very important for entrepreneurship competencies acquisition for students. As a result of this, a provision was made such that every student both in University and Colleges of Education could undergo this competencies acquisition training. Generally, the duties of the scheme in the management of industrial training of student as outlined in the new curriculum for Colleges of Education (NCCE, 2006), were;

1.) Soliciting for industrial training jobs in business, industry, government and service agencies depending upon the need and qualifications of the students;

2.) Placement of students in industrial establishment and one after analyzing the technical contents of the jobs provided,

3.) Conduct follow-up activities regarding all students placement by checking regularly each student's job performance through company visits and individual student interviews;

4.) Evaluating feedback from the industry regarding the students industrial training with continuous assessment in order to monitor and improve its quality;

5.) Liaison between the school and the industrial training fund (ITF), the National Universities Commission (NUC) and other relevant work experience scheme (SIWES); and

6.) Establishing and fostering contacts between the school, educational institutions, government departments and industries at necessary levels of co-operation.

In order to adequately expose students to the practical aspect of their programme, the New curriculum for Colleges of Education (NCCE, 2006) Recommended that, every student of the department of vocational education (Agricultural science unit) participates in SIWES. It is a 2-unit course for year one and two students respectively. The industrial attachment is normally done during long vacation for two months each 16 weeks in all.

The main aim of SIWES is imparting knowledge and skills. The students are directly involved in the management practices, handling, and all the activities in the organization or farm. Students on industrial training (IT) take records of each activity they perform or learn in course of the attachment. This experience (skills and knowledge) are written in their "log book" It is from this "log book" they write their industrial training report at the end of the training. The report is used for assessment of the students by their institutions.

The SIWES is meant to actualize the saying that learning by doing is a desired level of competencies acquisition in agriculture. In support of this view, Egbule (2004) stressed that, practical work was important towards the achievement of the total educational objectives as practice make perfect and people remember 90 percent of what they say as they do a thing.

Constraints To Entrepreneurship Competencies Development

Several studies revealed that, there are constraints in the educational system to entrepreneurship competencies acquisition required by students in the Colleges of Education in Kogi state. These constraints will affect the achievement of the purpose for the curriculum for Colleges of Education was designed. The uniqueness of pig production and its Component in the agriculture curriculum demands attention in order to curb these constraints. Some of such constraints are;

(a) Inadequate funds

Education is becoming very expensive. It is also a fact that no academic programme can be successfully completed without adequate fund. Pig production as a component of agriculture, require adequate funding. The purchase, maintenance, housing, care and all other services needed in pig production require huge finance. It is against this background that Ochu (1992), lamented the poor funding of educational institutions in Nigeria. This is most obvious in agricultural education programme.

(b) Dearth of Facilities/Equipment:

For successful implementation of entrepreneurship competencies in any academic programme, the basic facilities/equipment required must be available. This implies the necessary facilities must be available for effective learning of entrepreneurship competencies in pig production. It is in line with this that Akpobome, (1999) reported that items of school equipment were essential aids to teaching and learning of any subject. Unfortunately most of the facilities/ equipment are either non existence or in bad shape in many Colleges of Education. This has continued to pose problem in the system than affects competencies acquisition. In the same vein, Olaitan (1991) stated that, studies

showed that facilities for teaching practical skills in agriculture were grossly inadequate in Nigerian Colleges of Education.

Poor Attitude of Students Toward Practical

For entrepreneurship competencies acquisition, the learners need to show enough willingness and ought to have a mindset that is ready for such instructions. However, reverse is the case of Students in the Colleges of Education. The students look down on the course, while many look with disgust, hence they do not seem to be committed to learning of entrepreneurship competencies. Many of the students looked at the work done in farm to be dirty and tedious. Consequently, they do not show interest, the implication is that, through this lack of commitment and interest they cannot acquire entrepreneurship competencies in pig production (Adikaibe, 1990).

(c) Land Acquisition

Land is a very sensitive issue to agriculture and its activities. Without adequate land, no meaningful teaching and learning can be realized in agricultural programmes. Land acquisition is one of the most serious constraints militating against entrepreneurship competencies acquisition in pig production in colleges of education. Enough land is needed for the establishment of pig production. This unit needs to be sited far from the learning environment owing to the offensive odour from the farm. Where sufficient land is not available, the acquisition of entrepreneurship competencies will be hampered. (Ugbomeh and Akpomedaye, 2006).

(d) Inadequacy of Animals

The National Curriculum for Colleges of Education (2006), recommended a minimum standard of keeping at least one other animal in

addition to poultry in a school farm. This is to enhance the learning of the animal component of agriculture. Animals are the "core component" needed for practical aspect of this course, therefore, their absence in the colleges pose a great problem in the effective teaching and learning and hence hinders entrepreneurship competencies acquisition. In this vein, Deekor (1992) reported that the Colleges of Education was still below the desired level set by the National curriculum.

(e) Inadequate Infrastructure for Animals

It is a common knowledge that animal production deals with life that needs protection and adequate care. Shelter is paramount in pig production. Most Colleges of Education do not have shed (animal house) thereby constituting problem in producing and learning of animal production in agriculture (David, 1991).

Review of Related Empirical Studies

The desire to improve on the present situation in order to solve existing problems has always gain priority attention in the scheme of things among men. This serves as the hinges on which Maslow third-force psychology and international Labour organization built their framework of skill development strategy for productivity, employment and sustainable development (Maslow, 1945; ILO, 2008)

Craig and Gary (1999) were of the view that effective need assessment provides the basis for decision making on priorities for programme development. Their investigation was on professional skills needed by agricultural extension agents in United State of America Co-operative extension service. One hundred and fifty (150) items were identified, the result showed

that 28 of the skills should be learned in school, before entry into the job, while 122 should be learn on the job through in-service training programme.

Obodo (1996), investigated leadership skills to be taught in young farmer instructional programmes in high school in Cairo (Egypt) 37 Leadership skills were considered to be taught in their instructional programmes; 12 skills topped the list and were recommended for incorporation into the pre-service training grogramme. Lauder (1997), Studied the differences that existed between important skills stressed during the training of secondary school English teachers on the job. Findings include rating of skills significantly higher than teachers training skills, and thus recommended the review of the current U.S.A. English teacher's programme. Conkhin (2002) evaluated the competencies of plant science for a two year curriculum for agricultural extension instructor in Malaysia. The competencies were weighed for the purpose of certifying plant science trainers in Malaysia, 300 respondents completed the instrument statistical analysis reviewed significant differences in the respondents perceptions of importance of each competencies to the five variables tested.

In Nigeria, Olaitan, (1991), studied the strategies for improving the teaching of agricultural science at the secondary school level in Ondo State. The findings from the study supported the need for adequate provision for professional improvement programmes for field teachers in agriculture in Ondo State when, making decision on improvement of teachers in the school generally. Anyakolha (1994) studied improving the effectiveness of Home Economics teachers in laundry work in post primary institutions. Her findings

showed a significant difference in the mean rating on the category of competencies by the three groups to teachers.

Tibi (1997) investigated technical competencies need of animal's husbandry in Delta State Secondary Schools. The study determined if there was significant relationship between the perceived levels of competencies in each of the 7 competencies areas. Result revealed that teachers themselves as having acquired the majority of 50 competencies through college course and on the job activities. The result also showed that differences existed between the perceived level of competencies when the teachers were grouped according to the number of activities held in fields other than agriculture, membership of high school future farmer (FF) and the number of year's involvement in high school agriculture. The recommendation was that in –service training activities should be continued and strengthened to provide for more congruence between the method of acquisition and level of competencies.

