ENTREPRENEURIAL RE-TRAINING COMPETENCIES NEEDED BY TEACHERS OF ELECTRICAL INSTALLATION AND MAINTENANCE WORK TRADE IN SCIENCE AND TECHNICAL COLLEGES IN NORTH EAST GEO- POLITICAL ZONE, NIGERIA

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OCTOBER, 2014

DECLARATION

I hereby declare that this thesis was written by me and a record of my own work. This has not been presented before in any previous application for a higher degree. All references have been duly acknowledged

_____ _____

Onuh, James Date

DEDICATION

This Thesis is dedicated to my wife, Mrs. Regina. O. Onuh. It is also dedicated to my late parents Pa Onuh Ekele and Ma Oronya Onuh.

APPROVAL PAGE

This thesis entitled "Entrepreneurial Retraining Competencies Needed by Teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges in North East Geo-Political Zone of Nigeria" meets the regulations governing the award of Doctor of Philosophy Degree (Ph.D) of the Modibbo Adama University of Technology, Yola and is approved for its contribution to knowledge and literary presentation.

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ABSTRACT

This study was designed to determine the entrepreneurial re-training competencies needed by teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges in the North East Geo- Political Zone, Nigeria. Five purposes, research questions were posed and five hypotheses were formulated and tested for the study. The total population of the study was 161, which is made up of 83 Electrical Installation and Maintenance Work Trade teachers selected from 24 Science and Technical Colleges in the North East Geo-Political Zone, Nigeria and 78 Industrial training officers in 78 industries in the North East Geo- Political Zone, Nigeria. The entire population of 161 respondents was used for the study in view of the very small number. The instrument used for data collection was structured questionnaire. A questionnaire with five point rating scale; Entrepreneurial Re-training Competencies Needed by Teachers of Electrical Installation and Maintenance Work (ERENBTEQ) Trade in the North East Geo-Political Zone, Nigeria was constructed for the study by the researcher. The methods of data analysis used were mean, standard deviation and z-test of difference between two means. The reliability index yielded 0.95 for the entire instrument. Some of the major findings revealed were that teachers needed further re-training in the use of written communication skills with staff and students , establish goals that are useful to the society, reward correct behaviours and answers, determine the seasonal fluctuation of goods, format spread sheet, operate spread sheet, develop oneself and others, identify ones strength, be humane and caring, expose staff to innovations regularly, organize field trips to interesting places, give challenging tasks not discouraging ones, and to solve problems that resembles life's experiences It was recommended, that the State Ministry of Education, Science and Technology Board in collaboration with the Federal Ministry of Education should design an Exchange programme with Universities of Technology and or Polytechnics to offer long vacation retraining to Teachers of Electrical Installation and Maintenance Work trade in Entrepreneurial training, provision of in- service training, conferences and seminars for teachers of Electrical Installation and Maintenance Work Trade; and teachers should be encouraged through the provision of resources to sponsor students on field trips to interesting places to boost their interest. It was concluded that despite the pre-service training received by teachers in their schools, more re-training was still required so as to cope with current trends in the society.

*K*ey words: Competencies, Re-training, Entrepreneurial

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Science and Technical colleges are post-primary institutions where students learn among other things, Vocational and technical skills. They are designed to provide Vocational technical education programmes intended to prepare students for entry into various occupations levels. The Federal Government of Nigeria (FGN,2008), National Policy on Education prescribed that Vocational and technical education programmes in Science and Technical colleges be run in two stages of three years each, that is, pre-vocational at the Junior Secondary School (JSS) level, while the full vocational courses are run at the Senior Secondary Schools (SSS) level.

At the senior secondary school level, the vocational trades include wider description of specific behaviours expressed in modules of discrete practical tasks and related knowledge, which the students should demonstrate as a result of the educational process to ascertain that the general objectives of the course have been achieved. Among these trades is the Electrical Installation and Maintenance Work Trade. Electrical Installation and Maintenance Work one of the electrical engineering trades offered in Science and Technical Colleges (FGN, 2008). The curriculum is presented in modules of employable skills. These modules are: Domestic Installation, Industrial Installation, and Rewinding of Electrical Machines.

Domestic Installation module provides the students with the Skills and knowledge that enable them to undertake domestic wiring. Industrial Installation module provides students skills and knowledge on installation of cable system and machines, while winding of Electrical Motors module provides the students with skills and knowledge on statutory regulations during electrical winding work. National Business and Technical Examination Board (NABTEB, 2006).

The students would be awarded the National Technical Certificate (NTC) when they have successfully passed all the relevant modules of the course. This qualifies them to secure employment either at the end of the whole course or after completing one or more modules of employable skills; set up their own business and become self- employed and be able to employ others; pursue further education in advanced craft/ technical programme and in post-secondary (tertiary) technical institutions such as Polytechnics or Colleges of education (technical) and universities (FGN, 2008). The duration of courses in a Science and Technical College, like other senior secondary schools, shall be three years for the craft level

(NTC/NBC). The curriculum that is presented in modules, consist of five components, namely:

i. General education
ii. Theory and related course
iii. Workshop practice
iv. Industrial training experience
v. Small business management and entrepreneurial training (FGN, 2008).

The effectiveness of any educational programme is dependent largely on the number, devotion and the quality of teachers who constitute the educational system (Abbas, 2000). In the same vein, Okoro (2002) explained that teachers make more impact on the performance of students than any other school personnel. This implies that the teacher has to meet all the standards required to teach effectively; but assessing the background and present status of teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges, have shown that they have no training in Entrepreneurship with reference to management, motivation, marketing, personal effectiveness, financial and accounting competences because they were not exposed to in Tertiary institutions (Ambasht, 2002).For this fifth component; small business and entrepreneurial training to be achieved in Electrical Installation and Maintenance Work Trade, the teachers have to be retrained.

Rao (2008) defined Teacher competencies as any knowledge, skill or professional value which a teacher may be said to possess, and the possession of which is believed to be relevant to the successful practice of teaching. In this case, the general ability to solve professional problems may be regarded as competency. However, Omozokpia (2001) stated that teachers are technically competent when they possess the knowledge and can actually practice the skills they intend to teach their students. In other words, teachers are competent when they can successfully manipulate the tools and equipment to solve problems in their vocation. Since competency is so important in teaching of Electrical Installation and Maintenance Work trade, there is need to confirm the entrepreneurial re-training competencies needed by teachers so as to determine the missing gap for the effective teaching in science and technical colleges. However, for these objectives to be achieved, entrepreneurial retraining of teachers are necessary pre-requisites, as they can be motivated, as well as set the pace for their students to follow suit (Fabian, 2003). waifo (1982), asserted that most science and technical teachers have never, gone for re-training programme in order to keep abreast with the ever-dynamic technological innovation associated with the ever-

changing needs of the society. Uwaifo (1982) went further to say that this would have been done through adequate re-training programmes, workshops, seminars, conferences and higher school programmes. In the same direction, Gallapher (1983), Elaine (1985), and Wayne (1988) all believed that any vocational education programme that overlooks entrepreneurial retraining and thus fails to prepare the students for renumerative self-employment upon graduation leaves a lot to be desired.

Training is used to describe the activities and programmes that are organized by private organizations, or public establishments for the purpose of maintaining and upgrading competencies of workers in performing tasks in their jobs and which can aid such organizations to reach their set goals (Gayus, Mohammed, Oscar, Ikwuakam & Solomon, 2002). It is along this direction, therefore that Teachers shall be regularly exposed to innovations in their profession as it enhances their proper management functions, which result in performance. It also saves time, finance and accountability, increases motivation by

retaining teachers, interests, hopefully resulting in labour turn over, and familiarity with all aspects of their careers (Croft, 2006).

. For these competencies and techniques in Electrical installation and maintenance work trade to be acquired, therefore calls for re-training. Retraining can be developed as an integral part of continuing teacher education and shall also take care of all inadequacies. It is in view of this development that Uwaifo (2009), pointed out that the introduction of the programme on Technical Teachers' Training Programme in the 1980s where technical teachers were sent for training abroad, and later to specific universities in the country has really increased the number of teachers. In order to achieve one of the goals of making the individual self-reliant economically, the students have to acquire skills and knowledge in small business management and entrepreneurial training. Entrepreneurial training means equipping individuals with skills, knowledge and attitude, in addition to finance, to enable them create a business from raw-materials of their own ideas (Aluwong, 2009). It is a training that enables the individuals to take risk, innovate the various resources to create and sustain wealth, pursues opportunities in diverse areas. This type of training includes (i) Administrative approach (ii) Individual approach (iii) The organizational Development approach and (iv) Systematic approach (Mamuda & Aliyu ,2006).

Entrepreneurship has been a subject of much debate and discussion. It is looked upon differently by different authors. Some refer to entrepreneurship as risk-bearing; others view it as innovating while yet others consider it as thrill-seeking. Ronstad in Anchor (2007) sees

entrepreneurship as the dynamic process of creating incremental wealth. This wealth is created by individuals who assume the major risks in terms of equity, time, and career commitment of providing value for some products or services. An entrepreneur, in the opinion of Hornby (1996), is a person who starts or organizes a commercial enterprise, especially one involving financial risks. According to Hornby (1996), an entrepreneur could be a highly educated, trained, an illiterate person possessing high business acumen which others might be lacking or a person trained in a discipline other than the management sciences. The entrepreneur possess the following qualities: (a) Energetic, resourceful, alert to new opportunities, able to adjust to changing conditions and willing to assume the risks in change and expansion; (b) introduces technological changes and improves the quality of products, and (c) expands the scale of operations and undertakes allied pursuits, and reinvests his profits (Brozen, 2006). In modern day realities, individuals educated in the pure and applied sciences routinely find themselves with business management responsibilities either by accident or by design. In as much as, one can rise to the occasion, the truth is that it is easier, less time consuming, less waste-generating and therefore more beneficial to the enterprise or organization of the manager or the teacher if equipped with basic principles of management (Brozen, 2006).

As some businesses can be and are currently being profitably handled by illiterates or semi-literate persons, the realities of the 20th and early 21st centuries is that big businesses in particular can best be run by persons with the training in management principles coupled with cognate experiences (Anaemena,2000). This is the philosophy behind sustained workshops, short-courses and conferences in and off the job designed for managers in industries towards competencies on the job. It is along this direction that the National Policy on Education (FGN 2008), stated that all Science and Technical Colleges shall establish and operate a production unit for on the job training of students and for commercial activities to sustain Colleges. For effective commercial activities, there has to be proper marketing of the goods and services. The market and marketing are driving forces for any business activities. This necessarily means that the teacher as an entrepreneur has to develop product and service which is a need of the society. The product could be a new one or production aimed at supplementing the increasing demand (Badi & Badi, 2006).

In the same vein, Ubale (2010) pointed out the choice of teaching entrepreneurship education in tertiary institutions rested with educators who have little or no training to teach the subject. Based on some of the recommendations, the

researcher deems it fit to extend the scope of the work to cover all the 24 Science and Technical Colleges, 78 industries in North Eastern States, Nigeria to determine the entrepreneurial retraining competencies needed by teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges of North Eastern States, Nigeria. For those who advocated competency based teacher education, knowledge in the subject alone is not enough for a technical teacher of Electrical Installation and Maintenance Work Trade to be regarded as competent. The teacher must justify his qualification by actually performing competently. In other words, the teacher must reach an acceptable level of competency in his field (Diraso, 1991). Competency based education therefore, emphasizes objectives.

The foregoing assertion clearly suggests that Electrical Installation and Maintenance Work trade teachers need to acquire, upon graduation, adequate knowledge and entrepreneurial competencies. However, yet to be determined is the needed entrepreneurial retraining competencies of Electrical Installation and Maintenance Work Trade teachers who are employed to teach the subject. There is need to determine the entrepreneurial retraining competencies needed by teachers and identify their areas of deficiencies so that they can be retrained to become better prepared for effective teaching of Electrical Installation and Maintenance Work Trade and other vocational trades in Science and Technical Colleges. The basis of determining the entrepreneurial retraining competencies needed by teachers of Electrical Installation and Maintenance Work Trade prompted this research work in the North East Geo-Political Zone, Nigeria.

1.2 **Statement of the Problem**

In modern day realities, individuals educated in the pure and applied sciences routinely find themselves with Business Management responsibilities either by accident or by design. Even though one can rise to the occasion, it is easier, less time consuming, less waste generating and therefore more beneficial to the enterprise or organization if the manager or chief Executive is equipped with practical skills and in addition the basic principles of management, motivation, marketing, finance and accounting and personal effectiveness.

The economic development of any nation demands active participation in all economic activities by the citizens. The more, such people use the abilities and skills at their disposal, the more the attainment of this goal. The use of these abilities and skills has to do with effective contribution in ones place of work, study while others have to do with self employment, and the creation of jobs, thus expanding opportunities for others to be

employed; but when there is lack of entrepreneurial training for teachers that are to impart these competencies and techniques, the issue of economic development would be at stake.

In the same vein, self reliance is the benefit which a good Vocational and Technical Education programme should provide. This leads to self employment and ability to explore business opportunities through which some financial benefits may be accruable. The lack of entrepreneurial competencies by students can affect their ability to create wealth. This is why Ubale (2010), pointed out that the educators in tertiary institutions in the North Eastern States, Nigeria did not teach their students as a result of lack of knowledge in entrepreneurship education, as the same students who could be teachers later would be faced with these challenges if not retrained. This is due to the fact that Teachers themselves did not possess these competencies. The concern of this study is that teachers of Electrical Installation and Maintenance Work Trade have little or no knowledge of Entrepreneurial competencies, which are required to make their students achieve self employment and job creation.

1.3 Purpose of the Study

The purpose of the study was to determine the Entrepreneurial re-training competencies needed by teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges of North Eastern states, Nigeria. Specifically, the study sought to:

1. Determine the entrepreneurial managerial re-training needs of teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges.
2. Identify the entrepreneurial motivational techniques needed by teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges
3. Determine the entrepreneurial marketing re-training needs of teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges.
4. Determine the entrepreneurial financial and accounting re-training needs of teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges.
5. Determine the entrepreneurial personal effectiveness techniques needed by teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges.

1.4 Research Questions

The following research questions guided the researcher in this study:

1. What are the entrepreneurial managerial re-training needs of teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges?

2. What are the entrepreneurial motivational techniques needed by teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges?
3. What are the entrepreneurial marketing re-training needs of teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges?
4. What are the entrepreneurial financial and accounting re-training needs of teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges?
5. What are the entrepreneurial personal effectiveness techniques needed by teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges?

1.5 Hypotheses

The following hypotheses were formulated and tested at 0.05 level of significance.

Ho_1: There is no significant difference between the mean opinions of Electrical Installation and Maintenance Work Trade teachers and industry training officers on the entrepreneurial managerial re-training needs of teachers.

Ho_2: There is no significant difference between the mean opinions of Electrical Installation and Maintenance Work Trade teachers and industry training officers on the entrepreneurial motivational techniques used by teachers.

Ho_3: There is no significant difference between the mean opinions of Electrical Installation and Maintenance Work Trade teachers and industry training officers on the entrepreneurial marketing re-training needs of teachers.

Ho_4: There is no significant difference between the mean opinions of Electrical Installation and Maintenance Work Trade teachers and industry training officers on the entrepreneurial financial and accounting re-training needs of teachers.

H05: There is no significant difference between the mean opinions of Electrical Installation and Maintenance Work Trade teachers and the industry training officers on the personal effectiveness techniques used by teachers.

1.6 Significance of the Study

The findings of this study would benefit electrical installation and maintenance work trade teachers, Industry training officers, students, graduates, Federal and State Ministries of Education, science and technical college institutions and industries. The entrepreneurial re-training needs would be imparted to these students of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges hence they would be fully acquainted with the ideas of motivation, management, marketing, financial and accounting principles and personal effectiveness techniques needed by teachers in science and technical colleges in

North East Geo-Political Zone, Nigeria. Similarly, the Federal and State Ministries of Education would also benefit from the findings as they would know the number of teachers that would benefit financially every year as they plan and make budgetary requirements for the re-training of teachers on workshops, conferences and seminars. The graduates of Electrical Installation and Maintenance Work Trade would be gainfully employed or self-employed as their performance would improve, through the knowledge of entrepreneurship education thereby reducing massive unemployment; that is invariably by creating jobs.

The findings of the study would keep the industry training officers abreast of the current principles; innovations used in the industries, and discard the ones that are obsolete. This would help to keep to the current trend of things and the ones that are in dire demand. The findings would help the teachers to teach their students on ways of handling financial matters, as they establish their own businesses or secure gainful employment. It helps Science and Technical Colleges to adequately plan for proper teaching of the subject, by making adequate financial provisions where necessary.

1.7 Delimitation of the Study

The study was delimited to entrepreneurial managerial, motivational, marketing, financial and accounting, and personal effectiveness re-training needs of teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges in the North East Geo- Political Zone, Nigeria.

1.8 Operational Definition of Terms

Competencies: These are processes of doing activities or things well, measured against a standard, especially ability acquired through experience or training.

Entrepreneurship: This is the process of setting up and effectively managing a business for financial benefits.

Retraining: This is the process of re-visiting the knowledge, competencies, behaviours, and attitudes learnt in a formal school.

Personal: Belonging to or affecting a particular person rather than anyone else.

Effectiveness: Success in producing a desired or intended result.

Industry: This is a private or public organization that accepts students on industrial training.

Techniques: Ways or processes used by teachers and industry training officers to bring about specific changes in an organization (a change in the lives of people).

CHAPTER TWO

LITERATURE REVIEW

The literature review for the study was organized and presented under the following sub headings:

2.1 Theoretical Framework

Schumpeter's Economic Entrepreneurship Development and creative destructive theories have been adopted as suitable for this particular work. Schumpeter as cited in Jhingan (2008) and Ubale (2010), considered the raising of income levels in developed countries as Economic growth, while that of developing countries as Economic development. Schumpeter considered entrepreneurial economic development as a discrete dynamic change brought about by entrepreneurs instituting new combination of production that is innovation.

Schumpeter's theory of economic entrepreneurship development as cited in Jhingan (2008) and Ubale (2010) assumed a perfectly competitive economy which is in stationary equilibrium. In such a stationary state, there is a perfect competitive equilibrium; no profit, no interest rate, no savings, no investment and no involuntary unemployment. This equilibrium, according to Schumpeter in Jhingan (2008) and Ubale (2010) is characterized by what Schumpeter termed the circular flow which continues to repeat itself in the same manner year after year. In the circular flow, the same products are produced every year in the same

manner. Schumpeter stressed further that for every supply there awaits some wherein the economic system a corresponding demand and for every demand the corresponding supply. To Schumpeter, the circular flow is a stream that is fed from the continually flowing springs of labour-power and land, and flows in every economic period into the reservoir which is income, in order to be transformed into the satisfaction of wants.