Oketoobo, Lawal and Onipede (2011), investigated entrepreneurial skills required by graduates of schools of Agriculture for commercial cucumber production in South West Nigeria. It was found out that all the 66 entrepreneurial skills identified in commercial cucumber production were required by the graduates of schools of agriculture in South West Nigeria for sustainable livelihood in the area. It was also found out from the hypotheses tested that, there were no significant differences in the mean responses of instructors' farmers and extension agents on 63 out of 66 entrepreneurial skills required by the graduates for commercial cucumber production.

Summary Review of Related Literature

The relevance of entrepreneurship competencies has prompted many studies. The works of Craig and Gary (1999); Conklin (2002) are outstanding in this regard, which were carried out in various communities outside Nigeria. Unfortunately, students in the Colleges of Education Kogi State do not recognize. These entrepreneurship competencies, was the gap this study intends to fill. In Nigeria, studies by Obodo (1996), Anyakoha (1994), Tibi (1997) and Oketoobo¸ *et al.* (2011) favoured the use of the ILO framework of skill development strategy for productivity, employment and sustainable development (ILO, 2008). They all agreed that education programmes should be based on expressed needs by the students themselves. The importance of the needs expressed by the students in perception of entrepreneurship competencies were recognized by Tibi (1997) when he recommended educational needs is the gap between a person's present and preferred or required level of capabilities for effective performance as defined by the person, the organization or society. Consequently, this study was carried out to instill students in Colleges of Education the importance of entrepreneurship competencies.

In the study carried out by Akpomudjere, (2012), on entrepreneurship competencies, it stated that entrepreneurship is a dynamic process of vision, change, and creation. It requires an application of energy and passion towards the creation of solutions. Essential ingredients include the willingness to take calculated risk, in terms of time, equity, or career, the ability to formulate an effective venture team, the creative skill to marshal needed resources, and fundamental skills of building solid business plan, and finally, the vision to recognize opportunity where others see chaos and confusion. This study was carried out to create the awareness in the students the need to exploit the

potentials in entrepreneurship competencies as to cope with any challenge in pig production enterprise. Ngoka (1997) examined several economic importance of pig production. Furthermore, Olise (2011) enumerated different importance of entrepreneurship competencies; however, graduates from Colleges of Education without taking pig production as occupation. It is because they have not been properly stimulated and oriented to pig production. The students seem to have a negative perception about this sector hence their interest and willingness is relatively on the low side. This study would make students in the Colleges of Education to develop entrepreneurship competencies so as to take up occupation or be self-employed in the pig production enterprise.

Furthermore the development of entrepreneurship for entry into pig production had been hampered the interest and involvement of prospective farmers. This study is carried out to expose the students to possible ways of handling these constraints and hence their interest will be arouse and sustained in the enterprise.

CHAPTER THREE

RESEARCH DESIGN AND PROCEDURES

This chapter deals with the design and procedure used in conducting this research work. This is organized under the following sub-headings:

Research Design

This research work used the survey research design, which attempted the collection of primary information from the respondents regarding their opinion on competencies they needed in pig production enterprise in Kogi State. Consequently, the survey research design was appropriate as the research involved investigating natural phenomenon in which the variables were not subjected to any manipulation.

Area of the Study

The study covers the three Colleges of Education in Kogi State namely: Federal College of Education Okene, College of Education (Technical) Kabba, and College of Education Ankpa. The study is limited to final year students only i.e NCE III who have been exposed to every aspect of the curriculum and are about graduating. However, the choice of Kogi State students from my interest is to add to the development of the State and livestock industries Sub-sector of agriculture. The result from the study will be more practicable for implementation in my State as a study area.

Population of the Study

The population for this study was two hundred and seven students (N=207) comprising of all final year agricultural education students in the

Colleges of Education in Kogi State. The various Colleges of Education and their respective population are presented in Table1below. The population of students in the different Colleges of Education in Kogi State include: Federal College of Education Okene, eighty-six (86) students; Kogi State College of Education Ankpa sixty-two (62) students while College of Education Technical Kabba fifty-nine (59) students making a total of two hundred and seven (207) students as the population of this study. It shows that 37.19 percent of the population was made up of seventy-seven (77) males while 62.80 percent was made up of one hundred and thirty (130) females.

Sampling Procedure

There was no sampling procedure since the entire population of the final year students (NCE III) in the Colleges of Education in Kogi State were used in this research. The final year students are relevant and suitable for what the research wants in order to make its judgment. They have been exposed to every aspect of the curriculum and they are graduating, therefore they are expected to have developed the needed entrepreneurship competencies in pig production.

Table 1: ***Distribution of Students in the Colleges of Education in Kogi State***

Name of school	Population	Number of students sampled	
		Male	Female
Federal College of Education Okene	86	31	55
Kogi State College of Education Ankpa	62	25	37
College of Education Technical Kabba	59	21	38
Total	207	77	130

Source: Field Survey, 2014

Research Instrument

The instrument for data collection for this study was a structured questionnaire that was developed through the review of related and relevant literature in entrepreneurship competencies needed by Students in the Colleges of Education for entry into pig production enterprise. Essentially, the instrument was structured in line with the research objectives.

Section A starts with bio-data of respondents, name of school, sex, and level. Respondents were to tick (√) against the option of their choice.

Section B has sixty (60) items on the extent the Students in the Colleges of Education possess the identified entrepreneurship competencies for entry into pig production enterprise. Each column of the items were scaled 5,4,3,2 and 1 corresponding to; very high possessed, high possessed, moderate possessed, lowly possessed and not possessed. Respondents indicated their choice with a tick (√) against any item as their response. Based on this decision, any item with a mean of 3.00 and above were possessed while any item with a mean less than 3.00 were not possessed.

Section C consisted of sixty (60) items on the relevance of entrepreneurship competencies needed for entry into pig production enterprise. Each column of the items is scaled 5,4,3,2, and1 corresponding to Very highly needed, high needed, moderately needed, needed to low extent, and not needed. Respondents indicated their choice with a tick (√) against options of their choice. Based on this decision, items with a mean of 3.00 and above were not needed, while items with a mean less than 3.00 were needed.

Section D contained eleven (11) items as constrained to entrepreneurship competencies for entry into pig production. Each column of

the items is scaled 5,4,3,2, and 1corresponding to Strongly Agree, Agree, Moderately Agree, Disagree and Strongly Disagree. Respondents indicated their choice with a tick (√) against options of their choice. Based on this decision, items with a mean of 3.00 and above were agreed upon as constraints, while items with a mean less than 3.00 were disagreed on.

Validity of the Instrument

To validate the content of entrepreneurship competencies needed by Students in the Colleges of Education for entry into pig production enterprise; a group of experts in Vocational Education Department (Agricultural Science Unit) of Delta State University, Abraka were issued drafted copies of the questionnaire for preliminary assessment. This validation was hinged on the assumption that the assessment could be done through the opinion of agricultural educators. They assessed the items against the research objectives on the basis of importance, ability and clarity of giving the desired responses.

Reliability of Instrument

The reliability of the instrument was determined by a test re-test method using Pearson Product Moment Correlation Co-efficient (PPMCC) A random sample of 20 students of Colleges of Education in Kogi State were issued two copies of validated questionnaire at intervals of one month. This was done to pilot test the instrument. The correlation coefficient of 0.78 and 0.67 which were obtained were high and positive, thus the instrument was considered reliable.

Method of data collection

The instrument that was used to collect data for this study was self-structured questionnaire that were issued to the respondents for data collection. The researcher employed the services of research assistants each from the

Colleges of Education. A total of two hundred and seven (207) questionnaire were distributed, however, two hundred and one questionnaire were correctly answered and returned, which is over ninety-nine (99%) percent returned

Method of Data Analysis

The data collected in this study were analyzed using percentage, simple mean while the hypotheses were tested with the t-test statistic at 0.05 level of significance. Based on the calculation any mean score that is up to 3.00 and above is not needed while those with mean score less 3.00 are needed.

CHAPTER FOUR

PRESENTATION OF DATA ANALYSIS AND DISCUSSION

The data obtained from the study were presented and analyzed in the order of research questions and the stated hypotheses.

Presentation of Results

Table 2: ***Demographic characteristics of Students in the Colleges of Education in Kogi State***

Characteristics	**Number (N=207)**	**Percentage %**
Gender:		
Male	77	37.19
Female	130	62.80
Age:		
16-18years	34	16.42
19-21years	89	42.99
22-24years	84	40.57
School:		
Federal College of Education Okene	86	41
Kogi State College of Education, Ankpa	62	29.95
College of Education (Technical) Kabba	59	28.50

Sources: Field Work 2014

Table 2 shows the demographic characteristics of Colleges of Education in Kogi State. The male respondents constitute 37.19%, while the female constitute 62.80%. This implies that female students are more than male students in the Colleges of Education in Kogi State. Moreover, students in the age bracket of 16-18 years constitute 16.42%, 19-21 years constitute 42.99% while students in the age bracket of 22-24 years constitute 40.57%. This implies that students 19-21 years have the highest population in the Colleges of Education in Kogi State. Furthermore, on the different schools in the study, College of Education (Technical) Kabba has fifty-nine (59) final year students;

College of Education Ankpa has Sixty-two (62) final year students, while Federal College of Education Okene has eighty-six (86) final year students. It therefore implies that Federal College of Education Okene has the highest number of final year agricultural science students in Colleges of Education in Kogi State.

4. **Research Question 1:** To what extent do students in Colleges of Education possess the identified entrepreneurship competencies for entry into pig production enterprise in Kogi State?

Table 3: ***Mean Responses of Respondent regarding their level of possession of indentified entrepreneurship competencies for entry into pig production enterprise (N=207)***

S/N	Extent to which students in Colleges of Education possess the identified entrepreneurship competencies for entry into pig production enterprise in Kogi State. Items(General Competencies) Ability to:	Mean	Remark
1	Choose a flat land or site	4.38	Possessed
2	Determine factors to be considered for housing	3.72	Possessed
3	Determine suitable housing	2.64	Not Possessed
4	Determine management system	2.82	Not Possessed
5	Indentify different housing materials	2.45	Not Possessed
6	Construct suitable houses	3.62	Not Possessed
7	Provide shade and cool environment	2.31	Not Possessed
8	Provide wallowing troughs	2.36	Not Possessed
9	Select bedding materials	4.72	Possessed
10	Tattoo pigs	2.78	Not Possessed
11	Use ear notching or ear tagging	2.18	Not Possessed

12	Carry out skin branding	2.76	Not Possessed
13	Use other identification methods	2.44	Not Possessed
14	Identify boar, sow, gilt, weaners and fatterners	2.58	Not Possessed
15	Identify different breeds	2.84	Not Possessed
16	Identify breeds that have reached sexual maturity	2.62	Not Possessed
17	Identify breeding types/methods	2.61	Not Possessed
18	Handle or transfer gilt or sow from pen	2.30	Not Possessed
19	Identify gilt or sow on heat	2.67	Not Possessed
20	Determine mating type	2.16	Not Possessed
21	Breed pigs	2.32	Not Possessed
22	Handle gestating gilt or sow well	2.61	Not Possessed
23	Identify pregnancies inhibitors	2.38	Not Possessed
24	Identify signs of farrowing in gilt or sow	2.14	Not Possessed
25	Midwife a farrowing gilt or sow	2.50	Not Possessed
26	Perform artificial insemination	1.78	Not Possessed
27	Identify weaning periods	2.43	Not Possessed
28	Care of the young ones or piglets	2.11	Not Possessed
29	Keep good records of breeding	2.92	Not Possessed
30	Identify different feed and ration ingredients	2.14	Not Possessed
31	Formulate ration/feed	2.18	Not Possessed
32	Determine feeding systems	2.41	Not Possessed

33	Indentify balanced diet	0.67	Not Possessed
34	Identify different feed; fatterners, finishers	1.87	Not Possessed
35	Serve creep feed to weaners	0.44	Not Possessed
36	Supply clean water always	2.16	Not Possessed
37	Identify signs of ill-health	2.32	Not Possessed
38	Diagnose diseases	2.64	Not Possessed
39	Deworm pigs	2.18	Not Possessed
40	Vaccinate pigs	2.80	Not Possessed
41	Administer medicament	1.66	Not Possessed
42	Castrate piglets	2.14	Not Possessed
43	Spray pigs at intervals to check ecto-parasites	2.38	Not Possessed
44	Carry out routine check-ups	2.10	Not Possessed
45	Cull unproductive pigs	2.17	Not Possessed
46	Keep hygienic environment	3.58	Possessed
47	Identify pigs that have reach market size	2.21	Not Possessed
48	Kill and slaughter pigs	1.84	Not Possessed
49	Dress the carcasses	2.31	Not Possessed
50	Separate offals from the porks	2.57	Not Possessed
51	Handle carcasses hygienically	2.16	Not Possessed
52	Use different storage methods	1.71	Not Possessed
53	Identify different market outlets for pig products	2.60	Not Possessed

54	Make market survey	2.53	Not Possessed
55	Fix affordable prices	3.72	Possessed
56	Identify ways of reaching out to customers	2.60	Not Possessed
57	Identify the form in which product will be marketable	2.36	Not Possessed
58	Identify good public relation approaches	1.42	Not Possessed
59	Prepare income and expenditure account	2.62	Not Possessed
60	Keep up to date farm records	2.28	Not Possessed

Source: field work, 2014

Table 3 shows the mean responses of respondents on the extent to which students in Colleges of Education possess the identified entrepreneurship competencies for entry into pig production enterprise in Kogi State. Mean scores of fifty-four items range between 0.44 to 2.92, which were below the cut-off point of 3.00. These were entrepreneurship competencies identified by Students in the Colleges of Education not possessed for entry into pig production. Meanwhile, six items had mean responses of respondents range between 3.53 to 4.72 which were above the cut-off point of 3.00. This implies that, for the six items the Students in the Colleges of Education showed possession of entrepreneurship competencies for entry into pig production enterprise.

1. **Research Question 2:** What were the self-expressed entrepreneurship competencies needed by students of colleges of education for entry into pig production enterprise in Kogi State.
2.