Schumpeter as cited in Jhingan (2008) and Ubale (2010) saw development as the spontaneous and discontinuous change in the channels of the circular flow, disturbance of equilibrium, which forever alters and displaces the equilibrium state previously existing. Schumpeter in the entrepreneurial economic development stresses that these spontaneous and discontinuous changes in economic life are not forced upon it from without, but arise by its own initial start in life. Schumpeter stresses further to say that development consists in the carrying out of new combinations for which possibilities exist in the stationary state. New combinations come about in the form of innovations. The introduction of new combinations of factors of production according to Schumpeter, as cited in Jhingan (2008) and Ubale (2010) might occur in any of the following five forms: (i) The introduction of a new product in the market (ii) The introduction of a new production technology which is not yet tested by experiences in the branch of manufacture concerned (iii) The opening of a new market into which the specific product has not previously entered (iv) The discovery of a new source of supply of raw materials (v) the carrying out of the new form of organization of any industry by creating a monopoly position or the breaking up of it.

Schumpeter in Jhingan (2008) and Ubale (2010) assigned the role of an innovator not to the capitalist but the entrepreneur. The entrepreneur is not a man of ordinary managerial ability, but one who innovates. The innovator does not provide funds but directs their use. The entrepreneur is motivated by (i) the desire to fund a private commercial business, (ii) the will to conquer and prove his superiority and (iii) the joy of creating, of getting things done, or exercising ones energy and ingenuity. The nature and activities depend on social and cultural environment. To perform economic functions, the entrepreneur requires two things; first, the existence of technical knowledge, second, the power of disposal over the factors of production in the form of credit. According to Schumpeter, a reservoir of untapped technical knowledge exist which can be made use of. Therefore, credit is essential for development to start. Schumpeter stressed that, an entrepreneur innovates to earn profits. Profits are conceived as a surplus over costs: a difference between the total receipts and outlay as

function of innovation. According to Schumpeter, under competitive equilibrium the price of each product equals its cost of production, and there are no profits. Profits arise due to dynamic changes resulting from an innovation. This continues to exist till the innovation becomes general.

Schumpeter's model starts with the breaking up of the circular flow **w**ith an innovation in the form of a new product by an entrepreneur for the purpose of earning profits. In order to break the circular flow, the innovating entrepreneurs are financed by bank credit expansion. Since investment in innovation is risky, they must pay interest on it. Once the new innovation becomes successful and profitable, other entrepreneurs follow it in swam like cluster. Innovation in one field may induce innovations in related fields. The emergence of a Global System for Mobile Communication (GSM), business in the country has stimulated a way of new investment in the sale and repair of handsets, charging and sale of cards and accessories. Also the emergence of Power Holding Company of Nigeria (PHCN) has stimulated a way of investment in the sale of conduit cables, PVC cables, poles, assorted meters, clips, and assorted nails.

Schumpeter in Jhingan (2008) and Ubale (2010) pointed out that since investment is assumed to be financed by creation of bank-credit, it increases money incomes and prices and helps to create a cumulative expansion, throughout the economy. With the increase in the purchasing power of the consumers, the demand for the products of the old industries increases in relation to supply. Prices rise, profits increase and old industries expand by borrowing from the banks. Prices induce a secondary wave of credit inflation which is superimposed on the primary wave of innovation. After a period of gestation the new products start appearing in the market, displacing the old products, thereby enforcing a process of liquidation, re-adjustment and absorption. Schumpeter believes in the existence of upswing which is brought about by innovation.

The study is also centered on Schumpeter's creative destructive theory which describes the old economic structures of society as being continually destroyed and the new structures as being continually created in their place. Entrepreneurs are the key figures in Schumpeterian analysis, because they bring about economic development in spontaneous and discontinuous manner. The theories of entrepreneurial economic development by Schumpeter with relation to the study could be seen, that as subjects are taught in science and technical colleges, the teachers on the job have to be retrained so as to face the challenges of entrepreneurship before them. In this trend the old structures gradually give way to new

ideas. These theories bring to note that as teachers of Electrical Installation and Maintenance Work Trade are retrained in these entrepreneurial competencies needs, the old ideas give way to new ideas, thereby creating a difference between the economy and the society. The theories of economic entrepreneurship development if strictly followed would give rise to the implementation of pragmatism.

2.2 The Need for Entrepreneurial Re-training of Teachers in Science and Technical Colleges

The concept of competencies need as defined by John and Curtis, (1984), refer to behaviours, and abilities that directly and positively impart the success of employees and organizations. Competencies are processes to be measured, enhanced and improved through coaching and learning opportunities. Office of personnel management, OPM (2000), defined competency as a measurable pattern of knowledge, abilities, behaviours,and other characteristics that an individual needs to perform work roles or occupational functions successfully. Competencies specify the 'how' of performing job tasks, or what the person needs to do the job successfully (Shippmann ,2000). Aggarwal 2003), saw competencies in two major categories: firstly, those involving the teachers mental abilities and methods and secondly, the teachers knowledge of specific subject matter to be taught. Competencies tend to be either general or technical. General competencies reflect the cognitive and social capabilities (examples problem solving, interpersonal skills) required for job performance in a variety of occupations. On the other hand, technical competencies are more specific as they are tailored to the particular knowledge and behaviour requirements necessary for a specific job (Aggarwal, 2003).

The concept of entrepreneurship education itself however still remains a challenge to both educators and researchers (Aggarwal, 2003). Even so, there seems to be a common understanding that entrepreneurship is mainly concerned with the way in which teachers and organizations create and implement new ideas and ways of doing things, respond proactively to the environment and thus initiate change involving various degrees of uncertainty and complexity (Schumpeter, 1934; Landstrom, 1998). In general, Okorie (2001) stressed that competencies and knowledge are inseparable entities in teaching vocational education. That is, competencies are the manifestation of acquired knowledge. It is the knowledge the teacher acquired that is translated into practical knowledge. For example, Gibb (2005), argued that entrepreneurship education should involve behaviours, competencies and attitudes applied individually and/or

collectively to help individuals and organizations of all kinds to create, cope with and enjoy change and innovations involving higher levels of uncertainty and complexity as a means of achieving personal fulfillment. Thus, the concept of entrepreneurship brings to the educational dialogue its specifics of creativity and opportunity. This was supported by Fiet (2000) who declared that:

"entrepreneurial competencies need consist of a combination of methods, knowledge and resources that distinguish an entrepreneur from his or her competitors. For student entrepreneurs to master competencies in the classroom they must be fully engaged in activities that will teach it to them. Thus, both students and teachers have a role in the acquisition of competencies". (p. 107)

According to Ekpo (2000), as cited in Ewuga (2005), educational planners envisage that no matter the efficiency of the pre- service training given to teachers, there could be areas of inadequacies. Okoro(1991), as cited in Ewuga (2005) stated that when individuals are well trained for the work they do, they find the job more interesting and they derive more pleasure and satisfaction from it. They suffer from less boredom and tension and their mental health is improved. Nwanoruo (2001), as cited in Ewuga (2005) stated that a teacher who is well trained at the beginning of career easily falls behind as a result of latter developments in his areas, unless such a teacher continues to receive additional training. In many contemporary African societies including Nigeria, one of the challenges facing primary and secondary education is how to promote the quality of teaching and learning that takes place in schools. According to Pelomo (2007), producing qualitative teachers is a problem that ranked very high amongst the problems associated with our educational system. It is believed that no nation can rise above the quality of her teachers, that is, the quality of teaching correlates highly with the rate of development (Pelomo, 2007). The quality of teachers of Electrical Installation and Maintenance Work Trade therefore, determines the quality of students produced for tertiary institutions and as well the labour market.

Vocational educationists believe that the best education for a developing nation as Nigeria is entrepreneurship education because it is liberating (Phipps, 1980; Olaitan, 1984; Etuk, 2000, Ekong, 2001). Chaudler and Jansen (1992) found that to perform well, an Electrical Installation and Maintenance Work Trade teacher, must acquire three types of competences, namely; entrepreneurial, managerial and technical functional competences. The most fundamental of these are the entrepreneurial competencies and managerial competencies as the technical-functional competencies only become useful when the entrepreneurial

competencies have been achieved. Thus, it seems reasonable to turn to entrepreneurial competencies in learning and teaching if one wishes to advance entrepreneurship education.

The competencies based approach is actually fast becoming the most common type of structure for training programmes and courses (Bosman & Gerard, 2000). The limitations and poor predictive ability of research into the psycho-social characteristics of entrepreneurs have certainly been factors in diverting the attention of researchers away from what entrepreneurs are towards what they do and hence, towards the competencies they need to play their roles. This necessity of being able to combine the acquisition of knowledge and new skills in the entrepreneurship classroom has also been supported by William (2003), who recommended that the course content should be integrated around the supervised experience programmes of the students. It should be practical instruction on specific occupational skill requirement for anticipated performance efficiency in a chosen occupational area like in Electrical Installation and Maintenance Work Trade. Williams (2003), maintained that it should be designed to make students acquire the relevant entrepreneurial skills to become wealthy through vocational occupations and as well become self-relevant and self-sustaining in the society.

According to Ekong (2003), the need of entrepreneurial education to Nigerian teachers of Electrical Installation and Maintenance Work Trade, includes:

i. Sensitizing teachers on occupational choice to which they possess minimum abilities
ii. Acquiring relevant functional experiences to make students be job creators rather than job seekers
iii. Enhancing positive attitude towards entrepreneurial occupations
iv. Creating awareness on self-employment opportunities
v. Enhancing the identification of business opportunities.
vi. Acquainting teachers with the demands in the world of work
vii. Promoting self initiatives and innovations
viii. Encouraging students through teachers to be self reliant and self-sustaining on graduation.
ix. Integrating teachers of Electrical Installation with the society as useful citizens contributing to the wealth of the nation (p.6-11)

Competencies improve individual performance, by modeling the behaviours that make high performing employees successful in their jobs. It helps to lay out a road map to superior performance, but only through personal commitment to excellence, motivation, and actual consistent performance that determines performance level. Ideally, competences help to fix

attention to key business goals and values, such as improved customer service. Applying competencies at work would help to make one more creative in meeting job demands and allow one to generally adapt to changes at work (shippmann , 2000)

Also Gibb (2005), argued, that competencies are linked to knowledge. The traditional separation of competencies from knowledge can be argued to be philosophically unsound, as competences in themselves always embody a knowledge base in the context of their application. The need for entrepreneurial competencies in Entrepreneurship education equips teachers of Electrical Installation and Maintenance Work Trade to be able to initiate and run their teaching efficiently and profitability. This would help to generate more employment, increase in national income on a cumulative basis and generally economic growth and development. The need for entrepreneurial competencies of teachers cannot be over emphasized.

2.3 Entrepreneurial Managerial Re-training Needs of Teachers of Electrical Trade in Science and Technical Colleges

Barton and Thankur (1995) observed that, every management author seemed to have developed different definitions for management; nevertheless, the basic meaning of the term has remained virtually unchanged over the years. The word management is frequently used in two ways, first in reference to corporate leadership and second, an activity. With reference to corporate leadership, management is used to connote a body of people who assume a joint responsibility for formulating, interpreting and implementing the broad policies of the organization. Like an Electrical Installation teacher, what are the competences he deserves to be managerially competent in the Science and Technical College? The organization in this case is the Science and Technical Colleges in the whole of North East Geo- Political Zone, Nigeria.

Awopegba (1999) pointed out that in recent time; the global concern of management has been that of developing appropriate strategies for the efficient management of human resources. In the words of O' Riordan (1999) resource management is a process of decision-making where resources are allocated over space and time according to the needs, aspiration and desires of a teacher within the framework of his technological inventiveness, his political and social institutions and his legal and administrative framework. Statt (2004) saw management as all that is involved in making the most effective use of available resources, whether in the form of machines, money or people. Statt (2004) also saw management as a collective term for the people responsible for the management of an organization that is, for

directing, planning and running of its operations, for the implementation of its policies and the attainment of its objectives.

There are management competencies needs that have to be carried out by the teacher as a leader. However, for an Electrical Installation and Maintenance Work trade teacher to be efficient in his functions, he has to be characterized by a strong drive for responsibility and task completion, vigor and persistence in pursuit of goals, venturesomeness and originality in problem solving, drive to exercise initiative in situations, self confidence and sense of personal identity, willingness to accept consequences of decision and action, readiness to absorb interpersonal stress, willingness to tolerate frustration and delay, ability to influence other persons behaviour, and capacity to structure interaction systems to the purpose at hand (Okoro, 1999).

Thus, the teacher has the following management competencies to carry out in the course of his responsibility:

1) Planning: Every function starts with planning, so it is in the school system. Planning according to Abioye (2000) is a pre-determined course of action to accomplish the set objectives. Planning gives a school organization its objectives and sets up the best procedure for reaching them. It involves decision-making as to what is to be done, where it should be done and when it should be accomplished. For an Electrical Installation and Maintenance Work trade teacher to be ready for this planning process to be effective in his class work he must endeavour to be zealous, patient, hardworking, tolerant, insightful and so on to be able to carry out the function of planning successfully (Adebayo, 2000). A teacher who embarks on planning knows that there are benefits attached to it in his school as an organization; such benefits include:

i. Provision of more rational, efficient and timely data
ii. Coordination of different organizational activities
iii. Provision of a sense of purpose
iv. Facilitating control
v. Providing for optional acquisition, maintenance, utilization, disposal and replacement of physical and human resources (Adebayo, 2000, p.63).

(2) Organizing: Merely planning is not managing a business. It also includes bringing together the executive personnel, workers, capital, machinery, materials, and other physical facilities to execute the plan (Khanka, 2002). It is when these resources are assembled that the school as an organization comes to life. Thus, organizing in this context involves the

teacher bringing together the students in his trade and the material resources for the achievement of the goals set by the school. Organizing involves dividing work into different groups or parts, like Electrical students being grouped for practical, grouping these activities in the form of positions, grouping of various positions into departments, assigning such positions to team leaders and delegating authority to each team leader or class representative to accomplish the task in a planned manner. Thus, Khanka (2002) saw organizing function as a tool used by the Electrical trade teacher to translate his plans into realities. In this way, organizing in ultimate analysis provides a mechanism for purposive integrated and cooperative action by a teacher in a school to implement plan. 3) Directing:

According to Massie (1994) directing concerns the total manner in which a teacher influences the action of his students. It is the final action of a teacher in getting others to act after all preparation has been completed. Haimann (1995), defined controlling as the process of checking to determine whether or not, proper progress is being made towards the objectives and goals, and acting if necessary, to correct any deviation. Controlling function involves the following sub-functions;

i. Determination of objectives or standards of the subject being taught in this case, Electrical trade
ii. Measurement of actual performance
iii. Comparison of actual performance with standards or objectives set
iv. Determination of difference between the two
v. Taking corrective measures so that the standards or objectives set are attained. (Haimann, 1995, p.8)

The functions like planning and organizing are merely preparations for doing the work; the directing function actually starts with teaching. The directing is concerned with guiding, teaching, stimulating and motivating the teachers to teach efficiently (Adebayo, 2000). It involves telling the how they have to do it (Adebayo, 2000). 4. Controlling: Controlling, according to Khanka (2002) means to see whether the activities have been performed in conformity with the plans or not. Thus, controlling is comparison of actual results with the targets and objectives, identification of variation between the two, if any, and taking corrective measures so that objectives set are achieved. That was why Lawal (2000) stated that the ability of a teacher to achieve effective control of his students depended on availability of time, efficient and accurate information, understanding of the control system,

flexibility of the control, communication of control, efficiency of the control and the immediate corrective measures.

For an Electrical Installation and Maintenance Work Trade teacher to efficiently manage the affairs of his class and subject, Onyeukwu, (2009) enumerated some of the managerial competencies as follows:

i. uses position to support team and individuals efforts

ii. gains support of others to accomplish task

iii uses knowledge of organization and relationships to enhance results

iv.communicates vision for organizational success that speaks excitement in others

v. sets direction for the future as well as the present

vi. uses knowledge of emerging trends and external forces to set direction (p.173)

The increasing demand for small business enterprises needed for Nigeria economic, industrial and technological development are in fact the dwindling rate of paid employment. The demand that teachers of Electrical Installation and Maintenance Work Trade in the science and technical colleges should possess adequate entrepreneurial management competencies so that their students would be gainfully employed cannot be over emphasized.

2.4 Entrepreneurial Motivational Techniques needed by Teachers in Science and Technical Colleges

The specific task areas of leadership would vary from one situation to another. A major task of an Electrical Installation and Maintenance Work Trade teacher is how to influence the behaviours of his students so that the results of the system were attained. The energy and enthusiasm to achieve a viable behavioural change among the students is a major challenge faced by an Electrical trade teacher (Suleiman, 2000). If the teacher places too much emphasis on the requirements and the needs of the school and shows little concern for the basic needs of the students and the support staff under him, it is unlikely that the staff and students under him will be motivated to make maximum contribution (Adesina, 2001).

There are at least three major ways by which the school teacher can prepare the proper atmosphere that would motivate his support staff and students. The first is by providing immediate attainable goals towards which the staff and students would work. The second way of facilitating motivation is to support them is to ensure that means are provided for attaining goals set for them (Adesina, 2001). That is to say if teachers want their students to maintain a high percent achievement in the examinations in Electrical Installation and Maintenance Work trade, they must also teach the students. Maximum contribution cannot be

made when teaching and learning facilities are inadequate or not provided at all. The third way of preparing a good atmosphere for motivation is through feedbacks. When goals have been set and means of achieving them clearly established; the Electrical trade students would like to know how they are doing in their examination, both internal and external. Feedbacks do not necessarily have to be positive, but could be negative as well (Adesina, 2001). For motivation to effectively take place, the teacher has to understand the staff and students and their abilities.

It would be very difficult for an Electrical Installation and Maintenance Work trade teacher to motivate his students, if he makes no attempt to know them and ascertain their strengths and weaknesses (Mohammed, 2002). Since the class of students comprise students of different intelligent quotients (I.Q.), it is essential that the teacher gets to know the characteristics and capabilities of the students under him. It would be difficult for an Electrical Installation and Maintenance Work Trade teacher to motivate his support staff, since the support staff have differences in behaviours and characters, it is essential that the technical teacher, gets to know the characteristics and capabilities of their staff (Mohammed, 2002). In the same vein, there should be a participative class room management strategy. Here the students are motivated towards learning by being involved in the planning and organizing of the teaching learning activities. This act stimulates the students and raises their morale to learn better (Anumnu, 1989). When class room activities are participative as against lecture method, teachers express confidence in the students and they themselves get more motivated to carry out their tasks (Anumnu, 1989). A study by Richter and Tjosvold (1990), on students' motivation reviewed that students who participate in decision making in the class develop favourable attitude, positive interaction, internal motivation and then learn better. The effect of this results in self-discipline in students and fewer classroom management problems. This strategy therefore becomes useful to the teaching of many subjects.

The only way in which management can be successful in any organization is through communication (Davis, 1996). In a Technical college, acts of administrators must pass through various communication channels. According to Davis (1996), motivation directly involves communication; therefore communication should not be viewed as an independent activity. According to Davis (1996), if barriers are substantially removed, people can work together. One of the purposes of communication is to develop information and understanding

necessary for a group effort (Suleiman, 2000). An Electrical Installation and Maintenance Work trade teacher must;

1. Emphasize the use and application of information
2. Encourage participation of students
3. Give students time to digest what they learn
4. Help them to understand the meaning of what they are learning
5. Keeps confidence and honours commitments
6. Be open in communication
7. Rewards students or employees who demonstrates integrity in the face of adversity
8. Creates an environment to share in both reward and risks
9. Promotes cooperation
10. Promotes trust
11. Promotes open exchange of ideas (Suleiman, 2000, p.163)

One of the most consistently successful motivation mechanisms to achieve results from students is positive reinforcement (Suleiman, 2000). If effectively used, this will encourage desirable behaviour towards high productivity in the class room. Praise, approval, encouragement and attention are all examples of social reinforcers, students can receive from teachers. These reinforcers discourage undesirable behaviours that affect learning of any type of skill. Each student in the school is unique. Students generally act and think in certain ways due to abilities to learn new skills, the attitude and preferences and the motives they have or develop (Adesina, 2001). Adesina asserted that the life of those with whom the students associate in the school setting has great influence on their learning outcomes, pointing out that one of the most important personalities the child comes in contact with is the teacher. The quality and behaviour of a teacher that impacts knowledge to students act as a source of inspiration towards skill or knowledge acquisition. A well-trained, dedicated and value loaded teacher influences students' attitude and perception towards developing new competences (Adesina, 2001).

In another dimension, inclusion of field trips and excursion in curriculum and pedagogical delivery would go a long way to help students to learn by seeing and feeling of objects that are being taught theoretically. Most subjects are better understood by seeing, feeling and doing (Suleiman, 2000). A student that is constantly taken to power holding companies and installation houses for instance often gets motivated towards developing positive attitude about electrical trade. The yields from the Power Holding Company, Nigeria

Electrical Regulation Company (NERC) as shown to the students would motivate them into owning a small scale venture in Electrical Installation and Maintenance Work Trade.

In a similar way, Anumnu (2001) noted the need for orientation and re-orientation strategy towards developing positive philosophy on vocational and technical institutions. The past and present philosophy about entrepreneurship education calls for proper orientation among the youths. Anumnu (2001) went further to say that at this period of technological advancement, parents, teachers and the society at large should motivate students enough by offering subjects that would tailor their skills towards entrepreneurship. In another direction, Abdu asserted the need for an enabling environment to motivate the students towards entrepreneurship. Abdu (2002) noted that often times a child grows in an environment that does not empower or inspire them towards acquiring the type of knowledge or skills they desire to acquire. Abdul (2002) emphasized that in a school environment where there are necessities of life like portable water, electricity, good accommodation facilities, good instructional materials and recreational facilities, students would be motivated to study hard. Along this direction, Abdul (2002), pinpointed that conducive environment devoid of incessant crisis, makes students productive and eventually acquires all the necessary skills needed to start any business of choice after schooling. Abdu noted that most times harsh school environment affects the motivation to learn and turns a clog in the wheel of academic performance of students.

There is a proper need for students of Electrical Installation and Maintenance Work trade to be oriented and re-oriented towards developing positive philosophy towards the subject. This could be done when they are motivated, and their skills tailored towards technological advancement.

2.5 Entrepreneurial Marketing Re-training Needs of Teachers in Science and Technical Colleges

Mitchell (1998) saw marketing as activities involved in the flow of goods and services from production to consumption. The market and marketing are driving forces for any business activities. This necessarily means that an entrepreneur, has to develop a product and service which is a need of the science and technical colleges. The business transactions could be from business to consumer (Mitchell, 1998). Ultimately, the goal is to facilitate transactions of goods and services between the entrepreneur and the consumer.

Marketing, according to Adebayo (2000) is an important aspect of any business enterprise. Its activities begin before production and continue after the sale is made. Corrot

(2006) looked at marketing as not any particular place in which things are bought and sold, but the whole of any region in which the buyers and sellers are in such free interaction with one another. Marketing is the process of organizing transactions of goods and services in a manner that satisfies customers and meets the organization's objectives (Pyle, 2001). According to Pyle (2001) the main objective of the business is to make profit in some areas where socio-economic considerations are also attended. For instance, where the good start like Power Holding Company of Nigeria is to generate and distribute to rural sectors at subsidized rates, where the power is supplied to cities at higher rates.

In a similar direction, managers who adopt a market orientation recognize that marketing is vital to the success of their organization (Williams, 2001). This realization according to Williams (2001) is reflected in a fundamental approach to doing business that gives the customer the highest priority, called the marketing concept; which emphasizes customer orientation and coordination of marketing activities to achieve the organizations performance objectives. Walkers (2001) based the marketing concept on three beliefs that are: All planning and operations should be customer-oriented. That is, every department and employee should be focused on contributing to the satisfaction of customer need. Walkers (2001) went further to say that all marketing activities in an organization should be coordinated. This means that marketing efforts (product, planning, pricing, distribution and promotion) should be designed and combined in a coherent, consistent way and that one executive should have over all authority and responsibility for the complete set of marketing activities.

Walkers (2001) reiterated that customer oriented coordinated marketing is essential to achieve the organization's performance objectives. Walkers stressed that the ultimate objective for a business is typically a profitable sales volume. However, the immediate objective might be something less ambitious that will move the organizations closer to its ultimate goal. Sometimes the marketing concept is simply stated as a customer orientation, as expressed in these words of Walton (2002) "There is only one boss: the customer".

According to Etzel (2002), a customer purchases a product because it provides satisfaction. The want satisfying power of a product is called its utility and it comes in many forms. It is through marketing that much of a product's utility is created (Eztel, 2002). In a similar direction, form utility is associated with production the physical or chemical changes that make a product more valuable. For, instance when copper is made into insulating wires, form utility is created. This is production; not marketing contributes to decisions on the style,

size and colour of the wire. Similarly, marketing is involved in developing almost all products (Walton, 2002). Apart from developing the products, they have to be accessible to potential customers. An action on the interest can increase the number of buyers and sellers, but once products are purchased they still have to be delivered quickly and in good condition (Walton, 2002).

In the same vein, utility has to be involved. This is when a product is available when you want it (Bruce, 2002). Bruce went on to say that buyers can visit them at day or night at their convenience. There is no need to have a store open or staffed, in addition to the availability of the products, Bruce (2002), asserted that information utility has to be created by informing prospective buyers that a product exists; and that unless one knows about the product and where one can get it, then will the product have value.

Marketing is discussed on how to reach it and serve it profitably and in a socially responsible manner. The market should be the focus of all marketing decisions in an organization (Watson, 2002). That is why Watson looked at a market in another direction as place where buyers and sellers meet, goods and services are offered for sale, and transfers of ownership occur. Watson stressed further to say that a market may be the demand made by a certain group of potential buyers for a good or service. For marketing purposes, Watson (2002) defined a market as people or organization with needs to satisfy, money to spend and the willingness to spend money. Thus, in marketing any given good or service, their specific factors need to be considered. (1) People or organizations with need (2) their purchasing power and their buying behavior (Eztel, 2002).

Similarly, McHugh (2002) looked at marketing concept from three parts namely; (1) a customer – orientation (2) a service orientation and (3) a profit orientation; but went on to stress that all these have to involve customer relationship management. By this McHugh (2002), meant that customer relationship management is all about learning as much as possible about customers and doing everything you can to satisfy them or even delight them with goods and services over time. In another direction, McHugh (2002) maintained that even though the marketing concept emphasizes a profit orientation, marketing is a crucial part of almost all organization, whether profit or non-profit. McHugh further stressed that securities use marketing to raise funds or to obtain other reserves. For instance, the Red Cross might have a promotion to encourage people to donate blood when local or national supplies run low, churches use marketing to attract new members and raise funds. Politicians use marketing to get votes. States use marketing to attract new businesses and tourists. Schools

use marketing to attract new students. Unions and social groups also use marketing. The advertising council uses marketing to create awareness and change attitudes on such issues as drunk driving and fire prevention (Walkers, 2002).

Implementing the marketing concept has led to more emphasis on marketing management so that pleasing the customer has become a priority for management (Robert, 2003). Marketing management according to Robert (2003) is the process of planning and executing the conception; pricing, promotion and distribution (place) of ideas, goods and services (products) to create mutually beneficial exchanges. The ideas according to Robert (2003) are to please customers and make a profit by so doing. The entrepreneur chooses the proper price, promotion, and place to develop a comprehensive marketing program. The ingredients that go into a marketing program according to Robert (2003) are: product, price, place and promotion.

Marketing, according to Badi and Badi (2006) is explained in terms of 4 p's that is product, price, promotion and place. The p's refer to the distribution activities. These four factors together are referred to as the marketing mix (Badi & Badi, 2006).

(i) Product: Badi and Badi (2006) refer to product as object and services being sold. In this context the product refers to the students being taught the subject Electrical Installation and Maintenance Work trade. It covers packaging, the brand name and the warranty. The physical attributes like shape, style, colours, size, materials not only help in marketing strategies but also give a distinct identity to the company or the school. The quality and consistency of quality are very important for any product for sustenance in the competition. An entrepreneur or the teacher has to choose a product that is befitting the needs and expectations of the society. (ii) Price: This is the monetary value attached to the product or service. Price is the value that an entrepreneur or the teacher gets for the output or result. The price could be reasonable, low or high based on the quality and competitions on a comparative basis. Price influences the sale volume and price can vary from segment to segment, region to region (Sharon, 2006). (iii) Promotion: Sharon (2006) looked at it as an activity that is related to communication about the product to prospective customers. The aim of promotion according to Sharon is to highlight about speculation and qualities of the product to entice the customers. Some of the commonly followed promotion activities are personal selling, direct selling through internet and usage of audiovisual aids. Promotion activities are done for new products, innovative products and products where competition is very high. Nowadays T-V media is extensively used for promotional activities of various fast

moving consumers goods; electronic goods and automobile goods. An entrepreneur has known and uses the most suited promotional method for products and service (Sharon, 2006). (iv Place: This refers to placement function of the product through distribution. This involves transportation, warehousing retailing, catalogues, services manual and appointment of agents for distribution of the goods. A marketing manager has to keep track of his staff as well as outsiders to get the things done as per the marketing plan of action (Sharon, 2006).

For any new venture, it is always advantageous to take up a market research for the chosen product in the chosen marketing area (Badi & Badi 2006). Marketing research involves collection of data relevant to customers. Preference has to be given to product attributes; price, distribution channel and about their opinion on the existing similar product. The method of market research is related to the cost of research, the product and the client. There are consultancy services as well as market research service organizations that can do market research on a specific contract basis (Sharon, 2006). Badi and Badi (2006) asserted that there are various stages about doing a market research. The commonly observed steps in marketing research are as follows:

Step 1: Defining the objectives

In order to know the potential of the market and to prepare a marketing plan an entrepreneur would have to get certain information from the potential customer. The objective is to ask the people what they think of the product, their interest to buy it and the age and sex ratios that have been showing interest. Such information will enable the production of a more reliable market plan. From collection of such data, it will be possible to arrive at the following.

i. The likely quantum of potential customers willing to pay for the product

ii Places where potential customers would like to buy the product

iii. The type of promotional activity that is likely to give the message about the products to the potential customers

iv. The above criteria will enable decision on quality, quantity, price and promotion and methods for the product

Step 2: Collection of Data from secondary service: In this Badi and Badi (2006) noted that an entrepreneur has to scan various secondary services like trade journals, books related to the product, magazine and publications made for various exhibitions, government publications, university libraries and the internet. .

A Science and Technical college could have so many students in Electrical Installation and Maintenance Work Trade as a result of location in sitting the Science and Technical college, but still fail to attract students as a result of their graduates not being employed or could have failed results at the end (Kio, 1999). Tang (2004), looked at marketing as an attitudinal behaviour that shows that an Electrical trade teacher likes to help his students and customers do what he should do. Attitudes are contagious since the Electrical trade teacher has chosen the profession, he should be able to do the best, be positive and make each moment a special one for himself, his colleagues, his students and employers (p. 183).

For any new or existing science and technical college to function properly where viable teaching and learning takes place, the aspect of marketing has to be checked. This could be done by the quality and quantity of teachers of Electrical Installation and Maintenance Work Trade employed to teach the subject. If proper teaching is done, the schools' name is marked or ticked as the best or one of the best which is on record for proper recognition and more chances for the enrolment of more intending students. The feedback received from the employers of labour on how far the students are doing outside is another added marketing strategy.

2.6 Entrepreneurial Financial and Accounting Re-training Needs of Teachers in Science and Technical Colleges

Management control systems are frequently thought of in terms of financial and accounting systems. The reasons for these as pointed out by Davidson (2001), showed that the stewardship of financial resources is of vital concern to the majority of organizations. There is a need to demonstrate value for money expended. Control systems are often geared to highlight, easily identifiable performance of sales, costs and profits. Organizational aims, objectives and targets are often expressed in financial terms and measured in terms of profitability. Results are measured and reported in financial terms. Money is quantifiable and is a precise unit of measurement (Davidson, 2001). Davidson pointed out that although many organizations claimed that attention is given to people as their greatest assets, when it comes to measuring performance, 80 percent of organizations measure in financial terms.

A teacher of Electrical Installation and Maintenance Work Trade needs to have the accounting competencies to enable him have the economic plan as to the basic foundation for evaluation of whatever takes place in his Workshop as goods and services are produced. The

purpose is to indicate the venture potential and the time table for financial viability. The areas covered include:

i. Preparation of proforma profit and loss account

ii. Preparation of proforma cash flow analysis

iii. Preparation of proforma balance sheet

iv. Preparation of the break even analysis and chart

v. Description of the methods of lost control (Lawal, 2000 p. 119).

Young and Anthony (1999), asserted the purpose of accounting as to provide a systematic development and analysis of information about the economic affairs of an organization. Young and Anthony (1999) asserted that information may be used in a number of ways: by a firm's entrepreneurs to help them plan and control ongoing operations; by owners and legislative or regulatory bodies to help them appraise the organization's performance and make decisions as to its future; employees and others to help them decide on how much time or money to devote to the company by government bodies. This is to determine what taxes a business must pay and occasionally by customers to determine the price to be paid when contracts call for cost-based projects (Young & Anthony, 1999).

Similarly, Foster and Sri Kant (2000) asserted that accounting provides information through the maintenance of data, the analysis and interpretation of these data and the preparation of various kinds of reports. Foster and Srikant (2000) stressed further that most accounting information is historical, that is, the entrepreneur observes all activities that the organization undertakes, records their effects and prepares reports summarizing what has been recorded; the rest consist of forecast and plans for current and future periods (Foster & Srikant,2000). In the same direction, George (2001) opined that accounting information can be developed for any kind of organization not just for privately owned profit seeking organizations. George went on to say that one branch of accounting deals with the economic operations of entire countries.

Terry and Kieso (2001), asserted the need for objectives and characteristics of financial reporting in any business organization. Terry and Kieso (2001) went further to say that the overreaching objective of financial reporting includes the production and dissemination of financial information about the organization in the form of financial statements to provide useful information to investors, creditors and other interested parties. Terry and Kieso (2001), asserted that ideally accounting information provides the organization shareholders and stakeholders (e.g. employees, communities, customers and

suppliers) with information that aids in the prediction of the amounts, timings and uncertainty of future cash flows; in addition financial statements disclose details concerning economic resources and the claims to those resources (Terry & Kieso, 2001).

Beaver (2002), asserted that in recent years, there has been a growing demand on the part of stakeholders for information concerning the social impact of corporate decision making. Beaver (2002), stressed that companies are including additional information about environmental impacts and risks, employees, community involvement, philanthropic activities and consumer safety. Beaver (2000) went further to say that much of the reporting of such information is voluntary, especially in the United States. In addition, quantitative data are now supplemented with praise; verbal description of business, goals and activities (Beaver, 2002).

Croft (2004), also asserted that financial statements prepared ahead of time, usually up to one year. They can, for instance, predict the cash requirements of the operations (operational budget) or the revenue or profit for a fixed period of time(revenue or profit budgets). Budgets are derived from organizational and then departmental objectives and the type of decisions to be taken. The relative importance of different activities needs to be recognized with the identification of key areas. They result areas are those activities which, if carried out well, will make a considerable contribution to achieving the objectives or, alternatively areas where substandard performance would lead to failure.

Croft (2004), pointed out that there need to be set a budget target(determining what is to be achieved by the important subsections of the department). These targets would be those areas that have been identified as key results and usually take the form of a standard to be achieved. These standards should be: relevant, measurable, specific and attainable. In the same vein, Beaver (2002), stressed that the two most important characteristics of useful information are relevance and reliability. Information is relevant to the extent that it can potentially alter a decision. Relevant information according to Beaver (2002), helps to improve prediction of future events confirms the outcome of a previous prediction and should be available before a decision is made. Donald (2003) opined that reliable information is verifiable, representatively faithful and neutral. Donald (2003) went on to say that the hall mark of neutral is its demand that accounting information not be selected to benefit one class of users to the neglect of others.

While entrepreneurs recognize a tradeoff between relevance and reliability, information that lacks either of these characteristics is considered insufficient for decision

making information should be comparable and consistent (Donald, 2003). Comparability refers to the ability to make relevant comparisons between two or more companies in the same industry at a point in time. Consistency refers to the ability to make relevant comparisons within the same company over a period of time (Donald, 2003). In the same direction Davidson (2004), asserted that financial reporting should satisfy the full disclosure principle meaning that any information that can potentially influence an informed decision maker should be disclosed in clear and understandable manner on the organization's financial statement.

Davidson (2004) asserted that the primary output of the financial accounting system is the annual financial statement. The three most common components of financial statements according to Davidson (2004) are the balance sheet, income statement and the statement of cash flows. Davidson went on to say that in some jurisdiction, summary financial statements are available (or may be required) on a quarterly basis. These reports are usually sent to all investors and others outside the management group. Some companies according to Davidson post their financial statements on the internet and while some could be obtained from the security and exchange commission (SEC) through its website.

Zeff (2005) described the balance sheet as the resources that are under organizations control on a specified date and indicates where these resources have come from. Zeff stressed further that balance sheet, is an overview of the organization's financial position, the balance sheet consists of three major section: (i) The assets which are probable future economic benefits owned or controlled by the entity (ii) the liabilities, which are probable future sacrifices of economic benefits and (iii) the owner equity, calculated as the residual interest in the assets of an entity after deducting liabilities. In the same direction Bala (2005) asserted that balance sheet in other words, shows the organization's resources from two points of view asset and liability where the following relationship must be maintained; total assets are equal to total liabilities plus total owners' equity. Bala went on to say that this same identity is also expressed in another way: total assets minus total liabilities equal total owner's equity. In this form, the equation emphasizes that the owner's equity in the company is always equal to the net assets (assets minus liabilities). Any increase in one will inevitably be accompanied by an increase in the other and the only way to increase the owner's equity is to increase the net assets (Bala, 2005). In another direction, Zeff (2005) asserted that assets are subdivided into current assets include cash, amounts receivable from customers, inventories and other assets that are expected to be consumed or can be readily converted into cash during the next

operating cycle (production, sale and collection, Non-current assets may include non-current receivable, fixed assets (such as land and building)), intangible assets and long term investments (Zeff, 2005).