Table 4: ***Mean Responses of Respondents showing the expressed entrepreneurship competencies needed by students of colleges of education for entry into pig production enterprise in Kogi State.(N=207)***

S/N	The self-expressed entrepreneurship competencies needed by students of colleges of education for entry into pig production enterprise in Kogi State. Items	Mean	Remark
1	Determine suitable housing	2.64	Needed
2	Determine management system	2.82	Needed
3	Indentify different housing materials	2.45	Needed
4	Construct suitable houses	3.62	Needed
5	Provide shade and cool environment	2.31	Needed
6	Tattoo pigs	2.78	Needed
7	Use ear notching or ear tagging	2.18	Needed
8	Carry out skin branding	2.76	Needed
9	Use other identification methods	2.44	Needed
10	Identify boar, sow, gilt, weaners and fatterners	2.58	Needed
11	Identify different breeds	2.84	Needed
12	Identify breeds that have reached sexual maturity	2.62	Needed
13	Identify breeding types/methods	2.61	Needed
14	Handle or transfer gilt or sow from pen	2.30	Needed
15	Identify gilt or sow on heat	2.67	Needed
16	Determine mating type	2.16	Needed
17	Breed pigs	2.32	Needed
18	Handle gestating gilt or sow well	2.61	Needed
19	Identify pregnancies inhibitors	2.38	Needed
20	Identify signs of farrowing in gilt or sow	2.14	Needed
21	Midwife a farrowing gilt or sow	2.50	Needed
22	Perform artificial insemination	1.78	Needed
23	Identify weaning periods	2.43	Needed
24	Care of the young ones or piglets	2.11	Needed
25	Keep good records of breeding	2.92	Needed
26	Identify different feed and ration ingredients	2.14	Needed
27	Formulate ration/feed	2.18	Needed
28	Determine feeding systems	2.41	Needed
29	Indentify balanced diet	0.67	Needed
30	Identify different feed; fatterners, finishers	1.87	Needed
31	Serve creep feed to weaners	0.44	Needed
32	Supply clean water always	2.16	Needed
33	Identify signs of ill-health	2.32	Needed

34	Diagnose diseases	2.64	Needed
35	Deworm pigs	2.18	Needed
36	Vaccinate pigs	2.80	Needed
37	Administer medicament	1.66	Needed
38	Castrate piglets	2.14	Needed
39	Spray pigs at intervals to check ecto-parasites	2.38	Needed
40	Carry out routine check-ups	2.10	Needed
41	Cull unproductive pigs	2.17	Needed
42	Identify pigs that have reach market size	2.21	Needed
43	Kill and slaughter pigs	1.84	Needed
44	Dress the carcasses	2.31	Needed
45	Separate offals from the porks	2.57	Needed
46	Handle carcasses hygienically	2.16	Needed
47	Use different storage methods	1.71	Needed
48	Identify different market outlets for pig products	2.60	Needed
49	Fix affordable prices	3.72	Needed
50	Identify ways of reaching out to customers	2.60	Needed
51	Identify the form in which product will be marketable	2.36	Needed
52	Identify good public relation approaches	1.42	Needed
53	Prepare income and expenditure account	2.62	Needed
54	Keep up to date farm records	2.28	Needed

Source: field work, 2014

Table 4: shows the mean responses of respondents on the entrepreneurship competencies needed by Students in the Colleges of Education for entry into pig production enterprise. The mean of six items were between the ranged of 3.28 to 4.67 which were above the cut-off point of 3.00. This implies that the respondent shows those six items as needed. However, fifty-four items ranged between 1.84 to 2.99 which were below the cut-off point of 3.00. It implies that these fifty – four items were expressed needed which the respondents accepted for entry into pig production enterprise.

Research Question 3: What are the perceived constraints to entrepreneurship competencies development for entry into pig production enterprise?

Table 5: ***Mean Responses of Respondents on the constraints to entrepreneurship competencies development for entry into pig production enterprise.***

S/N	Perceived constraints to entrepreneurship competencies development for entry into pig production enterprise Items	Mean	Remark
1	Inadequate fund	4.62	Agreed
2	Dearth of facilities and equipment	3.86	Agreed
3	Poor attitude of students towards practical	4.28	Agreed
4	Land acquisition	3.15	Agreed
5	Inadequacy of animals	3.47	Agreed
6	Absence of infrastructure for animals	3.19	Agreed
7	Lack of technical expertise	3.30	Agreed
8	Limited innovation in the sector	3.16	Agreed
9	Low status value of the sector	4.06	Agreed
10	Dirty nature of competencies	3.76	Agreed
11	Poor orientation and ignorance	3.24	Agreed

Source: field work, 2014

Table 5 shows the mean responses of respondent on the constraints to entrepreneurship competencies development for entry into pig production enterprise. The mean of eleven items ranged between 3.15 to 4.62 which were rated above 3.00 (the cut-off point). This implies that, the respondents agreed on those eleven items as constraints to entrepreneurship competencies for entry into pig production enterprise.

Hypothesis 1: There is no significant difference between male and female students in the Colleges of Education on the level of entrepreneurship competencies possession for entry into pig production.

Table 6: ***t-test analysis of male and female students in the Colleges of Education on the level of entrepreneurship competencies possession for entry into pig production.***

Variables	N	$\overline{X}$	SD	DF	t-cal	t-crit	Level of signif	decision
Male students	77	3.06	0.042	205	0.384	1.96	0.05	Not significant (Accepted)
Female students	130	4.28	1.083					

Source: field work, 2014

Table 6 shows the t-test analysis of male and female students in the Colleges of Education on the level of entrepreneurship competencies possessed for entry into pig production. The t-calculated value of 0.384 was less than the t-critical value of 1.96 at 205 degree of freedom and 0.05 level of significance. Therefore, the null hypothesis was accepted and the alternative hypothesis rejected. This shows that, there was no statistical significant difference between the male and female students in the Colleges of Education on the entrepreneurship competencies possessed for entry into pig production. This implies that the male and female students are at the same level of entrepreneurship competencies possession for entry into pig production.

Hypothesis 2: There is no significant difference in the mean responses of the self-expressed level of entrepreneurship competencies needed for entry into pig production between Student of Federal and State Colleges of Education.

Table 7: ***t-test analysis of Federal and State Students in the Colleges of Education on the self-expressed level of entrepreneurship competencies needed for entry into pig production.***

Variables	N	$\bar{x}$	SD	DF	t-cal	t-crit	Level of signif.	decision
Federal college students	86	3.04	0.103	205	1.301	1.96	0.05	Not significant (Accepted)
State Colleges students	121	3.89	1.081					

Source: field work, 2014

Table7 shows the t-test analysis of Federal and State Students in the Colleges of Education on the self-expressed level of entrepreneurship competencies needed for entry into pig production. The t-calculated value of 1.301 was less than the t-critical value of 1.96 at 205 degree of freedom and 0.05 level of significance. Therefore, the null hypothesis was accepted and the alternative hypothesis rejected. This shows that, there is no statistical difference between the Federal and State College of Education students on the level of self-expressed entrepreneurship competencies needed for entry into pig production. It signifies that federal and state colleges of education students have no disparity of self-expressed level competencies need.

Hypothesis 3: There is no significant difference between the mean responses of Students in Federal and State Colleges of Education on the constraints to entrepreneurship competencies needed for entry into pig production.

Table 8: ***t-test analysis of Students in Federal and State Colleges of Education on the constraints to entrepreneurship competencies needed for entry into pig production.***

Variables	N	$\overline{X}$	SD	DF	t-cal	t-crit	Level of signif	decision
Federal college of Education students	86	3.05	0.206	205	1.703	1.96	0.05	Not significant (Accepted)
State Colleges of Education students	121	3.86	1.419					

Source: field work, 2014

Table 8 shows the t-test analysis of Federal and State Students in the Colleges of Education on the constraints to entrepreneurship competencies for entry into pig production. The t-calculated value of 1.703 was less than the t-critical value of 1.96 at 205 degree of freedom and 0.05 level of significance. Therefore, the null hypothesis was accepted and the alternative hypothesis rejected. This shows that, there was no statistical significant difference between the federal and state students in the Colleges of Education on the constraints to entrepreneurship competencies for entry into pig production. It signifies that both Federal and State Colleges of Education students agreed on the constraints to entrepreneurship development.