In the same vein, Zeff asserted that liabilities are divided into current liabilities and non-current liabilities. Most amounts payable to the organization's suppliers (account payable) to employees (wages payable), or to governments (taxes payable) are included among the current liabilities consist mainly of amounts payable to holders of the organizations long term bonds and such items as obligations to employees under organizations pension plans. Zeff opined that the difference between total current assets and total current liabilities is known as net current assets or working capital. In other dimension, Brinker (2006) indicated that there are problems of measurement and limitations of financial reporting. Here, Brinker stressed that accounting income does not include all of the organization's holding gains and losses (increase or decreases in the market values of its assets). For instance the construction of an express way nearby may increase the value of an organizations land, but neither the income statement nor the balance sheet will reflect this holding gain. Similarly, the introduction of a successful new product increases the organizations anticipated future cash flows while this increase makes the organization more valuable, those additional future sales will not show up in the conventional income statement or in the balance sheet until they are recorded as transactions (Brinker, 2006, p. 126).

Dharan (2006) maintained that accounting reports have been criticized on the grounds that they confuse monetary measures with underlying realities when the prices of many goods and services have been changing rapidly. Dharan went further to give an instance if the whole sale price of an item rises from N100 to N150 between the time the organization brought it and the time it is sold, many entrepreneur claim that N150 is the better measure of the amount of resources consumed in the item's whole sale value before it is sold is a special kind of holding gain that should not be classified as ordinary income (Dharan, 2006). In a similar way, Dharan (2006) noted that when most of the changes in the prices of the organizations resources are in the same direction, the purchasing power of money is said to change. Dharan (2006), opined that conventional accounting statements are stated in nominal currency units not in units of constant purchasing power; – that is changes in the average level of prices of goods and services share two effects: (1) net monetary assets (essentially cash and receivables minus liabilities calling for fixed monetary payments) lose purchasing power as the general price level rises. (ii) holding gains measured in nominal currency units may

merely result from changes in the general price level. If so, they represent no increase in the organization's purchasing power (Dharan, 2006). In another direction, Weygand (2006), asserted that accounting systems are designed mainly to provide information that managers and outsiders can use in decision making. They also serve other purposes; to produce operating documents; to protect the organization's assets, to provide data for organization tax returns and in some cases, to provide the basis for reimbursement of costs by clients or customers. In the same vein, Weygand (2006), pointed out that organization is responsible for preparing documents that contains instruction for a variety of tasks; such as payment of customer bills or preparing employee payrolls. It prepares confidential documents, such as records of employees, salaries and wages. Weygand pointed out that many of these documents also serve other accounting purposes, but they would have to be prepared even if no information reports were necessary. Measured by the number of people involved and the amount of time required, Weygand noted that document preparation is one of the biggest jobs performed by an organization's accounting department (Weygand, 2006).

In a similar way, Foster (2006) pointed out that accounting systems must provide means of reducing the chances of losses of assets due to carelessness or dishonesty on the part of employees, suppliers and customers. Foster indicated that asset protection devices are often very simple for instance; many restaurants use numbered meal tickets so that waiters will not be able to submit one ticket to another customer. Another element is internal auditing. The task of internal auditors as pointed out by Foster (2006) is to see whether prescribed data handling and asset protection procedures are being followed. To accomplish this Foster said they usually observe some of the work as it is being performed and examined a sample of past transactions for accuracy and fidelity to the system. Internal auditors might also insert a set of fictitious data into the system to see whether the resulting output meets a predetermined standard (Foster, 2006 p. 134)

For an Electrical Installation and Maintenance Work Trade teacher to efficiently perform these vital roles, he must be able to:

i. know the unit price and total amount of securities to be offered
ii. know how shares would be held by members of the management team
iii know how the funds would be raised
iv. know how the funds would be used
v. determine the profit
vi. determine the cash flow (Kio, 2000 p. 121)

No vocational and technical education programme can develop without capital, just like no country can develop without paying attention to the development of human capital; but every implementation solely lies with the teacher who makes the teaching and learning possible with even the limited capital released to the Department of Electrical Installation and Maintenance Work Trade.

2.7 Entrepreneurial Personal Effectiveness Techniques Needed by Teachers in Science and Technical Colleges

Personal effectiveness techniques represent both foundation and personal success at home, school and community and the entire workplace of an individual (Bayatzis,2002). Employers have identified a link between foundational competences and job performance, as well as the fact that foundational competences are needed prerequisites for workers to learn new industry specific competences. Personal effectiveness techniques are essential to all life roles, not only needed for a successful career in the work place. They are valued by employers and often referred to as necessary ingredients (Bayatzis, 2002).

Personal effectiveness is concerned with doing the right things and relates to output of the job and what the teacher actually achieves. Effectiveness must be related to the achievement of some purpose, objective or task to the performance of the process of management and the execution of work. Bayatzis (2002), pointed out that teachers who want to improve should renew both their effectiveness and their efficiency. Bayatzis pointed out that effectiveness is doing the right things, while efficiency is making the most economic use of thje resources. Effectiveness is most important than efficiency because one must be doing the right kind of work, only then does it matter whether the work is done efficiently.

Bayatzis(2002), pointed out that there are measures of effectiveness, and that teacher,s effectiveness may be assessed in part by such factors as:

(a) The strength of motivation and morale of students,
(b) The success of their training and development,
(c) The creation of an enabling environment in which teachers work willingly and effectively.

The emphasis of the Electrical installation and maintenance work trade teacher's role is in achieving the desired entrepreneurship education targets or programmes. Issues and the environmental factors of Electrical installation and maintenance work trade teacher, the teacher community and learners affect the entrepreneurship learning process. Teaching and

studying of Electrical installation and maintenance work trade form a total package, while attitude and perception of the teacher play an important role (Paajanen,2004).

The teacher's perception of life is their view of people, future expectations and the school's functions. Teachers' attitude and perception are entrepreneurial. The Electrical installation and maintenance work trade teacher should be student and professionally oriented, have a positive attitude to change and be motivated to their work. It is in this regard therefore, that Binsted (2009) that the quality of Electrical installation and maintenance work trade teacher training should be improved at the different school stages. The quality here depends on the teachers' starting point and the way of perception of life. That's why when considering what kind of entrepreneurs that are needed in the society, it should also be considered how educators should be trained (Carrie, 2010).

What makes the difference between the teaching that works and teaching that fails? The factor that contributes the most is the quality of the teacher- student relationship. It is more important than what the teacher is teaching or who the teacher is trying to teach. It is in this vein that Medley and Shannon (2010), recommended that aa evaluation of teachers be based on information about teacher effectiveness but noted that because direct information about teacher effectiveness is not available, many teacher evaluations are based on information about competencies or teacher performance.

Teacher effectiveness is used broadly to mean the collections of characteristics, competencies, and behaviours of teachers at all education levels that enable students to reach their desired outcomes, which may include the attainment of specific learning objective as well as broader goals such as being able to solve problems, think critically, work collaborately, and become effective citizens. Leu (2010) reviewed literature on quality education, finding that there is little agreement on the meaning of the term. One important feature of quality is that it can locally defined at school and community levels, not just at district and national levels. Despite vast cultural differences regarding what is desired from schooling and school outcomes, teachers and classroom processes are now front and centre and they are generally agreed to be key to education quality. Leu (2010), provided a list of qualities to be found in a good teacher:

(i) Sufficient knowledge of subject matter to teach with confidence,

(ii) Knowledge and skills in a range of appropriate and varied teaching methodologies,

(iii) Knowledge of the language of instruction,

(iv) Knowledge of, sensitivity to, and interest in young learners,

(v) Ability to reflect on teaching practices and children responses,

(vi) Ability to create and sustain an effective learning environment,

(vii)Ability to create, modify teaching/ learning approaches as a result of reflection

(viii) Understanding of the curriculum and its purposes, particularly when reform programmes, and new paradigms of teaching and learning are introduced.

(ix) General professionalism, good morale, and dedication to the goals of teaching,

(x) Ability to communicate enthusiasm for learning to students,

(xi) Interest in students as individuals

(xii)Ability to communicate effectively,

(xiii)Good character, sense of ethnics and personal.

Though, teachers received a quality initial teacher education, they still needed to be retrained throughout their whole life. This is quite necessary where teachers do not have all the academic preparations they should have. It is also a great tool to develop the entrepreneurship needed to reach teachers' outcome.

2.8 Review of Related Empirical Studies

A continual update towards improvement of science and technical college entrepreneurial re-training competencies of Electrical Installation and Maintenance Work Trade teachers is necessary to make them more useful, correct and relevant.

Anaemena (1999) sought to identify the competencies essential for effective entrepreneurship in industrial electronic. Anaemena posed four research questions. Questionnaire was used for data collection. Analysis of data was done using mean, and mean of means. Results indicate that the essential competencies for effective entrepreneurship should comprise activities from psychomotor, the affective and the cognitive domains. The results of the finding indicated that there were 28 clustered factors in 3 distinct categories. Each of the clusters and categories were perceived applicable to the extent that they constitute necessary competencies essential for success in electronic technology service oriented entrepreneurship. The similarities are on the entrepreneurial competencies and questionnaires as means of collecting data as used by the empirical work and the current study. The difference is on the analysis as the current research work use the means and z-test.

In a similar vein, Anaele (2005) sought to identify electronic entrepreneurial competencies needed by technical college students for self-employment. The study was designed to identify electronic entrepreneurial competencies needed by technical college students in electronic that would enable them to be self-employed on graduation. The

population was made up of 26 electronic graduates and 43 electronics supervisors in Imo state. A structured questionnaire was used for data collection. The questionnaire was analyzed using mean, while t-test was used to test the hypotheses. The findings revealed that all the identified electronic entrepreneurial competencies are needed by electronics students for self-employment. The result also revealed problems of acquiring electronic entrepreneurial competencies and strategies for effective electronic competencies in technical colleges. This empirical work is similar to the current study in terms of entrepreneurial competencies and the instruments used for data collection which is the structured questionnaire. The differences are in the aspect of subject - Electrical Installation and Maintenance Work trade; using mean and t-test as against mean and z-test of variance. It also touches on the aspect of students while the current work is centered on teachers.

Dixon, Meier, Brown and Custer (2005), conducted a study on the critical entrepreneurial competencies required by instructors from institutions- based enterprise: A case study of Jamaican. The study addressed a major concern expressed by the Director of Academia of the Heart Trust (NTA) Jamaica. The purpose was to identify the entrepreneurial competency gap that existed between the desired behavior of training instructors and the behavior that presently existed among instructors in institution based enterprise. Survey research design was used. Training academy managers and deputy managers completed questionnaires that asked them for their perceptions of the critical entrepreneurial competencies necessary for instructors to function in schools based enterprise. The study gathered data on the identified competencies. Total population of 60 training academy managers and 40 deputy managers was used. A structured questionnaire was used. The empirical work is similar to the current study in terms of entrepreneurial competencies and the kind of instruments used. The differences are in population and where the study was carried out.

In the same vein, Priyanto and Sandjojo (2005), conducted a study on the relationship between entrepreneurial learning, entrepreneurial competencies and venture success: empirical study on small and medium enterprises (SMEs). This is a study of the entrepreneurial learning of the managers which impacted venture growth by raising the competencies of the managers. A sample of 247 respondents was drawn from small and medium enterprise managers in west java from 13 districts, using the survey method. The structural equation model was used to analyse the data and to test the hypothesis. The results of the research showed that entrepreneurial learning had both a direct effect on

entrepreneurial competencies and an indirect effect on venture growth. The other result was that venture growth became a learning medium for entrepreneurs to achieve competence. The differences between this empirical work is on relationship between learning, competencies and venture success and Indonesia, while the current study is on teachers' retraining competencies in science and technical colleges.

Gurol (2006), sought to identify Entrepreneurial characteristics amongst university students: Some insights into entrepreneurship education and training in Turkey. The purpose was to explore the entrepreneurship profile of Turkish university students and make an evaluation for their entrepreneurship orientation by comparing them with non-entrepreneurially inclined students. In this study, six traits, namely need for achievement, locus of control, risk taking propensity, tolerance for ambiguity, innovativeness and self-confidence, are used to define the entrepreneurial profile of students. The study was conducted on a random sample of fourth year university students (n=400) from 2 Turkish universities. The entrepreneurial traits of these students were subjected to a comparative analysis. Forty (40) item questionnaires was administered to students with questions related to demographic variables, entrepreneurial inclinations and six entrepreneurial traits. The results of the t-test showed that, except for tolerance for ambiguity and confidence, all entrepreneurial traits are found to be higher in entrepreneurially inclined students, as compared to entrepreneurially non- inclined students. The empirical work is similar to the current work in terms of entrepreneurship training. The differences are in terms of traits, evaluation work, meant for students and the use of t-test, while current study is terms of competencies, survey research design, meant for retraining of teachers and the use of mean and z-test.

Thomas, Lau and Snape (2008) conducted a study on entrepreneurial competencies and the performance of small and medium enterprises: an investigation through a frame work of competitiveness. This is an investigation into the relationship between entrepreneurial characteristic cs and performance, an operationalized theoretical framework of the competitiveness of small and medium sized enterprises (SMEs) and empirically tested the four hypotheses derived from it. The frame work link together entrepreneurial competencies and SME performance with two further constructs: competitive scope and organizational capabilities. The empirical study consisted of stage of instrument development specific to the research context, as well as a stage of hypothetical testing. The results of hypothetical testing, involves a sample of 153 mangers of SMEs. Exploratory factor analyses were first conducted

to empirically determine the number of factor within each competency sub- construct. The sample used for the hypotheses testing was 153 managers of SMEs, who were drawn from the service sector in Hong kong through a postal survey. The difference between this empirical work and that of the current work is that it dealt with relationships between small business and medium sized enterprises, entrepreneurial characteristics and performance; while the current work has to do with teachers retraining competencies.

Alainati (2009), sought to find out the effect of education and training on entrepreneurial competencies of students in New Delhi. The study was designed to analysis the concept of entrepreneurial competencies and the importance of education and training on the individual competencies, hence the organization competencies. The purpose of the paper was to first describe the development entrepreneurial competencies and define it; to study comparatively two different cases on the effect of education and training on entrepreneurial competencies. The paper addressed the effect education and training had on individuals' entrepreneurial competencies. The research methodology used is a comparative study. The comparative analyses method was used to investigate and critically analyze both cases through a comparative frame work education and training in order to better understand the two different results. The comparative analysis reviewed, that there is indeed a positive relationship between education and training on entrepreneurial competencies despite the different results of the two different cases. The implication of the study is that education and training has to be properly implemented. The similarity here is that the study is talking about entrepreneurial competencies and training while the difference is on the population, the instrument used and comparative study that is used as against the questionnaire and the z-test of hypothesis.

In another view, Babatunde, (2008) sought to know the current entrepreneurial competencies of electronic teachers in technical and secondary schools in Lagos State for the realization of vision 2020. The study was designed to examine and make appraisal on the human resources for electronic programmes in technical and secondary schools in Lagos State. It went further to evaluate the qualification of electronic teachers and identify how the entrepreneurial competencies of these teachers can be updated. The research data were collected using questionnaire. The population for the study was made up of 95; consisting of 68 electronic teachers and 27 principals, randomly drawn from four Local Government Council Areas. Percentages and mean were used to answer the research questions. Findings indicated that majority of the electronics teachers were not qualified to teach electronics. The

study recommended that industries, State and Federal Ministries organize workshops and conferences for their teachers by giving pedagogical training to the serving electronic teachers with no teaching qualifications where the facilities for training are inadequate. The similarity of this empirical work by Babatunde (2008), with the topic is on the entrepreneurial competencies and the qualification of teachers but there is the difference on the scope and the subject area.

Ubale (2010), conducted a research on entrepreneurial competencies needed by higher vocational technical education students in north eastern Nigeria. A survey research design was used. The population of the study was made up of 1,500 which consisted of 151 vocational technical teachers, 315 entrepreneurs, and 1,034 final year students in the 9 tertiary institutions used for the study. The sampled population was 997 subjects. A structured questionnaire with a five point rating scale was constructed for the study. The study was subjected to face and content validity by eight experts. The method of data analysis included means and standard deviation, z- test of difference, one way analysis of variance (ANOVA). The differences are in the areas of educational level, the instrument and the sampled population used as the empirical work is on students' entrepreneurship development in the tertiary institutions, and the use of one way analysis of variance; while the current study is centered on teachers' entrepreneurship development Electrical Installation and Maintenance Work Trade in science and technical colleges and the use of Z-test of difference.

In the same vein, Ekankumo (2011), conducted a study to determine entrepreneurship and entrepreneurial education: Strategy for sustainable development in Nigeria. The study sought to x-ray theoretically and empirically, how entrepreneurship can be encouraged among Nigerian youths while encouraging entrepreneurship education among Nigerian universities to develop the minds of these youths. The study adopted an empirical approach where small scale enterprise and 300 students were sampled using simple random sampling technique. Survey research design was employed to elicit information from rural and urban entrepreneurs as regards sustainable entrepreneurship development in Baysela State in Nigeria. The population of the study was made up of three (300) students and three (300) small scale entrepreneurs making a total of six (600) hundred entrepreneurs from across the state. A structured questionnaire developed by the researcher was used as instrument for data collection. The results of the study were analyzed using mean ratings and t- test. The

differences are that the empirical work is students and entrepreneurs, the use of t-test and in Baysela state, while the current study is on teachers retraining, the use of mean and z-test.

Ezeani, Ezemoyi, and Osita (2012), conducted a study on entrepreneurial skills required by business related graduates for successful operation of a business enterprise in Enugu commercial center and environs. The study examined the management skills, marketing skills, and accounting skills required by business related graduates for successful operation of a business enterprise. Three research questions were answered. The study employed a survey research design and the population consisted of 300 respondents (mangers). A modified 4- point rating scale made up of 29 structured questionnaire items was used in generating data for the study, while the instrument was face validated by some experts. The findings reviewed 9 management skills, 9 marketing skills, and 8 accounting required by business related graduates for successful operation of a business enterprise. The study employed the use of mean, standard deviation, z- test, and one way analysis of variance for data analysis. The differences here are that the empirical work is centered on graduates, business operation in Enugu, and the use of analysis of variance; while the current study is on teachers retraining competencies and in North East Geo- Political Zone, Nigeria.

The literature reviewed in this study indicated that, there is no clear work that has been done on entrepreneurial retraining competencies of teachers in Electrical Installation and Maintenance Work Trade but on students entrepreneurial competencies and teachers' technical skills. Entrepreneurial retraining competencies of teachers of electrical installation and maintenance work trade in science and technical colleges can make their students to become job creative. From the review of related empirical work, it is quite clear that no studies have been carried out on entrepreneurial retraining competencies needed by teachers of electrical installation and maintenance work trade in science and technical colleges. This current study therefore is to fill this gap.