Discussion of Results

The main findings of this study were discussed as presented below:

The Extent of Entrepreneurship Competencies Possessed by Students for Entry into Pig Production

Analyzed data showed that the extent of entrepreneurship competencies possession by students for entry into pig production enterprise was very low. The mean scores for fifty-four items ranged between 0.44 to 2.92, which were below the cut-off point of 3.00. This implies that for these fifty-four items, the extent of entrepreneurship competencies were not possessed by Students in the Colleges of Education. Meanwhile, six items had mean scores ranged between 3.53 to 4.72 which were above the cut-off point of 3.00. This implies that for the six items, the students in the Colleges of Education showed high extent of possession of entrepreneurship competencies for entry into pig production enterprise.

In line with this result, FRN (2004); Unanka (2007) stated that pig production enterprise requires entrepreneurship competencies for a successful venture. It is therefore imperative for students in the Colleges of Education to be equipped with entrepreneurship competencies especially now that Nigerian economy is moving towards a direction where only individuals who are self reliant can really survive. The need for development of appropriate knowledge and skills necessary for securing paid employment in an establishment or be self-employed is therefore stressed.

Entrepreneurship Competencies Needed by Students in the Colleges of Education for Entry into Pig Production Enterprise

The result of the analyzed data showed the entrepreneurship competencies needed by Students in the Colleges of Education for entry into pig production enterprise. The mean rating scores for six items ranged between 3.28 to 4.67 which were above the cut-off point of 3.00. This implies that, the respondents rejected these six items as not needed. However, fifty-four (54)

items ranged between 1.84 to 2.99 which was below the cut-off point of 3.00. It implies that, these fifty-four (54) items were the needed which the Students in the Colleges of Education for entry into pig production enterprise.

The finding is in line with the works of Ngoka (1997); Akpobome (1999); Etonyeaku (2011), when they agreed that entrepreneurship competencies in pig production are many. In pig production, the students in the Colleges of Education are expected to develop management practices that are relevant in handling the pig from piglet to market size. Such activities include; pre-breeding, breeding, farrowing, weaning, fattening, among others.

Constraints to Entrepreneurship Competencies Development

Analyzed data showed that the mean scores of eleven items identified as constraints on table 6 were above 3.00 (the cut-off mark) to entrepreneurship competencies for entry into pig production enterprise. The constraints are enumerated below; inadequate fund; dearth of facilities and equipment; poor attitude of students toward practical; land acquisition, inadequacy of animals; absence of infrastructure for animals; lack of technical expertise; limited innovation in the sector; low status value of the sector; dirty nature of competencies, and poor orientation and ignorance.

This result is in agreement with several studies which revealed that, there are constraints to entrepreneurship competencies development for entry into pig production. These constraints will affect the achievement of the purpose for which the curriculum for Colleges of Education was designed. The uniqueness of pig production and its component in the agriculture curriculum demands attention in order to curb these constraints. (Olaitan (1991) stated that facilitates for teaching competencies in agriculture are grossly inadequate in

Nigerian Colleges of Education reacting to this, Ochu (1992) lamented the poor funding of educational institutions in Nigeria. This is most obvious in agricultural programmes.

Gender and Level of Entrepreneurship Competencies Possessed for Entry into Pig Production

To test for the difference between Male and female students in the Colleges of Education on the level of entrepreneurship competencies needed for entry into pig production, the t-test was used for the calculation. The data analyzed showed that there was no significant difference at 0.05 level.

The t-calculated was 0.384, while the t-critical was 1.96. It means that t-critical is greater than t-calculated, so the null hypothesis which states that, there is no significant difference between the responses of male and female students in the Colleges of Education on the level of entrepreneurship competencies needed for entry into pig production was accepted.

This finding was in line with Onu (2011) when he said that there is no difference in the responses of male and female students it is because sex plays no significant role in the possession of entrepreneurship competencies. In the same vein, Robinson (2006) remarked that, in Nigeria at present, great emphasis is on individual that possess appropriate competencies, resourceful and analytical. Therefore, given the same condition gender has no significant role to play on the entrepreneurship competencies needed by Students in the Colleges of Education for entry into pig production enterprise.

The Level Of Entrepreneurship Competencies Needed For Entry Into Pig Production.

To test for the difference between federal and state students in the Colleges of Education on the level of entrepreneurship competencies needed for

entry into pig productions, the t-test was used for calculating the mean scores of the variables. The data analysis showed that the t-calculated was 1.301 while t-critical was 1.96 at 0.05 level of significance. The result shows that there was no significant difference between the federal and the state students in Colleges of Education on the level of entrepreneurship competencies needed for entry into pig production.

In agreement with this finding, the National Commission for Colleges of Education (NCCE, 2013) viewed agricultural education as the process of imparting technical knowledge and vocational competencies and that the process also deals with transformation of crude methods and techniques of agricultural production into more sophisticated and modern techniques. Man power development human resources aims at the upliftment of the quality of human service comprising social, economics, and cultural aspects are given necessary attention. The curriculum for Colleges of Education is uniform and has the same standard hence there was no significant difference between federal and state Colleges of Education.

Constraints to Entrepreneurship Competencies For Entry into Pig Production

To test for the difference between the federal and the state students in the Colleges of Education on the constraints to entrepreneurship competencies for entry into pig production, the t-test was used to calculate the variables. The data analysis showed that the t-calculated was 1.703 while t-critical was 1.96 at 0.05 level of significance. The result shows that, there was no significant difference between federal and state students in the Colleges of Education on the constraints to entrepreneurship competencies needed for entry into pig production.

Reacting to the finding, Olaitan (1991); Uduma (2004); National Curriculum for Colleges of Education (2013) stated that entrepreneurship competencies was a very crucial factor in the overall development of any nation. That the federal and state Colleges of Education had the same view on the constraints to entrepreneurship competencies needed for entry into pig production enterprise is because all the schools operate the same curriculum and the same standard. Moreover, the students were exposed to the same experiences, knowledge, activities and competencies development training in course of their studies. It implies that, the status of the school does not determine what is obtainable in that school, but the quality of the teaching and learning that is done in it.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter of the research covers areas of summary of findings, conclusion, recommendations, and implication of findings, recommendations for further studies and contribution to knowledge.

Summary

This research work focused on entrepreneurship competencies needed by students in colleges of education for entry into pig production enterprise in Kogi State. The study was guided by four research questions and four hypotheses. The study was a descriptive research design. Self-structured questionnaire served as instruments for data collection, each containing seventy-one (71) items which respondents answered. The population was all final year students in the Colleges of Education in Kogi State 2013-2014 academic session (N=207). Meanwhile, percentage, mean and t-test were used for the analysis of data.

Findings

Findings from the analysis were:

1. The students in the Colleges of Education agreed that the extent of entrepreneurship competencies needed for entry into pig production enterprise was low.
2. The students in the Colleges of Education agreed on fifty-four items as entrepreneurship competencies felt-needs for entry into pig production enterprise.

3. Eleven constraints to entrepreneurship competencies development needed by students in the Colleges of Education for entry into pig production enterprise were identified.
4. There is no significant difference between male and female students in the Colleges of Education on the level of entrepreneurship competencies needed for entry into pig production enterprise.
5. There is no significant difference between federal and state students in the Colleges of Education on the level of entrepreneurship competencies needed for entry into pig production enterprise.
6. There is no significant difference between the federal and the state Colleges of Education on the constraints to entrepreneurship competencies needed for entry into the pig production enterprise.

Conclusion

The students in the Colleges of Education agreed that the extent of entrepreneurship competencies possessed for entry into pig production enterprise was very low. The students in the Colleges of Education identified the entrepreneurship competencies needed for entry into pig production was very low. Eleven constraints to entrepreneurship competencies development for entry into pig production enterprise were identified. There was no significant difference between male and female students in Colleges of Education on the level of entrepreneurship competencies possessed for entry into pig production enterprise. There was no significant difference between the federal and the state Colleges of Education on the level of entrepreneurship competencies needed for entry into pig production enterprise. There was no significance difference

between young and mature students in the Colleges of Education on the level of entrepreneurship competencies needed for entry into pig production enterprise.

Recommendations

On the basis of the conclusions of the study, the following recommendations were made:

1. The National Commission for Colleges of Education should incorporate the identified needs of entrepreneurship competences to the curriculum for pig production enterprise for better implementation and teaching of competencies.
2. Adequate facilities should be provided, while the situation of the available ones improved upon. This will make in-training services easy and encouraging.
3. Both Federal and State Government must not pay lip service attention to Vocational Education in terms of funding. Prompt, and adequate disbursement of funds should receive the needed attention for full realization of the goals of the programmes.
4. The student in the Colleges of Education should be re-oriented on the relevance of competencies possession. It will arouse interest of students towards learning of entrepreneurship competencies.

Contributions to Knowledge

The study has contributed to knowledge in these ways:

1. The study identifies fifty-four entrepreneurship competencies as possessed by Students in the Colleges of Education for entry into pig production enterprise.

2. The study established that the Students in the Colleges of Education agreed that the extent of entrepreneurship competencies needed for entry into pig production enterprise was low and so there is the need to further improve on this area.

Implication of the Study

The implication of this study was relevant to agricultural institutions, competencies development centres, curriculum planners and educational administration as follows:

1. The study has revealed that the Students in the Colleges of Education agreed that the extent of entrepreneurship competencies possessed for entry into pig production enterprise was very low. The students should be re-oriented on the need to possess entrepreneurship competencies as a step towards achieving the millennium development goals (MDGs). The study has great role to play in the development of the education sector.
2. The Students in the Colleges of Education agreed on fifty-four items as entrepreneurship competencies needed for entry into pig production enterprise. These fifty-four entrepreneurship competencies should be incorporated into the animal section of the curriculum of Colleges of Education and effectively taught and learnt so as to obtain maximum benefit from this education sector.
3. The study revealed eleven constraints to entrepreneurship competencies development for entry into pig production enterprise. This would serve as a foundation to address other constraints not only agricultural education but other programmes in the educational sector.

4. The study revealed that gender does not influence the development of entrepreneurship competencies possessed for entry into pig production enterprise. Consequent upon this, students should be expose to the same learning experiences activities and knowledge irrespective of their gender.

5. The study revealed that status does not affect the development of entrepreneurship competencies needed for entry into pig production enterprise. The government should give equal attention to both federal and state Colleges of Education, since the Colleges maintain the same standard and use the same curriculum, funds, facilities and human resources should be made available to all at all times in the right proportion.

Recommendation for Further Studies

Based on the study, it is suggested that:

- Studies should be carried out on the entrepreneurship competencies needed for entry into goat production enterprise in Edo State.
- Studies should be carried out on the entrepreneurship competencies needed by the Polytechnic graduates for entry into commercial snail enterprise in Benue State.
- Studies should be carried out on the Challenges to commercial Rabbit production among University graduates in Ondo State.

REFERENCES

Adewale, J.G., Oladego, J.A., and Ogunniyi, I.T. (2005). Economic contribution of farm children to agricultural production in Nigeria. A case study of Ekite State of Nigeria. *Journal of Social Science, 10(2): 45.*

Adikaibe, S. (2000), *Estimate of Number of Pigs in Nigeria*. Federal Office of Statistics, Annual Abstract.

Akindugbe, F. (2004). The entrepreneurship preparation progamme (EPP). An unpublished paper submitted to the academic planning unit of the academic planning unites of University of Ilorin, Ilorin, Kwara State.

Akinola, C.I. (2001). Teaching entrepreneurship skills through business education: the challenges and strategies for business educators. Business education journal 3(4)16

Akpobome, F.O. (1999). A Study of Pig Production Efficiency at Piggery Unit of University of Nigeria, Nsukka and Piggeries at Okpe Local Government Area of Delta State. Unpublished Thesis Submitted to the Department of Vocational Teacher Education, University of Nigeria, Nsukka.

Akpomudjere, O. (2012). *Basic Entrepreneurship Development*. Warri, (DEWA publishers.

Anyakoha, E. U. (1994). Vocational Technical education and technological growth Nsukka, N.V.A. Public Publication.

Arilewola, J.A. (1998). Genetic and Environmental Variation in Reproductive Performance of Exotic Pigs. Unpublished Ph.D. Thesis submitted

to Department of Animal Science in Obafemi Awolowo University ile-Ife.

Arogundade, B.B. (2011). Entrepreneurship education an imperative for sustainable development in Nigeria. *Journal of Emerging Trends in Educational Research Policy Studies* 2(1):14

Bill, Smith (1999). *High Welfare Housing Problem in Pigs.* London: Café Publishing Company.

Black, H. and Wolf, A. (1990). *Knowledge and competence*. London: Kogen publishers.

Bolarin, T.A. (1998). Women access in science students and technological training in Africa, journal of education 1(2)5

Caribbean Agricultural Research and Development Manual (2001). Netherlands:

Macmillan Publishing Company.

Church, D.C. (2008). *Basic Animal Nutrition and Feeding*. Canada: Wiley and Son Ltd.

Conklin, N.L. (2002). Examining a professional development system comprehensive needs assessment approach. *Journal of Examination* 40(5):3.

Craig, E.M. and Gary, B.E. (1999). Assessing the in-service needs of entry-phase agricultural teachers. *Journal of Agricultural Education* 40(3): 41.

David, H. Holness (1991). *The Tropical Agriculturist Pigs.* Netherlands: Macmillan Publishing Company.

Deekor, N.L. (1992). A Study of the implementation of national curriculum of agriculture. *Journal of Agricultural Teacher Education* 1(1)13.

Devendra, C. and Fuller, M.F. (2009). *Pig Production in the Topics.* London: Oxford University Press Limited.

Donald, C.I. and Eberhard, V.B. (1999). *Farm Animal Well-beig*. New Jersey: Prentice Hall Publisher.

Egbule, P.E. (2004). Fundamental and practice of agricultural education. Second edition. Owerri, Total publishers.

Egbule, P.E. and Ikeoji, C.N. (2006). Modern tropical agriculture for senior secondary schools and colleges book one. Owerri; alphabetical publishers.

Egun, A.C. (2002). Assessment of crop production competencies of agricultural science teachers of secondary school in delta state. Unpublished Ph.D thesis.

Eta, E.E. (2002). Dimension of the gender crises in Nigeria education. The Nigeria teachers 8(2)15

Etonyeaku, E.A.C (2011). Entrepreneurial skills required by youths for effective marketing of agricultural products in Nsukka agricultural zone of Enugu State. Nigeria Vocational Association Journal (NVA) 16(1)38-39.