2.9 **Summary of Literature Review**

The study centered on Schumpeter's entrepreneurial economic development and creative destructive theories. Entrepreneurial economic development is considered as discrete dynamic change brought about by instituting new combination called innovation. Schumpeter went further to say that through innovation new ideas are formed which creates employment. According to Schumpeter, innovation brings about new products and new production technology that is initiated as a result of innovative process of entrepreneurship. It also opens up new market into the new products which has not existed. The discovery of new

sources of supply of raw materials, form an organization or any industry by creating monopoly position. According to Schumpeter cited in Jhingan (2008) and Ubale (2010), a reservoir of untapped technical knowledge existed which could be made use of. The theory on the creative destruction has to do with the idea of throwing away old structures and replacing with new ideas that are solid and fundamental to the development of economy.

The study had also tried to determine the need for entrepreneurial retraining competencies of teachers of Electrical trade in Science and Technical Colleges. The world is changing very fast, and because of that, a teacher who studied engineering should be acquainted with management courses so as to manage his business effectively, instead of leaving it in the hands of other people. The application of what the teacher, if learnt could be used to teach his students and to promote entrepreneurship. In addition, the students could be encouraged to be self-reliant and self-sustaining on graduation.

On the entrepreneurial managerial re-training competencies of teachers of Electrical trade in Science and Technical Colleges, it was seen that with all the management competencies, an Electrical Installation teacher should exhibit entrepreneurial competencies as a result of his training to be able to teach the subject. These are (a) communicates a clear vision of team goals and objectives (b) creates an environment in which team members share both risks and demands (c) promote cooperation, trust and open exchanging ideas (d) establishes processes for open communication. Along the line of motivational techniques needed by teachers in Science and Technical Colleges, there is the need for feedback in every instruction. The Electrical Installation and Maintenance Work Trade teachers would improve their learning principles through feedback so that they could be re-applied in the life of their students. These principles are: (i) motivates others to achieve positive results (ii) Open communication (iii) creates a work culture that rewards teamwork (iv)creates a work culture that rewards cooperation (v) builds trust by keeping records (i) ready to admit mistakes among others. Since marketing is an important aspect of any business, a teacher of Electrical Installation and Maintenance Work Trade has to show interest in his subject so as to promote the teaching and interest to his students. If the teacher failed to promote the teaching of the subject well, the subject would suffer, as the employer of labour would not employ the graduates, let alone being admitted into tertiary institutions as a result of their inability to pass their papers. In view of these therefore, teachers of Electrical Installation and Maintenance Work Trade could learn to: be efficient, reliable, cautious and trust worthy, among others.

On the entrepreneurial financial and accounting re-training needs of teachers, the issue of finance should be treated with care as the Department of Electrical Installation and Maintenance Work Trade cannot stand without money. The teacher himself cannot adequately work, if the needs are not satisfied monetarily. Along this line, an Electrical Installation teacher has to be responsible, humble, accountable and prudent in the management of financial resources. It has been observed that the quality of entrepreneurship education is depended on personal effectiveness of teachers in Science and Technical Colleges. This is because teachers' personal foundation techniques could help in their training to attain maximum success in personal effectiveness as behavior in their work place could be linked to their school learning. In general, it is understood, that entrepreneurial retraining competences expected of Electrical Installation and Maintenance Work Trade teachers are necessary pre-requisites in teaching and learning of entrepreneurship education. However, literature reviewed does not indicate any study specifically carried out on entrepreneurial re-training competencies needed by Electrical Installation and Maintenance Work Trade teachers. This means that, if this was left out, as the country strived strongly for self-reliance and technological development by the year 2020, deficient teachers would train deficient or half-baked youths who are mostly affected by unemployment. Besides, nowadays, the world of work requires workers who are able to flexibly acquire, adapt, apply and transfer their knowledge to different contexts and under varying technological conditions and to respond independently and creatively (Ogwo & Oranu, 2006). The need to be creative so as function effectively in the present world of work, is the existing gap to be filled. To achieve this, the current study on the entrepreneurial retraining competencies needed by teachers in Science and Technical Colleges is necessary so that retraining, seminars and conferences could be provided to upgrade the competencies of teachers.

CHAPTER THREE
METHODOLOGY

This chapter describes the method and procedures that were used in carrying out the study. It focused on research design for the study, area of the study, population for the study, sample and sampling techniques, instrument for data collection, validation of the instrument, reliability of the instrument, method of data collection and method of data analysis.

3.1 Research Design

The study was carried out using a Descriptive Survey Research Design. Descriptive Survey Research Design, according to Tolubi (2001) is a type of research design that studies both large and small populations by selecting and studying samples chosen from the population to discover the relative incidence, distribution and interrelations of sociological and psychological variables. It involves the assessment of public opinions using questionnaires and sampling method. This method is most appropriate for this study as the researcher would collect and analyze data from teachers and industry training officers of Electrical Installation and Maintenance Work Trade on the entrepreneurial re-training competencies needed in the Science and Technical Colleges of North East Geo- Political Zone, Nigeria.

3.2 Area of the Study

The study was carried out in North – East Geo- Political Zone, Nigeria. North East Geo-Political Zone is one of the six geopolitical zones of Nigeria, and comprises Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe States. North-East Geo- Political Zone has three Federal Science and Technical Colleges located in Jalingo, Taraba State, Lassa, Borno State and Michika, Adamawa State. The zone has twenty –one State Science and Technical Colleges with three in Adamawa, three in Bauchi, two in Borno, two in Gombe, six in Taraba and five in Yobe state. North East Geo-Political Zone, has also seventy eight industries in all. Adamawa state has fourteen industries, there are also seven industries located in Bauchi state, twenty four industries located in Borno, seven industries located in Gombe state, eleven industries located in Taraba state, while Yobe has fifteen industries. All the affected industries and Science and Technical Colleges have registered, graduated students and trainees in Electrical Installation and Maintenance Work Trade (see Appendix H).

3.3 Population for the Study

The population for the study was made up of 83 teachers of Electrical Installation and Maintenance Work Trade, in the twenty-four (24) Science and Technical colleges and 78

industry training officers in seventy eight industries in North Eastern States, Nigeria. The total number of respondents was 161 as at 2011/2012 session.

3.4 Sample and Sampling Techniques

The entire population of 161 were used for the study. According to Olaitan and Nwoke, cited in Daramola (2008) when a study involves a population of relatively few individuals, institutions and things it becomes necessary to study the entire population. There was no sampling.

3.5 Instrument for Data Collection

The instrument for data collection was a structured questionnaire to collect information on entrepreneurial retraining needs of teachers of Electrical Installation and Maintenance Work Trade. A questionnaire with five point rating scale by name Entrepreneurial Retraining competencies needed by Teachers of Electrical Installation and Maintenance Work Trade (ERCNTEQ) in North East Geo- Political Zone, Nigeria was constructed by the researcher for the study. The questionnaire was divided into A, B, C, D, E & F. Section A was used to collect data on personal information, section B was used to collect data on the entrepreneurial managerial retraining needs of teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges; Section C was used to collect data from the Technical teachers and Industry training officers on the entrepreneurial motivational re-training techniques needed by teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges; section D was used to collect data from the teachers and industry training officers on the marketing re-training needs of teachers of Electrical Installation and Maintenance Work Trade in Science and Technical colleges ; section E was used to collect data from the teachers and industry training officers on the Financial and Accounting Retraining needs of teachers of Electrical Installation and Maintenance Work Trade . Finally, Section F was used to collect data from teachers and industry training officers on the entrepreneurial Personal effectiveness re-training techniques needed by Electrical Installation teachers in Science and Technical Colleges. Sections B to F of the questionnaire had a five-point rating scale coded as:

Highly Needed	HN	5
Needed	N	4
Moderately	MN	3
Not Needed	NN	2
Completely Not Needed	CNN	1

The respondents were required to rate the levels of their needs for retraining on each item of entrepreneurial competencies needs for the teachers.

3.6 Validation of the Instrument

The validity of the instrument was determined by the researcher using face validation. Copies of the questionnaire were given to 8 experts in management science and technology education and industry training officers for the purpose of obtaining their comments. The experts were made up of two lecturers in the Department of Technology Education, Modibbo Adama University of Technology, Yola, two from the Department of science and vocational Education, University of Jos; two others from the Department of Management sciences, University of Jos and two officers of industrial training fund, Yola. Each of the validates was requested to read the draft of the questionnaire items for appropriateness, clarity and for any other corrections (Agu & Akuezuilo, 2003). Their comments and suggestions were used for the final development of the instrument for the study. Some of the items that were modified or corrected were replaced after personal visitation to each of the lecturers and trainers for collection of the proposed draft distributed. (see Appendix Y)

3.7 Reliability of the Instrument

The reliability of the instrument refers to the consistency of the instrument in measuring what it purports to measure (Uzoagulu, 1998). The reliability of the instrument was determined using cronbach-alpha formula, because the responses were dichotomously arranged. The analysis of the internal consistency was carried out using statistical package for social sciences (SPSS) version 18

The data for the computation of the reliability coefficients was obtained after a pilot study that was conducted on the questionnaire in Government Technical Training College, Makurdi Benue state, which is in the North central Geo-political zone. Ten (10) teachers and industry training officers were used for the pilot test comprising 4 Electrical installation and maintenance work trade teachers of the college, and 6 industry training officers of industries in Benue State. The cronbach alpha coefficient for reliability yielded 0.95 for the entire instrument. (see appendix G)

3.8 Method of Data Collection

The structured questionnaire that was used to collect data was administered directly to the respondents by the researcher with the help of 4 assistants. The assistants were trained to be aware of the danger of allowing their personal opinions to dominate, as these would create assistant bias. To be sure that a high rate of return of questionnaire was obtained, the same

assistants were still contacted to collect the same questionnaires back. Out of 83 questionnaires that were administered to teachers, 80 (96.3%) were retrieved as properly completed. Seventy eight (78) questionnaires were administered to the industry training officers, but 75 representing 95.5% were returned and properly filled.

3.9 Method of Data Analysis

Data obtained from the respondents were analyzed using mean, standard deviation and z-test statistics. Means and standard deviation were used to answer the research questions, while the z-test of difference between two means was used to test the hypotheses at 0.05 level of significance. For Research Questions 1 to 5, they were analyzed using mean and standard deviation. The data analyses were carried out using statistical package for social sciences SPSS version 18.

To be able to take decisions on each test item, the real limits of numbers on the five - point rating scale was used to determine the decision point as follows:

Scale	scale point	lower limit	Upper limit
Highly Needed	5	4.50	5.00
Needed	4	3.50	4.49
Moderately Needed	3	2.50	3.49
Not Needed	2	1.50	2.49
Completely Not needed	1	0.50	1.49

(Adapted, Daramola, 2008)

For this study, moderately needed was taken as being within the range of needs. Based on the real limit of numbers, the criterion reference mean was 3.0. For decision to be taken the upper limit of 3.0 being 3.49 was used. In this case, any item with a mean response of 3.49 and above was accepted as needed, while responses below 3.49, was considered as not needed.

Hypotheses 1 to 5, were tested using the z – test of differences between two means since the sample sizes are above 30. z- test was most appropriate because it was usually adopted in testing hypothesis about the difference between two means when sample sizes are above 30 (Uzoagulu, 1998). The decision to reject or not to reject null hypotheses was dependent on whether the calculated value of the test statistics was greater than or less than the critical value at 0.05 level of significance. Thus, reject the null hypotheses if the calculated value of the test statistic is greater than the critical value. However, do not reject the null hypothesis if the value of the test statistic is less than the critical value.

CHAPTER FOUR

RESULTS

In this chapter, the results of data analysis and the findings were presented . The presentations were made in the order of the research questions and hypothesis stated in chapter one.

4.1 Research Question 1

What are the entrepreneurial managerial re-training needs of teachers of electrical installation and maintenance work Trade in Science and Technical Colleges?

In order to answer research question 1, the mean responses and standard deviation of Teachers and Industry training officers on the entrepreneurial managerial re-training needs of teachers of Electrical Installation and maintenance work Trade in science and Technical Colleges have been computed for each item. The summary of the responses are presented in Table 1.

Table 1 indicates that the teachers needed further re-training competencies in 15 items of the managerial needs. Their mean is above 3.49. The mean responses of these needs range from 3.54 for item number 19: Appraise supporting staff programme) to 4.42 (for item number 2: Communicate effectively with students). The average mean responses of each of the remaining seven items is below 3.50, indicating that teachers needed no further re-training in these managerial competencies needs.

4.2 Research Question 2

What are the Entrepreneurial motivational re-training techniques needed by teachers of Electrical Installation and maintenance work Trade in Science and Technical Colleges?

In order to answer research question 2, the mean responses and standard deviation of Teachers and Industry training officers on the motivational re-training techniques of teachers of Electrical Installation and maintenance work Trade in Science and Technical Colleges have been computed for each item. A summary of the responses on the 15 items are presented in Table 2.

Table 2 indicates that all the 15 items have been rated needed by the respondents. The analysis presented in table 2 indicates that Electrical Installation and maintenance work Trade teachers needed further re-training in the fifteen (15) motivational techniques since each was rated above 3.50. These 15 items have their average means which range from 3.71 for item

Table 1: Mean Responses and Standard Deviation of Electrical Installation and Maintenance Work Trade Teachers and Industry Training officers on the Entrepreneurial Managerial Re-training Needs.

S/No	Entrepreneurial managerial retraining Needs	N_1 =80		N_2 =75			
	Ability to	$\overline{X_1}$	$S.D_1$	$\overline{X_2}$	$S.D_2$	Grand mean	Remark
1	Communicate effectively with staff	4.32	1.08	3.86	1.18	4.09	Needed
2.	Communicate effectively with students	4.54	0.91	4.30	1.24	4.42	Needed
3	Use written communication skills Effectively with staff	4.52	0.97	3.86	1.14	4.19	Needed
4.	Use written communication skills Effectively with students	3.54	1.38	3.94	1.40	3.74	Needed
5.	Plan meetings with staff effectively	4.12	1.17	4.21	1.28	4.17	Needed
6.	Plan meetings with students effectively	2.49	1.18	2.21	0.85	2.35	Not needed
7.	Make short plans for proper management	1.52	1.03	2.11	0.86	1.81	Not needed
8.	Make long plans for proper management	3.94	1.09	4.43	0.97	4.19	Needed
.	Delegate responsibility to supporting staff	1.52	1.02	2.01	0.84	1.76	Not needed
10.	Direct academic affairs	4.01	0.95	3.89	0.92	3.95	Needed
11.	Control academic affairs	4.20	0.82	3.52	0.95	3.86	Needed
12.	Plan effectively for goal attainment	3.56	1.20	4.45	0.92	4.01	Needed
13.	Organize human resources for proper Management	3.54	1.23	3.87	1.21	3.71	Needed
14.	Implement plans for goal attainment	1.22	1.38	2.10	1.22	1.66	Not Needed
15.	Become familiar with time management	1.45	1.01	2.24	0.81	1.84	Not Needed
16.	Become familiar with job demands	2.39	1.09	2.44	0.81	2.41	Not Needed
17.	Evaluate all academic requirements For proper direction	1.23	1.17	2.24	0.81	1.74	Not Needed
18.	Carry out continuous assessment of the trade as needed by the organization	4.12	1.13	3.51	0.95	3.81	Needed
19.	Appraise supporting staff programme	3.5 0	1.18	3.58	0.88	3.54	Needed
20.	Make efficient use of feedback from students	3.60	1.67	3.51	0.96	3.55	Needed
21.	Establish and maintain good purchasing policy for the right work	3.50	1.23	3.60	0.96	3.55	Needed
22.	Establish and maintain good purchasing Policy for the correct materials	3.64	1.29	3.55	0.88	3.59	Needed
		3.20		3.33		3.58	

Key

$\overline{X_1}$= Teachers mean

$\overline{X_2}$= Industry training officers mean

Gm = Grand mean

N_1 = No of teachers

N_2 = No of industry training officers

$S.D_1$ = Standard deviation for teachers

$S.D_2$ – Standard deviation for industry training officers

Table 2: Mean Responses and Standard Deviation of Electrical Installation and Maintenance Work Trade Teachers and Industry Training Officers on the Entrepreneurial Motivational Re-training Techniques

S/No	Entrepreneurial motivational retraining techniquess Technique to	N_1=80 $\overline{X}_1$	$S.D_1$	$\overline{X}_2$	N_2 =75 $S.D_2$	Grand mean	Remarks
1 .	Establish goals that are useful to the society	3.58	1.20	4.31	0.91	3.94	Needed
2.	Reward correct behaviours and answers	3.55	1.51	4.04	0.80	3.79	Needed
3	Be human and caring	4.03	1.13	4.31	0.91	4.17	Needed
4.	Relate new tasks to those already known	4.12	1.17	3.73	1.13	3.93	Needed
5.	Whole heartedly identify oneself with an activity	3.94	1.09	3.73	1.13	3.84	Needed
6.	Fulfill desires of one another	3.60	1.29	3.94	1.06	3.77	Needed
7	Properly understand goals	3.96	1.05	4.02	0.99	3.99	Needed
8	See some purpose in the work and strive to achieve it	4.12	1.17	4.16	0.91	4.14	Needed
9	Suggest desirable educational goals that appeal to the society	4.07	1.16	4.30	0.95	4.18	Needed
10.	Expose staff to innovations regularly	3.98	1.31	4.30	0.95	4.14	Needed
11.	Solve problems that resembles life's experiences	3.58	1.47	3.89	1.21	3.73	Needed
12.	Organise field trips to interesting places	3.53	1.41	3.89	1.18	3.71	Needed
13.	Ensure that the learners are not given the tasks that are beyond their capabilities	3.58	1.47	4.09	0.95	3.83	Needed
14.	Give challenging tasks, not discouraging ones	3.54	1.38	4.01	1.16	3.77	Needed
15.	Familiarise with students whose repeate failures have led to lowering of efficiency	3.54	1.38	4.19	1.23	3.86	Needed
		3.78		4.06		3.60	

number 12: (Organise field trips to interesting places to 4.18 for item number 9: Suggest desirable educational goals that appeal to the society).

4.3 Research Question 3

What are the entrepreneurial marketing re-training needs of teachers of Electrical Installation and Maintenance work Trade in Science and Technical College?

In order to answer research question 3, the mean responses and standard deviation of Teachers and Industry training officers on the marketing retraining needs of teachers of Electrical Installation and Maintenance Work Trade in Science and Technical College have been computed for each item. A summary of the responses of the ten (10) items are presented in Table 3

Table 3 indicates that 8 items have been rated needed by the respondents, which indicated further re-training needs. Two (2) items out of 10 has also been rated not needed. These items numbers are 39 and 41. Marketing retraining is not needed in terms of determining the extent to which products would sell and budget for future sales as they fall below 3.49 value. The 8 items which indicated needed by respondents range from 3.52 for item number 3: (Be familiar with various aspects of sales to 4.05 for item number 5 : Forecast future changes in the market).