Eusebio, J.A. (2000). *Pig Production in the Tropics.*_Hong Kong: Lorigman Group Limited.

Federal Republic of Nigeria (2004). National policy on education (Revise edition), Lagos.

Frank, Tobin (2002). *Infectious Disease Outbreak in Sows.* Yorkshire: Café Printing Company.

Gerald, A. Proverbs (2009). *Tropical Pig Production Handbook.* West Indies: Caribbean Agricultural Research and Development Institute, University Press Limited.

Goodman, D.E. (2008). *Raising Healthy Pigs under Primitive Condition.* London:

Christian Veterinary Mission.

Hafez, EZ.E. (2007). *Nutrition in Relation to Reproduction in Sow Junior* cultural Science. New York: Cambridge Publication.

Hanger, P. (1994). Are there any cogent philosophical arguments against competencies standard? *Australian Journal of Education* (5):1.

Hisrich, R.D. (2009). Entrepreneurship fifth edition, Singapore: Mcgraw-hill Higher Education

Ifegbo, PC. (2004). the use of activity or oriented instruction for the acquisition of life coping skills in primary schools. A paper presented at the 15th annual conference of curriculum organization of Nigeria, held at Alvan Ikoku College of education, Owerri, from 17th-21th September.

International Labour Office (2007). Promotion of rural employment for poverty reduction, report for the international labour conference, report IV 97th session.

International labour Office (2008). Skills for improved productivity, employment growth and development, international Labour conference Report V, 97th session

James, R. Gillespie (1998). *Animal Science.* New York: Delmar Publishers.

Jean, Pagot (1992). *Animal Production in Tropics and Sub-Troplics.* London:Macmillan Education Limited.

Kanu, I.N. (2010). Principals of entrepreneurship, Owerri: greater star international company.

Kirkwood, R. (1996). *Revealing Research Pork.* Research Centre Alberta: University Press Limited.

Lander, N.S. (1997). Farm as a business, New Cork, Hold and Winston, Inc.

Lynch Bredan (2009). Are -'P' Houses a Danger to Health? Farm and Food Research.

Maslow, A. H. (1945). Encyclopedia of psychological, New York: Harper and Row.

Maxine, P.P. (1997). Entrepreneurship development and management. London; Vikings publishing house Ltd.

Minnetonka, R.S. (2001). *Factors Affecting Litter Size Pork Research.* Central Alberta University Press Limited.

National Commission for Colleges of Education (2006). Minimum standard for N.C.E teachers: Vocational and technical education, Kaduna.

National Economic Empowerment and Development Strategy (Needs, 2005). Policy document on the implementation of NEEDs. Abuja: Federal government press.

Ngoka, D.A. (1997). Principles of livestock production in the tropics. Owerri, Alphabet publishers.

Nwaokolo, P. (2000). Improved vocationalism for 21st century. A panacea for combating unemployment and poverty among youths in African, Jendica.

Nwosu, B.O. and Ojo, K.E. (2011). Promoting entrepreneurship education through capacity

building among business education graduates. *Journal of Research in Education* 17(1):139.

Obioha, C.B: (1997). *Problems of Pig Farming, Rearing Pigs for Profit Livestock Farmer.* Lagos: Jeromelaiho and Associates Ltd.

Obodo, G.C. (1996). Gender difference in the mathematical potentials of 14 year-old children, implication for education. *Journal of research in Science and Technology Education*, 1(2)4.

Ochu, A.O. (1992). A comparative study of approaches to finding of science technology and social science education in Nigeria. *Journal of Technical Teacher's Education 1(1): 4.*

Ojukwu, K. (2002). Competencies related to Modern information and communication technology that need to be infused into business teacher and secondary school curriculum. Business Education Journal 3(5)18

Ojukwu, K. (2002). Business education and entrepreneurship development. Business education book of reading 6(1):13.

Okeke, B. (2012). Vocational educational sustainable development in Nigeria. Land paper presented at the international conference of Nigeria Vocational Association (NVA) at delta State University, Abraka 24th -28th July.

Oketoobo, E.A., Lawal, I.O. and Onipede, O. (2011). Entrepreneurial skills required by graduates of school of agriculture for commercial cucumber production in South West. *Nigerian Vocational Association of Journal (NVA)* 16(1)44.

Olaitan, S.O (1995). Promoting Skill development and productivity through vocational education in rural Nigeria development. Enugu: Auto century publishers.

Olaitan, S.O. (1991). Review of technical and vocational education in Nigeria schools.

Olise, J. M. (2011) Introduction to entrepreneurship development, small and scale enterprises Warri, Eregha Publishers.

Onu, F.M (2011). Adequacy of agriculture curriculum for equipping students of colleges of agriculture with entrepreneurship skills to meet unemployment challenges in Nigeria. *Journal Nigeria Vocational Association* 16(1):154-155.

Osuala, E.C. (2004). Foundations of Vocational education. Enugu: Cheston Books.

Pond, W.T. and Màner, JH. (2004). Swine Production in Temperate and Tropical Environment, San Francisco Vol. 49, Freeman and Company.

Proverb, E.T. (2009). Entrepreneurship education an imperative for sustainable development in Nigeria. *Journal of Emerging Trends in Educational Research Policy Studies* 2(1):14

Ray, Herren (2000). *The Science of Animal Agriculture.*_London: Delmar Publishers.

Roy, P.S. (2002). *Revealing Research Pork.* Research Centre Alberta: University Press Limited.

Serres, 0. (1992). *Manual of Pig Production in the Tropics,* New York: CABI Publishing Company.

Solon, A. Ewing and Donald, C. Lay Jr. (1999). *Farm Animal Well-being.* New Jersey: Prentice Hall Publisher.

Steinback, E.Z.E. (2005), influence of Health on Reproduction of Swine. Johnson, H.D. Education Progress in Animal Biometrology, Amsterdam Swets and Zeithunger, NV. 381 — 391.

Tibi, E.U. (1997). Technical competencies needs of animals' husbandry in Delta State Secondary schools, unpublished Ph.D. Theses. Department of Delta State University,

Tibi, E.U. (2004). *Entrepreneurial Undertaking in Agriculture in Nigeria*. Agbor Aicel publishers.

Tibi, E.U. (2011). Entrepreneurial skills needed by teachers of poultry production subject matter in Delta North Secondary Schools. *Journal of Nigerian Vocational Association* (NVA) 16(1), 9.

Uduma, M.K. (2004). An introduction to entrepreneurship in vocational agricultural education in Nigeria, Ogoja; Soyar printers.

Ugbomeh, G.M.M. (2000). Food production in Nigeria the extent to human development Delta State University, Abraka. *Journal of Education,* 2(1)5.

Ugbomeh, G.M.M. and Akpomedaye, J.F.O. (2006). Practical agriculture as a means of revenue generation in Nigeria secondary school, Delta

state University. *Journal of Education Research and Development* 5(1)22.

Unanka, C.O.(2007). Business education competencies required for entrepreneurship development. Business education journal 5(2)3-4

UNESCO (2009). Promoting skills development. Report of an international seminar. 22-23 *January Dakar UNESCO headquarters, final report UNESCO Publishing House.*

Uzoukwu, M. (1996). Diseases and Pests of Pigs in Tropics, Proceedings of the International Seminar on Pig Production. Tropics, Nsukka.

Williamson, G. and Payne, W.J.A. (2008). *An Introduction to Animal Husbandry in the Tropics.* U.K.: Longman Group Limited.