4.4 Research Question 4

What are the entrepreneurial financial plan and accounting re-training needs of teachers of Electrical Installation and Maintenance Work Trade in Science and Technical College?

To answer research question 4, the mean responses and standard deviation of teachers and Industry training officers on financial and accounting re-training needs of teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges have been computed for each item. A summary of the responses on the 19 items are presented in Table 4 which shows that 16 items have been rated needed by the respondents; as the values of the mean is between 3.53 for item number 4: (Calculate net profit to 3.93 for item number 17: Detect loss account). Three (3) items out of 19 have also been rated not needed by the respondents, since they fall below 3.49. These items are numbers 16, 17 and 19.

.4.5 Research Question 5

What are the entrepreneurial Personal Effectiveness Re-training Techniques needed by teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges?

Table 3: Mean Responses and Standard Deviation of Electrical Installation and Maintenance Work Trade Teachers and Industry Training Officers on the Entrepreneurial Marketing Re-training Needs

S/No	Entrepreneurial marketing retraining needs	$N_1 = 80$		$N_2 = 75$			
	Ability to:	$\overline{X_1}$	$S.D_1$	$\overline{X_2}$	$S.D_2$	Grand mean	Remarks
1.	Determine the seasonal fluctuation of goods	3.54	1.38	4.31	0.91	3.93	Needed
2	Determine the extent to which products would sell	2.22	1.62	2.09	0.80	2.15	Not Needed
3.	Be familiar with various aspects of sales	3.50	1.38	3.55	1.00	3.52	Needed
4.	Budget for future sales	2.18	1.20	1.68	0.91	1.93	Not Needed
5	Forecast future changes in the market	3.80	1.38	4.31	0.91	4.05	Needed
6.	Determine current trends in sales of products	3.60	1.38	4.16	1.05	3.88	Needed
7.	Determine what customers need	3.59	1.08	4.24	1.03	3.91	Needed
8	Determine shortage of goods	3.60	1.48	4.43	0.97	4.01	Needed
9.	Have the knowledge of advertising	3.60	1.61	4.08	1.24	3.84	Needed
10.	Determine the extent of and strength of competition	3.54	1.38	4.17	1.01	3.86	Needed
		3.83		3.70		3.61	

Table 4: Mean Responses and Standard Deviation of Electrical Installation and Maintenance Work Trade Teachers and Industry Training Officers on entrepreneurial financial and accounting re-training needs.

S/No	Entrepreneurial financial retraining needs	$N_{1=}$ 80		N_2 =75			
	Ability to:	$\overline{X_1}$	S,D_1	$\overline{X_2}$	$S.D_2$	Grand mean	Remarks
48.	Format spreadsheet	3.59	1.68	3.78	1.16	3.68	Needed
49.	Operate spreadsheet	3.56	1.23	3.78	1.48	3.67	Needed
50.	Calculate gross profit	3.72	1.29	3.64	1.59	3.68	Needed
51.	Calculate net profit	3.57	1.22	3.50	1.61	3.53	Needed
52.	Understand interest rate	3.54	1.38	4.01	1.27	3.77	Needed
53	Understand cost of business	3.62	1.78	4.19	0.82	3.90	Needed
54.	Understand last purchase	3.56	1.23	3.59	1.34	3.57	Needed
55	Determine how funds would be raised	3.63	1.24	4.20	1.11	3.91	Needed
56.	Determine the major areas of expenditure	3.50	1.21	3.87	1.21	3.68	Needed
57.	Determine the value of shares by members	3.51	1.21	3.73	1.24	3.62	Needed
58.	Determine the cash statement	3.60	1.32	4.21	0.86	3.90	Needed
59.	Determine the unit price of securities to be offered	3.87	1.12	3.97	1.13	3.92	Needed
60.	Determine govt. policies on small industries	3.98	1.31	3.80	1.17	3.89	Needed
61	Determine the value of shares by members of management team	2.45	1.02	2.32	1.27	2.39	Not Needed
62.	Determine the capital required by raising through debentures	2.38	1.20	2.09	1.09	2.23	Not Needed
63.	Plan general budget	3.57	1.14	3.51	1.27	3.54	Needed
64.	Detect loss account	3.70	0.98	4.17	0.87	3.93	Needed
65.	Prepare credit account	3.50	1.23	3.73	1.13	3.61	Needed
6 6.	Prepare balance sheet	2.33	1.01	2.30	1.17	2.32	Not Needed
		3.43		3.59		3.62	

In order to answer research question 5, the summary of the mean responses and standard deviation are presented in Table 5

Table 5 Indicates that 14 items have been rated needed by the respondents. Seven (7) items out of 21 have also been rated not needed by the respondents. The items rated needed range from 3.53 for item number 1 (Develop oneself and others to 3.99 for item number 13: Prepare for potential problems before they occur)

4.6 Hypothesis 1

There is no significant difference between the mean opinions of Electrical Installation and Maintenance Work Trade Teachers and Industry training officers on the entrepreneurial managerial retraining needs of teachers

The Data for testing Hypothesis 1 are presented in Table 6

The critical or table value of z for a two-tailed test at the .05 level of significance is 1.96. Z ratio calculated is less than the critical value or table z-ratio of 1.96. Therefore, this hypothesis which states that there is no significant difference between the mean opinions of teachers and industry training officers on entrepreneurial managerial re-training needs was accepted.

4.7 Hypothesis 2

There is no significant difference between the mean scores of Electrical Installation and Maintenance Work Trade teachers and Industry training officer on the entrepreneurial motivational re-training techniques needed by teachers.

The Data for testing Hypothesis 2 are presented in Table 7

The z – calculated is greater than the critical or table value of 1.96. Therefore, the null hypothesis was rejected. The result of the t-test showed that there is significant difference between the mean scores of teachers and industry training officers on the entrepreneurial motivational re-training techniques

4.8 Hypothesis 3

There is no significant difference between the mean opinions of Electrical Installation and Maintenance Work Trade teachers and industry training officers on the entrepreneurial marketing re-training needs of teachers.

The Data for testing Hypothesis 3 are presented in Table 8

The calculated value 1.61 is lower than the critical value of 1.96 for a two tailed test at 0.05 level of significance. There is every reason to accept the null hypothesis.

Table 5: Mean Responses and Standard Deviation of Electrical Installation and Maintenance Work Trade Teachers and Industry training officers on Entrepreneurial Personal Effectiveness Techniques

S/No Entrepreneurial Personal Effectiveness retraining tech. N_1= 80 N_2 = 75

Technique to	$\overline{X1}$	$S.D_1$	$\overline{X2}$	$S.D_2$	Grand mean	Remarks
1. Develop oneself and others	3.54	1.34	3.53	1.11	3.53	Needed
2. Continuously learns and develop	3.80	1.34	3.60	1.32	3.70	Needed
3. Identifies ones strength	3.57	1.28	3.62	1.39	3.59	Needed
4. Identifies ones weakness	2.01	1.31	2.06	1.19	2.04	Not Needed
5. Help co-workers learn	2.27	1.22	2.63	1.45	2.45	Not Needed
6. Help co-workers when they are in difficulty	3.54	1.38	3.68	1.42	3.61	Needed
7. Take responsibility for others	2.27	1.23	2.49	1.64	2.38	Not Needed
8.. Consider costs when taking decisions	3.72	1.55	3.85	1.52	3.78	Needed
9.. Consider benefits when taking decisions	2.14	1.38	2.34	1.62	2.24	Not Needed
10..Consider risks when taking decisions	3.36	1.23	3.94	1.17	3.65	Needed
11.. Use time wisely	2.30	1.13	2.46	1.82	2.38	Not Needed
12. Use resources wisely	3.54	1.38	3.71	1.85	3.62	Needed
13.. Prepare for potential problems before they occur	3.81	1.34	4.18	1.83	3.99	Needed
14. Encourages a work culture of continuous learning	2.18	1.11	1.70	0.30	1.94	Not Needed
15. Encourages a work culture of information Sharing	3.63	1.34	3.85	1.39	3.74	Needed
16. Provides direction to team members	3.58	1.24	3.52	1.21	3.55	Needed
17. Provides support to team members	3.70	1.25	3.57	1.54	3.63	Needed
18. Learn from what went well	3.56	1.37	3.91	1.07	3.73	Needed
19. Learn from what went wrong	3.58	1.20	3.51	1.67	3.54	Needed
20.. Guides team towards making Effective decision	2.26	1.47	2.31	0.21	2.29	Not Needed
21. Reviews progress towards accomplishing Team goals	3.74	1.09	3.57	1.65	3.65	Needed
	3.14		3.23		3.66	

Table 6: Summary of z-test analysis of Difference between the Responses of Electrical Installation and Maintenance Work Trade Teachers and Industry Training Officers on the Entrepreneurial Managerial Re-training Needs

Group	Mean	N	α	z-cal	z-critical
Teachers	3.20	80			
Industry training officers	3.33	75	0.05	1.06	1.96

The Data in this table are extracts from the SPSS Analysis as provided in Appendix U

Table 7: Summary of Z-test of Difference between the Mean Scores of Electrical Installation and Maintenance Work Trade Teachers and Industry Training Officers on the Entrepreneurial Motivational Retraining Techniques Needed by Teachers

Group	Mean	N	α	Z-cal	Z- critical
Teachers	3.78	80	0.05	2.82	1.96
Industry training officers	4.06	75			

The Data in this Table are extracts from the SPSS Analysis as provided in Appendix V

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Table 8: Summary of Z-test of Difference between the Mean Opinions of Electrical Installation and Maintenance Work Trade Teachers and Industry Training Officers on the Entrepreneurial Marketing Re-training Needs of Teachers

Group	Mean	N	α	Z-cal	Z- critical
Teachers	3.83	80	0.05	1.61	1.96
Industry training officers	3.70	75			

The Data in this Table are extracts from SPSS Analysis as provided in Appendix W

4.9 Hypothesis 4

There is no significant difference between the mean opinions of teachers and industry training officers on the entrepreneurial financial plan and accounting re-training needs of teachers of Electrical Installation and Maintenance Work Trade.

Data for testing Hypothesis 4 are presented in Table 9

The z- calculated value 1.53 is lower than the critical value of 1.96 at 0.05 level of significance. There is every reason to accept the null hypothesis, that is, there is a no significant difference between the mean opinions of teachers and Industry training officers on the entrepreneurial financial plan and accounting re-training needs of teachers of Electrical Installation and Maintenance Work Trade

4:10 Hypothesis 5

There is no significant difference between the mean opinions of teachers and Industry training officers on the Entrepreneurial personal effectiveness techniques needed by teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges

The Data for testing Hypothesis 5 are presented in Table 10

The z-calculated 1.82 is lower than the table value 1.96. This then means that the null hypothesis as stated is accepted. The result then shows that there is no significant difference between the mean opinions of teachers and Industry training officers on entrepreneurial personal effectiveness re-training techniques needed by teachers of Electrical installation and maintenance work Trade in Science and Technical Colleges.

4.11 Findings of the Study

The following findings were made based on the results of data analysis presented in this chapter.

1. The teachers of Electrical Installation and Maintenance Work Trade needed more entrepreneurial re-training in 15 out of 22 items of the entrepreneurial managerial competencies needs.
2. All the entrepreneurial motivational techniques were needed for the retraining of Electrical Installation and Maintenance Work Trade teachers.
3. 8 out of 10 items of entrepreneurial marketing needs were needed for retraining of teachers
4. 16 items out of 19 entrepreneurial financial and accounting needs were needed for retraining of teachers

Table 9: Summary of Z-test of Difference between the Opinions of Teachers and Industry Training Officers on the Entrepreneurial Financial Plan and Accounting Re-training Needs of Teachers of Electrical Installation and Maintenance Work Trade

Group	Mean	N	α	Z-cal	Z- critical
Teachers	3.43	80	0.05	1.53	1.96
Industry training officers	3.59	75			

The Data in this Table are extracts from SPSS Analysis as provided in Appendix X

Table10: Summary of Z-test of Difference between the Mean Opinions of Teachers and Industry Training Officers on the Entrepreneurial Personal Effectiveness Re-training Techniques Needed by Teachers of Electrical Installation and Maintenance Work Trade.

Group	Mean	N	α	Z-cal	Z- critical
Teachers	3.14	80	0.05	1.82	1.96
Industry training officers	3.23	75			

The Data in this Table are extracts from SPSS Analysis as provided in Appendix Y

5. 14 items out of 21 of entrepreneurial personal effectiveness techniques were needed for retraining of teachers
6. There was no significant difference between the mean opinions of teachers and industry training officers on entrepreneurial managerial retraining needs, as it was accepted.
7. There was a significant difference between the mean opinions of teachers and industry training officers on the entrepreneurial motivational retraining techniques
8. There was no significant difference between the mean opinions of teachers and industry training officers on the entrepreneurial marketing retraining techniques.
9. There was no significant difference between the opinions of teachers and industry training officers on the entrepreneurial financial and accounting retraining needs.
10. There was no significant difference between the mean opinions of teachers and industry training officers on the entrepreneurial personal effectiveness retraining techniques.

CHAPTER FIVE

DISCUSSION

5.1 Discussion Of Findings

This chapter deals with discussion which is based on the findings of this study with relation to the Research Questions and the hypotheses formulated.

With regard to teachers' managerial re-training needs, the study revealed that Electrical Installation and Maintenance Work Trade teachers in the North-east Geo-political zone of Nigeria still needed further training and re-training in their pursuit of entrepreneurial training. Out of 22 items, 15 items representing 68.18% were rated needed, which indicated the need in re-training on the aspect of communicating effectively with staff and students, use of written communication skills effectively with students and support staff, plan meetings with staff, make long plans for proper management, proper direction and control of academic affairs, plans for goal attainment, organization of human resources for proper management, carrying out assessment of knowledge needed by the organization, Appraise supporting staff performance, making of efficient use of feedback from students, establish and maintain good purchasing policy for right work and materials. These findings fully agreed with the assertions of Awopegba (1999), O Riordan (1999), Okoro (1999), Abioye (2000), Khanka (2002), that the major problem affecting teachers is their training and re-training in the management of their subject in the areas of communication, planning, co-ordination, organization and directing. The list of competency areas needed by Electrical Installation and maintenance work Trade teachers of science and technical colleges in the North eastern states, Nigeria indicated that the teachers might not be competent in the entrepreneurial competencies needs of their trade subject. This means that science and technical colleges would continue to turn out incompetent graduates unless this gap was bridged.

The study found that out of the 15 items presented and responded to, 15 items were rated above 3.49 indicating needed. On the 15 items of entrepreneurial motivational re-training techniques responded to, indicated 100% which revealed that the teachers of this subject area needed further retraining in those aspects of motivation to be able to teach their students well. These findings agreed with Suleiman (2000), Adesina, (2001), Mohammed (2002), Abdul (2002) who noted that teachers do not need to place too much emphasis on the requirements and needs of the school if they would succeed in their motivating the students in teaching and learning. From the findings, the teachers of Electrical Installation and maintenance work Trade were lacking in these aspects of motivation which stand as

problems unless their teachers are re-trained, so that they would not place much emphasis on the needs and requirements of the organization alone.

The finding of the study showed that 8 items out of 10 entrepreneurial marketing re-training needs were responded to as needed, which represented 80%. On the marketing needs, the findings revealed that there could be further re- training in these aspects of marketing; which are: to define the targeted area carefully, to indicate the needs of the society, Design the procedure for knowing the reaction of the market, compete favourably with others, exhibit products made by students, produce news letters about the College, maintain public relations with staff, maintain public relations with individual community. These findings agreed with the assertions of Mitchel, (1998), Adebayo (2000) Puje, (2001), Walkers, (2001) Mc Hugh (2002) and Corrot (2006) who pointed out that there are problems in the areas of marketing goods and teachers subject itself, except by due process of training and retraining of teachers to meet up these needs.

It called for concern as the list of marketing needs of Teachers of Electrical installation and maintenance work Trade are very necessary and since they are lacking in these needs called for further re-training so as to market their subjects and their students to the outside world. It is by this, that graduates of the subject would meet up with employment chances as they completed their programmes of studies in schools.

The study found that16 items out of 19 were rated needed. Sixteen (16) items representing 84.2% were responded to be needed. The findings on the entrepreneurial financial and accounting re-training needs of teachers required further re- training on these various 16 items for maximum performance. These competency needs where training is required include: format spreadsheet, operate spreadsheet, calculate gross profit, calculate net profit, understand interest rate, understand last purchase, order for spare parts and materials, write receipt of spare parts and materials, keep records of parts and records of material, issuance of spare parts and materials, understanding of budget and loss account, credit account, and balance sheet.

These findings agreed with the assertions of Khanka, (2002), Ubong (2006), Adebayo (2009) who opined that Engineers, Technologist, Teachers, Technicians and indeed craftsmen and artisans who had no basic training in business methods felt a sense of inadequacy when confronted with business related problems and jobs. It therefore meant that, there was a problem along the line that had to be corrected to fill the gap if the Electrical installation and maintenance work trade teachers had to work in Science and Technical

College as an organization. It called for further re- training for Electrical Installation and maintenance work Trade teachers in these financial and accounting needs to have the economic plan as to the foundation for evaluation of whatever takes place in workshop as goods and services are produced.

It was found by the study that 14 items out of 21, representing 66.6% was noted to be needed, while seven items were noted not needed. The findings on the entrepreneurial personal effectiveness techniques indicated more retraining for the Electrical Installation and Maintenance Work Trade teachers. The findings agreed with the assertion of Anyakoha (2002), Fabian (2003), who stated that the major problems facing the teaching of vocational education in Nigeria is the re-training of teachers to effectively handle the modules taught by them. These lists of techniques needed by Electrical Installation and maintenance work Trade teachers of Science and Technical Colleges in the North Eastern Nigeria indicated that these teachers might not be competent to teach their trade subject if not retrained. This invariably meant that Science and Technical Colleges would continue to turn out incompetent graduates unless this gap was bridged.

The findings in Hypothesis 1 indicated that the hypothesis was accepted, as the critical or table value of z for a two-tailed test at .05 level of significance showed that z ratio calculated is lower than the critical value of 1.96. By the acceptance of the hypothesis, it therefore meant that there is no significant difference between the mean opinions of teachers and Industry training officers on the entrepreneurial managerial re-training needs of teachers. It therefore meant that both the teachers and Industry training officers have agreed that teachers be re-trained on the list of managerial competency needs. The study revealed that the calculated value is greater than the table or critical value of 1.96. From this, the findings revealed that the null hypothesis was not accepted. It therefore didn't agree with research question 2 that teachers needed to be re- trained on the entrepreneurial motivational techniques, so as to bridge the gap between the teachers and the students.

Hypothesis 3 revealed that the calculated value 1.61 is lower than the critical value of 1.96. This clearly gives every reason to accept the null hypothesis which agreed with research Number 3. By this, it showed that there was no significant difference between the mean opinions of teachers and industry training officers on the entrepreneurial marketing re-training needs by teachers. By this, it showed that teachers needed re- training. .In Hypothesis 4, the calculated value of 1.53 was found to be greater than the critical value of 1.96 at 0.05 level of significance. These findings showed an acceptance in the hypothesis which indicated

that there was no significant difference between the mean opinions of teachers and industry training officers on the entrepreneurial financial and accounting re-training needs of teachers of Electrical Installation and Maintenance work Trade. It is like in research question 4 which fully agreed that teachers be re-trained to face challenges.

The finding of Hypothesis 5 indicated that the calculated value 1.82 was lower than the table value of 1.96. The finding revealed the acceptance of the hypothesis which showed that there was no significant difference between the teachers and industry training officers on the personal effectiveness re-training techniques needed by teachers of Electrical Installation and maintenance work Trade. This hypothesis fully agreed with research question 5 that teachers needed to be re- trained in depth knowledge on the entrepreneurial personal effectiveness techniques to be able to face the current challenges in Entrepreneurship education.

CHAPTER SIX
SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter did present the summary of the procedures used in conducting the study, conclusion , recommendations based on the findings, and contribution to knowledge further were also presented.

6.1 Summary of Procedures

This study was designed to determine the Entrepreneurial re-training competencies needed by teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges in the North East Geo- Political Zone, Nigeria. The study was carried out using a Descriptive Survey Research Design. The study covered all the 24 Science and Technical Colleges and seven eight industries/organizations in the North East Geo- Political , Nigeria that offered Electrical Installation and Maintenance Work Trade up to National Technical Certificate (NTC) and also train students on industrial attachment. A set of questionnaire comprising of Section A to F having five point rating scale was constructed to collect the necessary data.

Eight experts in Management Sciences, Technology education and officers of industry training fund validated the questionnaires. The pilot test was carried out on 10 Subjects: 4 Industry training officers of Dangote cement industry, Gboko in Benue state and 6 Electrical trade teachers, of Government Technical Training College in 2011/2012 academic session. The population of the study was made up of 83 teachers of Electrical Installation and Maintenance Work Trade, 78 industry training officers. The data was analyzed using mean, standard deviation and z-test of difference. Statistical package for social sciences (SPSS) version 18 was used for the computation of results for the research questions and the hypotheses.

6.2 Conclusion

Based on the findings of this study, it is concluded that the entrepreneurial competencies needed by Electrical installation and maintenance work trade are highly reliable to satisfy the teachers in terms of retraining. This therefore indicates that the possessions of these competences would create self employment. These entrepreneurial competencies includes: Managerial, motivation, marketing, financial and accounting, and personal effectiveness techniques.

The findings of this study have some educational implications on Electrical installation and maintenance work trade teachers, industry training officers and students. The retraining of teachers would bridge the gap between teachers and students that existed in the

entrepreneurial competency needs of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges. When students are well equipped with the identified competences, they would become effective in the teaching and learning of Electrical Installation and Maintenance Work Trade with entrepreneurship interest and students who have chosen this trade as a vocation would be job creative and self-reliant. The implication on industry training officers would bring about a bilateral relationship in the training of students on entrepreneurship education as they serve as mentors. The students would be involved in compulsory industrial training which invariably would improve their entrepreneurship education.

6.3 Recommendations

The following recommendations were made based on the findings of the study:

1. Stakeholders of Science and Technical Colleges in the North East Geo- Political Zone, Nigeria should provide in-Service training for Electrical Installation and Maintenance Work Trade teachers.
2. Needed competencies like use of written communication skills with staff, plans for effective meetings with staff, proper direction of academic affairs should form ingredients of induction courses for teachers in the Science and Technical Colleges.
3. Needed competencies like use of written communication skills with students, proper direction of academic affairs should form ingredients of students orientation through in-formal training when new students and junior secondary school jss1 are admitted into the college.
4. Teachers should be encouraged through the provision of resources to sponsor students on field trips to interesting places so as boost their interest.
5. Conferences, Seminars and workshops should be constantly organized by the Federal and State Governments for the vocational teachers to update their knowledge and competencies.
6. The State Ministry of Education, Science and Technology Board in collaboration with the Federal Ministry of Education should design an Exchange programmes with universities of Technology and or Polytechnics to offer long vacation re-training of teachers of Electrical Installation and Maintenance Work Trade in Entrepreneurial education.

7 Studies need to be conducted in other trades courses to indicate entrepreneurship retraining in the North East Geo- Political Zone, Nigeria..

8 A study needs to be conducted in the relationship between the Trainees in the industry and Students of Science and Technical Colleges on Entrepreneurship education in North East Geo- Political Zone, Nigeria.

6.4 Contribution to Knowledge

Self reliance is the benefit which a good vocational Technical Education programme should provide. It leads to job creation and ability to explore business opportunities through which some financial benefits may be accruable. The lack of entrepreneurial competencies by students can affect their performances in wealth creation. The study on this can add to knowledge.

In the same vein, as the country grows with its increase in Economic Developments, it demands active participation in the economic activities by its people. The abilities and skills at their disposal as a result of training received can be used by others for job creation. This is only possible when those that imparted these competencies must have had their retraining in entrepreneurship education, which could be imparted to the younger ones.

REFERENCES

Abbas, A.G. (2000). Quality teacher production in Nigeria teacher education through Competencies based teacher education. In A.M. Wokocha. (Ed) pg.8 *Quality in Education:* Owerri: APQE publication. 10,11

.

Abioye, L. A. (2000). *Entrepreneurship development in small scale business*. Lagos: Ade-ola Printing Press

Abdul, S. A. (2002). Identifying the skills for entrepreneurship in Vocational Technical Education. *Journal of Vocational Technical Education,* 6 (12) 6-12

Adebayo S. Y. (2009, June 16). Re-positioning of Federal Unity Colleges. *Daily Trust*, pg 16

Adebayo, O. I (2000). *Entrepreneurship development in small scale enterprise*. Lagos: Ade-ola Printing Press

Adesina, S. A. (2001). *Educational management* Enugu Fourth Dimensional Publishing Press Nigeria

Agu, N & Akuezuilo, E.O (2003). *Research and statistics in education and social sciences (Methods and Applications).* Awka: Nuel Centi Publishers and Academic Press

Aggarwal, J. C. (2003). *Teachers and education in a developing society*. New Delhi: Vikas printing house press.

Alainati, S. O. (2009). Effect of education and training of entrepreneurial compentencies of students in the New Delhi. Retrieved 10th July, 2010 from http // scholar library

Aluwong, S.W. (2009). Entrepreneurship, education and vocational and technical teachers pre-service preparation. *Journal of Vocational Education, 2,9-11*

Ambasht, N.k. (2002). Teacher Education in the New Millenium; Challenges and Strategies, Teacher Education in Nigeria; past, present and future. A paper s presented during the proceedings of first teachers' summit. 1, 47-59.

Anaele, E. (2005). Electronics entrepreneurial competencies needed by technical teachers for entrepreneurial education. *Journal of Vocational and Adult Education*. 1(2), 98-111

Anaemena, E. J. (1999). Competencies essential for entrepreneurship in industrial electronics. *Journal of Vocational and Adult Education.* 2,(1), 15-25

Anaemena,E.J. (2002).Training of Teachers for further challenges in Nigeria. *Journal of Vcational and Adult Education.* 4,(1), 20-24

Anchor, D. S. (2007). Entrepreneurship: In theory and practice. In journal of General Studies. *Abuja A division of General Studies university of Abuja* 1,(2), 10-12

Anyakoha, E. U. (2002). The need for vocational skills to technological impact in developing nationals. *Journal of the Gifted and talented children Association of Nigeria* 1,(1), 16-31.

Anumnu, S. I. (1989). Enterprenuership education for socio-economic and industrial development in Nigeria. *Journal of Vocational and Technical Education,* 1, (2), 16-20

Anumnu, S. I. (2001). Motivating the Nigerian child towards entrepreneurship education: The challenges of women in the new millennium. *Journal of Women in Colleges of Education,* 5, 134-143

Awopegba, P. O. (1998). *Development and management of human resources in nigeria*. *resource mobilization and management for development.* Ibadan: Future Publishers.

Babatunde, A. O. (2008). Updating the current entrepreneurial competencies of electronic teachers in technical and secondary schools in Lagos State for the realization of Vision 20 20. *Journal of Vocational and Adult Education,* 2(1), 80-83

Bala, A. (2005). *Fundamentals of accounting.* Lagos: Matthouse press

Badi, R. V. & Badi, N. V. (2006). *Entrepreneurship*. New Delhi: Vrinda Publications ltd,.

Barton, G. & Thakur M. (1995). *Management today, principles and practice*. Sharadarat Tole: McGraw Hill publishers.

Bayatzis, S. Y. (2002). *Entrepreneurship potentials*. New Delhi : Vrinda Publications .

Beaver, K. (2002). *Financial guide.* Irwin:McGraw Hills publishers

Bosman, J. & Gerard, K. (2000). A theoretical frame work for teaching and learning entrepreneurship. Retrieved 6th May, 2009 from http//scholar./lib.vt.Edu/a journal of JITEV. 46.

Bruce, J.W. (2002). *Essential of marketing.* Irwin: McGraw Hills Publishers

Brinker, W. (2006). *Management accounting.* New Delhi: Vikas

Brozen, Y. (2006). *Understanding business.* Irwin: McGraw Hills publishers

Carrier, K. (2010). Pedagogical Challenges in Entrepreneurial Education. Retrieved 19th March, 2014 from http/scholar/ lib.vt.ed/a journal of BSE 48

Chaudler S. & Jansen B. (1992). Entrepreneurship retrieved 16th May, 2009 from http//scholar/lib.vt.edu/a journal of BSE 48.

Corrot, J. W. (2006). *Foundations of marketing.* Irwin: McGraw Hills publishers

Daramola, I. S. (2008). *Fundamentals of technology and vocational education*. Jalingo De-covenant publishers.

Davidson B. (2001). The general framework for teaching and learning entrepreneurship. Retrieved 05 May 2009 from http//scholarlibvted/a journal/JITV46n2 branchile. Htm/10 am

Davidson, J. (2004). *Financial management.* Irwin Vikas publishing House PVT

Davis, E. L. (1996). *Entrepreneurship in vocational and technical education.* Columbus*:* Wardsmith publishers.

Dharan,S R (2006). *Marketing principles*. Irwin: McGraw Hills publishers

Diraso, D. K. (1991). *The In-service Needs of Technical Teachers of secondary schools in Gongola State*. Unpublished M.Ed. thesis. Nsukka. University of Nigeria.

Dixon, R, Meier, R.L, Brown, D.C & Custer, R. L. (2005). The critical entrepreneurial competencies required by instructors from institution- based enterprise .*A Jamaican study journal of Industrial Teacher Education*, 42 (4) 25-51

Donald, S. W. (2003). *Managerial Accounting.* Irwin: Vikas publishing house PVT

Ekong A. O. (2003). Regenerating vocational education for sustainable youth empowerment in the 21st century. *Uyo Education in Nigeria in the 21st century*: Abaan publishers .

Ekong, A. O. (2001). Redesigning Agricultural education curriculum of Tertiary institutions for vocational reference in Nigeria. *Abuja: Journal of Curriculum Studies. 91-94.*

Ekankumo, S.B. (2011). Entrepreneurship and entrepreneurial education: Strategy for sustainable development in Nigeria. Journal of Business Education University of portharcourt. 2 ,30-34.

Elaine, *B. (1985).* Entrepreneurial Competencies for Secondary Schools Vocational Students. *Business Forum.* 42,(3), 30-33.

Etuk L. A. (2000). Development of occupational skills in Agriculture. *Uyo: Journal of Association for Advancement of Vocational Education in Nigeria*. 4-6.

Etzel, M.J (2002). *Principles of marketing.* Irwin: McGraw Hills publishers

Eurydice, O.Y. (2004). *Management qualities of a leader.* McGraw Hill Publishers
.

Ewuga, A. D. (2008). Retention and Utilization of Technical and Vocational Education Teachers for the Realization of Vision 2020. A Journal of Nigerian Assocition of Teacher of Technology. NATT. 21, 22- 32.

Ezeani,B.B, Ezemoyi, S.Y & Osita, O.C. (2012). Entrepreneurial skills required by business related graduates for successful operation of a business enterprise in Enugu commercial center and environs. Journal of Business Management Institute of management Technology (I.M.T) Enugu. 2, 20-23.

Fabian, O. (2003). *National technical certificate and Advanced National Technical certificate and advanced national technical certificate programme curriculum module specification in electrical installation and maintenance work:* Kaduna. NABTEB.

Federal Government of Nigeria (2008). *National Policy on Education* (4th ed) lagos NERC

Fiet, S.(2000). Entrepreneurial competency needs. Retrieved 5th May, 2009 from /http /scholar lib.vt Edu. /a journal /JITV. 46 n2 branch/e Html. 10 am

Foster, O. S. (2006). *Accounting principles.* Irwin: McGraw publishers

Foster,O .S & Srikant,A.K. (2000) *Management accounting*. Irwin: McGraw Hills Publishers

Gayus, B.J. Ikwuakam, Oscar, T, Mohammed U.T. & Solomon R.J. (2002). *Fundamentals of vocational and technical education in Nigeria*. Owerri: Versatile Publishers.

Gallapher, D.C. (1983). President's View on School of Business. *Collegiate news and view. 16,(13),5.*

George, B. (2001). *Financial management.* New Delhi:Vikas publishing house PVT

Gibb, S. (2005). The need for enterprising and entrepreneurial frameWorks in teaching. Retrieved as 05 May, 2009 from http//scholar lib. Vt. Ed/a journal/JITEV 46 n2 branchile Html. 10 am.

Gurol, S.S.(2006). Entrepreneurial characteristics amongst university students: Some insights into Entrepreneurship education and Training in Turkey. *Turkish Journal of Entrepreneurship education*. 2, 33-36

.

Haimann, S.S. (1995). *Financial management and Administration* Enugu: John Jacobs. Classic publishers .

Hornby, A. S. (1996). *The Oxford Advanced Learners Dictionary* (Crowther 1st ed). Oxford: oxford university press. 386.

Inyiagu, E. E. (2009). Competency Based Education: The Alternative for Effective In-Service Technology Teacher Education in Nigeria. *Journal of Nigerian Association of Teachers of Technology* (NATT). 22, 45-50

ITF (2010). IAGR Department : Directory of organizations that accepts students on industrial attachment . Jos Press.

Jhingan, M. L. (2008). *The Economics of development and Planning.* New Delhi: Vrinda Publications

John, R. C. & Curtis, R. F. (1984). *Curriculum Development in Vocational and Technical Education: Planning, Content and Implementation.* London: Allyn and Bacon, Inc

Khanka S. S. (2002). *Entrepreneurial Development*, New Delhi: S. chand and company

Kieso, M. K. (2001). *Quality business in business settings*. New Delhi : Vrinda Publications
.
Kio, R. (1999). *Management.* Lagos: Matthouse press

Kio, R. (2000). *Practical human resources Management.* Lagos: Matthouse press
.
Landstrom, S.(1998). Vocational and Technical Education, Preparation of Teachers, retrieved 7th August 2010. http://w.ww.google cysearch.617,branch.11:10a.m

Lawal, A.A. (2000). *Entrepreneurship development in Business.* Lagos: Ade-ola Printing Press Ltd. Education Towards the Attainment of Needs, Objectives in Federal C ollege of Education Potiskum. *Nigerian Journal of Teachers of Technology. 18, (13), 70-75*

Leu, K.(2010). The Role of Teachers, Schools, and Communities in Quality Education: A Review of the literature. Working paper: Singapore: *Educational Development, Global Education centre.*

Mamuda,A.& Aliyu, M.(2006). Entrepreneurial Education towards the Attainment of Needs, Objectives in Federal college of Education Potiskum. *Nigeria Journal of Teachers of Technology*,18,(13),70-75

Massie, N. O (1994). Assessing employability skill of technical/vocational students in Malaysia. *Journal of Social Science* 3, 202-207.

Mitchell , S. W. (1998). *Employment generations in the developing world*. Dares salaam GMP press.

Mohammed, A. R. (2002). Improvement of Quality Teaching in Secondary Schools: The way forward for the 21st Century. *Journal of Vocational Technical Education* 3(2)16-23

McHugh, J.W. (2002). Marketing Policies. New Delhi: Vikas publishing house

NABTEB (2006). *National Teachers Certificate and Advanced National Certificate in Electrical Installation and Maintenance Work, Curriculum and course Specification,* Kaduna.

ogwo, B. A. & Oranu, R. N. (2006). *Methodology in Informal and Non-formal Vocational Technical Education.* Nsukka: University of Nigeria Publishing Press.

Office of Personnel Management(O.P.M): The Roles of Competency Modelling. Personnel Psychology. 51,707-709. In h//p: // www.google . Njodxmt396wqfqw.

O' Riordon, R. (1999). *Perspective on Resource Management.* London: Pion press.

Okoro O. M. (1999). *Principles and Methods in Vocational and Technical Education* Nsukka: University Trust publishers.

Okoro, O. M. (2002).Program evaluation in education. Obosi: Pacific Publications.

Olaitan, S.O. (1984). Vocational Education and Manpower Development in Nigeria. *Journal of Vocational Technical Teacher Education.*

Olaitan, S. O. & Agusiobo, O. N. (1991). *Introduction to the Teaching of Home Economics.* New York: John Wiley and Sons .

Omozokpia, T.M. (2001). Analysis of Constraints Inhibiting Production Works in Engineering Trades Centers of Technical Colleges in Nothern States of Nigeria. *Journal of Engineering Technology and Industrial Application. 1,(3), 12-17*

Owualah, S. I. (1999). *Entrepreneurship in Small Business Firms*. Lagos:Mag investment.

Paajanen, L.J. (2004). *Management and organizational behavior*. England: Pearson Education Ltd.

Pelomo, E. (2007). Refocusing Vocational Education for Relevance and Sustainable National Development. *Multidisciplinary Journal of National Association for Advancement of Knowledge. 15(9), 57-59.*

Philipps, S. *(1980).* Entrepreneurship in Developing Society. *Journal of Business Studies. 1,(2), 20-23*

Priyanto, S.K. & Sandjojo, J. B. (2005). Relationship between entrepreneurial learning, entrepreneurial competencies and Venture success: empirical study on small and medium enterprises(SMES). *South Korea Journal of Business Education.* 5, 40-43.

Pyle, S. (2001). *Marketing Principles.*New Delhi: Vikas publishing house PVT

Rao, V. K. (2008). *Teacher Education.* A.P.M. publishing corporation. New Delhi.

Richter, F. D. & Tjosvold, D. (1990). Effect of Participative Class room decision making on attitude, Peer-group Interaction, Motivation and Learning. *Journal of Applied Psychology,* 65(1), 74- 80

Robert, O.S (2003) *Principles of Accounting*. Irwin: McGraw Hills Publishers

Schumpeter, J. A. (1934). *The Theory of Economic Development.* Harvard Business school press, Cambridge MA.