Youdeowei, A., Ezediftrna, F.O.C. and Ochapa, C.0. (2008). *Introduction to Tropical Agriculture,* England: Longman Group Limited.

ENTREPRENEURSHIP COMPETENCIES NEEDED BY STUDENTS IN THE COLLEGES OF EDUCATION FOR ENTRY INTO PIG PRODUCTION ENTERPRISE IN KOGI STATE QUESTIONNAIRE (ENTCOMCESPPEQ)

Dear Respondent,

The researcher is a postgraduate student of the Department Vocational Education (Agricultural Science Unit) Delta state University, Abraka. This research work is titled: "Entrepreneurship competencies needed by Students in the Colleges of Education for entry into pig production enterprise in Kogi State.

Your response is very important to this work. Any information given here is purely for research purpose; and it will be treated confidentially.

This instrument has different sections. Section A consists of Bio-data where you fill the name of your school, sex and tick (√) against your level. Section B, C, and D has entrepreneurship competencies for entry into pig production enterprise on the left side, while columns are on the right hand side. Tick (√) against each item in the column after carefully reading the question to give your response.

Thank you,

Leslie O. B.

SECTION A BIO-DATA

Name of schools:

Federal College of Education Okene ☐

Kogi State College of Education Ankpa ☐

 ☐

College of Education Technical Kabba

Sex: Male ☐ Female ☐

Age: 16-18years ( ) 19-21years ( ) 22-24 years ( )

Level Year III ☐ Year II ☐ Year I ☐

SECTION B:

To what extent do students in College Of Education possessed the identified entrepreneurship competencies for entry into pig production enterprise?

The response categories and their codes for question 1, are; Very highly possessed – 5 highly possessed – 4, moderately possessed – 3, lowly possessed – 2, Not possessed - 1

S/N	Extent to which students in Colleges of Education possess the identified entrepreneurship competencies for entry into pig production enterprise in Kogi State. Items(General Competencies) Ability to::	V. highly possessed	highly possessed	moderately possessed	lowly possessed	Not possessed
1	Choose a flat land or site					
2	Determine factors to be considered for housing					
3	Determine suitable housing					
4	Determine management system					
5	Indentify different housing materials					
6	Construct suitable houses					
7	Provide shade and cool environment					
8	Provide wallowing troughs					
9	Select bedding materials					
10	Tattoo pigs					
11	Use ear notching or ear tagging					
12	Carry out skin branding					
13	Use other identification methods					
14	Identify boar, sow, gilt, weaners and fatterners					
15	Identify different breeds					
16	Identify breeds that have reached sexual maturity					
17	Identify breeding types/methods					
18	Handle or transfer gilt or sow from pen					

19	Identify gilt or sow on heat					
20	Determine mating type					
21	Breed pigs					
22	Handle gestating gilt or sow well					
23	Identify pregnancies inhibitors					
24	Identify signs of farrowing in gilt or sow					
25	Midwife a farrowing gilt or sow					
26	Perform artificial insemination					
27	Identify weaning periods					
28	Care of the young ones or piglets					
29	Keep good records of breeding					
30	Identify different feed and ration ingredients					
31	Formulate ration/feed					
32	Determine feeding systems					
33	Indentify balanced diet					
34	Identify different feed; fatterners, finishers					
35	Serve creep feed to weaners					
36	Supply clean water always					
37	Identify signs of ill-health					
38	Diagnose diseases					
39	Deworm pigs					
40	Vaccinate pigs					
41	Administer medicament					
42	Castrate piglets					
43	Spray pigs at intervals to check ecto-parasites					
44	Carry out routine check-ups					
45	Cull unproductive pigs					
46	Keep hygienic environment					
47	Identify pigs that have reach market size					
48	Kill and slaughter pigs					
49	Dress the carcasses					
50	Separate offals from the porks					
51	Handle carcasses hygienically					
52	Use different storage methods					
53	Identify different market outlets for pig products					
54	Make market survey					
55	Fix affordable prices					
56	Identify ways of reaching out to customers					
57	Identify the form in which product will be marketable					
58	Identify good public relation approaches					

59	Prepare income and expenditure account					
60	Keep up to date farm records					

SECTION C:

3. What were the self-expressed entrepreneurship competencies needed by students of colleges of education for entry into pig production enterprise in Kogi State.

The response categories and their codes for question 2, are; very highly needed, highly needed, moderately needed, lowly needed and not needed

S/N	Self-expressed entrepreneurship competencies needed by students of colleges of education for entry into pig production enterprise.	v highly needed	highly needed	Moderately needed	lowly needed	not needed
1	Choose a flat land or flat					
2	Determine factors to be considered for housing					
3	Determine suitable housing					
4	Determine management system					
5	Indentify different housing materials					
6	Construct suitable houses					
7	Provide shade and cool environment					
8	Provide wallowing troughs					
9	Select bedding materials					
10	Tattoo pigs					
11	Use ear notching or ear tagging					
12	Carry out skin branding					
13	Use other identification methods					
14	Identify boar, sow, gilt, weaners and fatterners					
15	Identify different breeds					
16	Identify breeds that have reached sexual maturity					
17	Identify breeding types/methods					
18	Handle or transfer gilt or sow from pen					
19	Identify gilt or sow on heat					
20	Determine mating type					
21	Breed pigs					
22	Handle gestating gilt or sow well					

23	Identify pregnancies inhibitors					
24	Identify signs of farrowing in gilt or sow					
25	Midwife a farrowing gilt or sow					
26	Perform artificial insemination					
27	Identify weaning periods					
28	Care of the young ones or piglets					
29	Keep good records of breeding					
30	Identify different feed and ration ingredients					
31	Formulate ration/feed					
32	Determine feeding systems					
33	Indentify balanced diet					
34	Identify different feed; fatterners, finishers					
35	Serve creep feed to weaners					
36	Supply clean water always					
37	Identify signs of ill-health					
38	Diagnose diseases					
39	Deworm pigs					
40	Vaccinate pigs					
41	Administer medicament					
42	Castrate piglets					
43	Spray pigs at intervals to check ecto-parasites					
44	Carry out routine check-ups					
45	Cull unproductive pigs					
46	Keep hygienic environment					
47	Identify pigs that have reach market size					
48	Kill and slaughter pigs					
49	Dress the carcasses					
50	Separate offals from the porks					
51	Handle carcasses hygienically					
52	Use different storage methods					
53	Identify different market outlets for pig products					
54	Make market survey					
55	Fix affordable prices					
56	Identify ways of reaching out to customers					
57	Identify the form in which product will be marketable					
58	Identify good public relation approaches					
59	Prepare income and expenditure account					
60	Keep up to date farm records					

Section D

What are the constraints that work against entrepreneurship competencies for entry into pig production enterprise?

The responses categories and codes for research question 4 are;

i.) Strongly Agree -5

ii.) Agree -4

iii.) Moderately Agree -3

iv.) Disagree -2

v.) Strongly disagree -1

S/N	Constraints to Entrepreneurship Competencies for entry into pig production enterprise.	Strongly Agree	Agree	ModeratelyAgree	Disagree	Strongly Disagree
1	Inadequate fund					
2	Dearth of facilities and equipment					
3	Poor attitude of students towards practical					
4	Land acquisition					
5	Inadequacy of animals					
6	Absence of infrastructure for animals					
7	Lack of technical expertise					
8	Limited innovation in the sector					
9	Low status value of the sector					
10	Dirty nature of competencies					
11	Poor orientation and ignorance					