Sharon, B.S.(2006). *Principles of Marketing*. Irwin: McGraw Hills publishers

Shippmann, J.S. et al (2000). The Practice of Competency Modelling. Personal Psychology. *In Jamaican Journal of Teacher Education*. 5, 12-14

Stanley, J.C. & Hopkins, K.D (1992). *Educational and Psychology Measurement and Evaluation*. London: Prentice- Hall International Inc.

Statt, S. A (2004). *Job Creation and Destruction Manufacturing.* Cambridge: MIT press.

Suleiman, A.B. (2000). The Challenges of Entrepreneurship and Poverty Reduction in Nigeria. *Journal of Business Studies. 2,(1),20-23*

Tang S. S. (2004). *Principles of Management.* Enugu: Rhyce Kerex publishers
.
Tolubi J. O. (2001). *Fundamentals of Research Methodology.* Ilorin: Victory publishers,

Terry, K. & Kieso, B. (2001). *Foundations of Financial Accounting*. Irwin: McGraw Hills Publishers

Thomas, S.Y, Lau, J. B & Snape,S.S.(2008). Entrepreneurial competencies and the performance of small and medium enterprise: An investigation through a frame work of competitiveness. *Jamaican Journal of Vocational Teacher Education.* 8, 51-55.

Ubale, C.M. (2010). Entrepreneurial Competencies Needed by Higher Vocational Technical Education Students in North eastern Nigeria. *Unpublished Ph.D thesis. Federal University of Technology Yola*.

Uwaifo, V.O. (1982). Technology and Vocational Education Teachers for the 6-3-3-4 System of Education in Nigeria: Its problems and prospects. *In Academic Journals. 4,(4), 160-166.*

*Uwaifo, V.O. (2009).*Training Technology and Vocational Education Teacher for the new 9-3-4 Education System in Nigeria: Its problems and Prospects. *In Journal of Vocational and Technical Education. 10,(2),130-136.*

Uzoagulu, A.E. (1998). *Practical Guide to Writing Research Project Reports in Tertiary Institutions.* John Jacobs Classic Publishers.

Walton, A. S. (2002). *Marketing.* Irwin: McGraw Hills publishers

Walkers, W. (2001). *Marketing Management: A Strategic Decision Making Approach.* Irwin: McGraw Hills Publishers

Walkers, W. (2002). *Marketing Management: A Strategic Decision Making Approach.* Irwin: McGraw Hills Publishers

Wayne, G. (1988). Education and Entrepreneurship. *Business forum.* 14,(7),9-11

Weygand, S. (2006). *Foundations of Accounting Management.* Irwin: McGraw Hills Publishers l

Williams. J. W. (2001). *Managerial Economics.* New Delhi. Vikas publishing house PVT ltd

Williams, A. S. (2003). Curriculum Development Analysis the Nigerian case. *Journal of Vocational and Technical Education.* 2,(2),20-25.

Young, B. & Anthony, J. W. (1999). *Foundations of Financial Management.* Irwin: McGraw Hills publishers

Zeff, B. S. (2005). *Financial Accounting Policies.* Irwin: Vikas publishing house PVT

APPENDIX A

LETTER OF VALIDATION OF QUESTIONNAIRE

Modibbo Adama University of Technology,
Department of Technology Education,
Yola.
11th Nov, 2012

_____

_____

_____

_____

Sir/Madam,

VALIDATION OF QUESTIONNAIRE ITEMS

The researcher is a Post graduate student of the Department of Technology Education, Modibbo Adama University of Technology, Yola. Find attached a copy of questionnaire on the research topic: "Entrepreneurial Re-training Competencies Needed by Teachers of Electrical Installation and Maintenance Work Trade in Science and Technical Colleges in North East Geo-Political Zone, Nigeria". The specific objectives of the study are to:

1. Determine the entrepreneurial managerial re-training needs of teachers of electrical installation and maintenance work trade in science and technical colleges
2. Identity the entrepreneurial motivational re-training techniques needed by teachers of electrical installation and maintenance work trade in science and technical colleges
3. Determine the entrepreneurial marketing re-training needs of teachers of electrical installation and maintenance work trade in science and technical colleges

4. Determine the entrepreneurial financial and accounting re-training needs of teachers of electrical installation and maintenance work trade in science and technical colleges
5. Determine the entrepreneurial Personal Effectiveness re-training techniques needed by teachers of electrical installation and maintenance work trade in science and technical colleges.

The research questions are as follows:

1. What are the entrepreneurial managerial re-training needs of teachers of electrical installation and maintenance work trade in science and technical colleges?
2. What are the entrepreneurial motivational re-training techniques needed by teachers of electrical installation and maintenance work trade in science and technical colleges?
3. What are the entrepreneurial marketing re-training needs of teachers of electrical installation and maintenance work trade in science and technical college?
4. What are the entrepreneurial financial and accounting re-training needs of teachers of electrical installation and maintenance work trade in science and technical colleges?
5. What are the entrepreneurial personal effectiveness re-training techniques needed by teachers of electrical installation and maintenance work trade in science and technical colleges?

The hypotheses are:-

1. There is no significant difference between the mean opinions of electrical installation and maintenance work teachers and industry training officers on the entrepreneurial managerial re-training needs of teachers

2. There is no significant difference between the mean opinions of electrical installation and maintenance work teachers and industry training officers on the entrepreneurial motivational re-training techniques needed by teachers
3. There is no significant difference between the opinions of electrical installation and maintenance work trade teachers and industry training officers on the entrepreneurial marketing re-training needs of teachers
4. There is no significant difference between the mean opinions of teachers and industry training officers on the entrepreneurial financial and accounting re-training needs of teachers of electrical installation and maintenance work trade
5. There is no significant difference between the mean opinions of teachers and industry training officers on the entrepreneurial personal effectiveness re-training techniques needed by teachers of electrical installation and maintenance work trade in science and technical colleges

You are please requested to validate these questionnaire items with respect to appropriateness, adequacy, content and clarity of the items. You may make any other suggestions that will improve the status and quality of this study.

Thanks for your assistance.

Yours faithfully,

Onuh James
Ph. D/TE/08/0028

APPENDIX B

Modibbo Adama University of Technology,
Yola.
Adamawa State
11th Nov, 2012.

Dear respondent,

REQUEST TO RESPOND TO QUESTIONNAIRE

I am a post-graduate student of the Department of Technology Education, Modibbo Adama University of Technology, Yola. The attached is a questionnaire intended to collect the data needed for analysis. The purpose of the study is to determine the entrepreneurial re-training competencies needed by teachers of electrical installation and maintenance work trade in science and technical colleges in North East Geo-Political Zone, Nigeria

You are requested to respond to the items as objectively as you can. This research work is purely an academic exercise and all information supplied by you will be treated with confidentiality.

As one of the respondents, you are kindly requested to complete the questionnaire as indicated in the instruction. Please note that sections A – F are to be completed by Industry training officers and teachers of Electrical Installation and maintenance Work Trade.

Thanks for your assistance.

Yours sincerely

Onuh James

APPENDIX C

ENTREPRENEURIAL RE-TRAINING COMPETENCIES NEEDED BY TEACHERS OF ELECTRICAL INSTALLATION AND MAINTENANCE WORK TRADE QUESTIONNAIRE.

Read the following statement and write your responses in the blank space provided in 1 and tick (√) against the response that best apply to you in item 2.

Section A: PERSONAL DATA

1. Name of Industry / Science and Technical college ----------

2. Respondents

Position held:

A .Industry Training officer ☐

B. Electrical Installation and Maintenance Work Trade Teacher ☐

S**ection B: Entrepreneurial Managerial Re-training needs of teachers of electrical installation and maintenance work trade in science and technical colleges.**

Instruction: The following are competencies needed by teachers of electrical installation and maintenance work trade. Please indicate by ticking (√) right the extent to which you need to increase your level of possession of each entrepreneurial managerial re-training needs of teachers in electrical installation and maintenance work trade. The response modes are:

Extent of Need		**Scale**
Highly needed	HN	5
Needed	N	4
Moderately Needed	MN	3
Not needed	NN	2

Completely Not needed CNN 1

Section B: Entrepreneurial Managerial Re-training Needs

Teachers & Industry tr. officers

S/N	Ability to:	HN 5	N 4	MN 3	NN 2	CNN 1
1	Communicate effectively with staff					
2.	Communicate effectively with students					
3.	Use written communication skills effectively with staff					
4.	Use written communication skills effectively with students					
5.	Plan meetings with staff effectively					
6	Plan meetings with students effectively					
7	Make short plans for proper management					
8	Make long plans for proper management					
9	Delegate responsibility to supporting staff					
10	Direct academic affairs					
11	Control of academic affairs					
12	Plan effectively for goal attainment					
13	Organize human resources for proper management					
14	Implement plans for goal attainment					
15	Become familiar with time management					
16	Become familiar with job demands					
17	Evaluate all academic requirement for proper operation					
18	Carry out assessment of the trade course needed by the organization					
19	Appraise supporting staff performance					
20	Make efficient use of feedback from students					
21	Establish and maintain good purchasing policy for the right work					
22	Establish and maintain good purchasing policy for the correct materials					

Section C: Entrepreneurial Motivational Re-training Techniques

Teachers & industry tr. officers

S/N	Technique to:	HN 5	N 4	MN 3	NN 2	CNN 1
1.	Establish goal that are useful to the society					
2.	Reward correct behavior and answers					
3.	Be human and caring					
4.	Relate new tasks to those already known					
5.	Whole heartedly identify oneself with an activity					
6.	Fulfill desires of one another					
7	Properly understand goals					
8	See some purpose in the work and strive to achieve it					
9	Suggest desirable educational goals that appeal to the society					
10	Expose staff to innovations regularly					
11	Solve problems that resembles life's experiences					
12	Organise field trips to interesting places					
13	Ensure that the learners are not given the tasks that are beyond their capabilities					
14	Give challenging tasks but not discouraging ones					
15	Familiarise with students whose repeated failures have led to lowering of efficiency					

Section D: Entrepreneurial Marketing Re-training Needs

Teachers & industry tr.officers

S/N	Ability to:	HN 5	N 4	MN 3	NN 2	CNN 1
1	Determine the seasonal fluctuation of goods					
2	Determine the extent to which products would sell					
3	Be familiar with various aspects of sales					
4.	Budget for future sales					
5	Forecast future changes in the market					
6	Determine current trends in sales of products					
7	Determine what customers need					
8	Determine shortage of goods					
9	Have the knowledge of goods					
10	Determine the extent of and strength of competition					

Section E: Entrepreneurial Financial and accounting re-training Needs

Teachers & industry tr. Officers

S/N	Ability to:	HN 5	N 4	MN 3	NN 2	CNN 1
1	Format spreadsheet					
2	Operate spreadsheet					
3	Calculate gross profit					
4	Calculate net profit					
5	Understand interest rate					
6	Understand cost of business					
7	Understand last purchase					
8	Determine how funds would be raised					
9.	Determine the major areas of expenditure					
10	Determine the value of shares by members					
11	Determine the cash statement					
12.	Determine the unit price of securities to be offered					
13.	Determine government policies on small industries					
14	Determine the value of shares by members of management team					
15.	Determine the capital required by raising through debentures					
16	Plan general budget					
17.	Detect loss account					
18	Prepare credit account					
19	Prepare balance sheet					

Section F: Entrepreneurial Personal Effectiveness Re-training Techniques

Teachers & Ind.training officers

S/N	Technique to:	HN 5	N 4	MN 3	NN 2	CNN 1
1.	Develop oneself and others					
2.	Continuously learn and develop					
3	Identify ones strength					
4	Identify ones weakness					
5	Help co-workers learn					
6	Help co-workers when they are in difficulty					
7	Take responsibility for others					
8	Consider costs when taking decisions					
9	Consider benefits when taking decisions					
10.	Consider risks when taking decisions					
11	Use time wisely					
12	Use resources wisely					
13	Prepare for potential problems before they occur					
14	Encourage a work culture of continuous learning					
15	Encourage a work culture of information sharing					
16	Provide direction to team members					
17	Provide support to team members					
18	Learn from what went well					
19	Learn from what went wrong					
20.	Guides team towards making effective decisions					
	Review progress towards accomplishing team goal					

APPENDIX D

Results of the pilot study conducted

Mean of Responses of competency needs of Electrical Installation and Maintenance Work Trade Teachers in North Eastern States, Nigeria**.**

1.	Communicate effectively with staff	4.01	Needed
2.	Communicate effectively with students	4.10	Needed
3.	Use written communication skills effectively With staff	3.51	Needed
4.	Use written communication skills effectively With students	3.87	Needed
5	Plan meetings with staff effectively	3.87	Needed
6	Plan meetings with students effectively	3.61	Needed
7	Make long plans for proper management	3.65	Needed
8	Make long plans for proper management	3.65	Needed
9.	Delegate responsibility to supporting staff	3.60	Needed
10	Direct academic affairs	3.62	Needed
11	Control academic affairs	3.66	Needed
12	Plan effectively for goal attainment	3.71	Needed
13	Organise human resources for proper Management	3.73	Needed
14	Implement plans for goal attainment	3.74	Needed
15	Become familiar with time management	3.81	Needed
16	Become familiar with job demands	3.05	Not Needed
17	Evaluate all academic requirements for Proper direction	3.52	Needed

18	Carry out continuous assessment of the trade As needed by the organization	3.55	Needed
19	Appraise supporting staff programme	3.61	Needed
20	Make effective use of feedback from students	3.66	Needed
21	Establish and maintain good purchasing Policy for the correct work	3.70	Needed
22	Establish and maintain good purchasing Policy for the correct material	3.71	Needed
23	Establish goals that are useful to the society	3.56	Needed
24	Reward correct behaviours and answers	3.66	Needed
25	Be human and caring	3.61	Needed
26	Relate new tasks to those already known	3.60	Needed
27	Whole heartedly identify oneself with an activity	3.61	Needed
28	Fulfil desires of one another	2.55	Not Needed
29	Properly understand goals	2.66	Not Needed
30	See some purpose in the work and strive To achieve it	3.17	Not Needed
31	Suggest desirable educational goals that appeal To the society	2.50	Not Needed
32	Expose staff to innovations regularly	2.54	Not Needed
33	Solve problems that resembles life's experiences	3.22	Not Needed
34	Organise field trips to interesting places	3.34	Not Needed
35	Ensure that the learners are not given the tasks That are beyond their capabilities	3.55	Needed
36	Give challenging tasks, not discouraging one	3.51	Needed

37	Familiarise with student whose repeated failures Have led to lowering of efficiency	3.52	Needed
38	Determine the seasonal fluctuations of goods	3.53	Needed
39	Determine the extent to which products would sell	3.56	Needed
40	Be familiar with various aspects of sales	4.06	Needed
41	Budget for future sales	4.01	Needed
42	Forecast future changes in the market	4.03	Needed
43	Determine current trends in sales of products	4.08	Needed
44	Determine what customers need	4.01	Needed
45	Determine shortage of goods	4.05	Needed
46	Have the knowledge of advertising	3.66	Needed
47	Determine the extent of and strength of competition	3.67	Needed
48	Format spreadsheet	3.60	Needed
49	Operate spreadsheet	3.55	Needed
50	Calculate gross profit	3.46	Not Needed
51	Calculate net profit	3.01	Not Needed
52	Understand interest rate	3.56	Needed
53	Understand cost of business	4.02	Needed
54	Understand last purchase	4.01	Needed
55	Determine how funds would be raised	4.03	Needed
56	Determine the major areas of expenditure	4.06	Needed
57	Determine the value of shares by members	4.06	Needed
58	Determine the cash statement	4.07	Needed
59	Determine the unit price of securities To be offered	4.08	Needed

60	Determine government policies on small Industries	4.09	Needed
61	Determine the value of shares by members Of management team	4.50	Needed
62	Determine the capital required by raising Through debentures	3.98	Needed
63	Plan general budget	3.09	Not Needed
64	Detect loss account	3.10	Not Needed
65	Prepare credit account	3.60	Needed
66	Prepare balance sheet	3.67	Needed
67	Develop oneself and others	3.68	Needed
68	Continuously learns and develop	3.69	Needed
69	Identify ones strength	3.70	Needed
70	Identify ones weakness	3.81	Needed
71	Help co- workers learn	3.90	Needed
72	Help co- workers when they are in difficulty	3.90	Needed
73	Take responsibility for others	3,91	Needed
74	Consider costs when taking decisions	3.92	Needed
75	Consider benefits when taking decisions	3.93	Needed
76	Consider risks when taking decisions	4.06	Needed
77	Use time wisely	4.10	Needed
78	Use resources wisely	4.11	Needed
79	Prepare for potential problems before they occur	4.12	Needed
80	Encourages a work culture of continuous learning	4.12	Needed
81	Encourages a work culture of information sharing	4.13	Needed

82	Provides direction to team members	3.52	Needed
83	Provides support to team members	3.53	Needed
84	Learn from what went well	3.54	Needed
85	Learn from what went wrong	3.55	Needed
86	Guides team towards making effective decisions	3.57	Needed
87	Reviews progress towards accomplishing team goals	3.58	Needed

APPENDIX E

Variance for Individual Items (Si)

Total X	Mean	mean5	mean4	mean3	mean2	mean1	mean	variance	Vsquare
314	4.01	0.97	0.00	1.03	4.07	9.10	15.17	0.26	0.07
315	4.10	0.81	0.01	1.21	4.42	9.62	16.07	0.28	0.08
282	3.51	0.69	0.03	1.37	4.71	10.05	16.84	0.29	0.08
288	3.87	0.97	0.00	1.03	4.07	9.10	15.17	0.26	0.07
308	3.87	0.81	0.01	1.21	4.42	9.62	16.07	0.28	0.08
282	3.61	1.33	0.02	0.72	3.41	8.11	13.59	0.23	0.05
281	3.65	0.84	0.01	1.18	4.35	9.52	15.88	0.27	0.07
279	3.65	0.69	0.03	0.03	1.37	4.71	10.84	0.29	0.08
281	3.60	0.78	0.01	1.25	4.49	9.73	16.26	0.28	0.08
282	3.62	1.70	0.09	0.48	2.87	7.26	12.41	0.21	0.05
280	3.66	1.84	0.13	0.41	2.70	6.99	12.07	0.21	0.04
279	3.71	1.25	0.01	0.78	3.54	8.30	13.88	0.24	0.06
282	3.73	1.25	0.01	0.78	3.54	8.30	13.88	0.24	0.06
283	3.74	0.90	0.00	1.10	4.21	9.31	15.52	0.27	0.07
283	3.81	0.87	0.00	1.14	4.28	9.41	15.70	0.27	0.07
282	3.05	0.87	0.00	1.14	4.28	9.41	15.70	0.27	0.07
283	3.52	1.37	0.03	0.69	3.35	8.01	13.45	0.23	0.05
277	3.55	0.97	0.00	1.03	4.07	9.10	15.17	0.26	0.07
276	3.61	0.66	0.03	1.41	4.78	10.15	17.04	0.29	0.09
236	3.66	0.90	0.00	1.10	4.21	9.31	15.52	0.27	0.07
237	3.70	0.63	0.40	1.45	4.85	10.26	17.24	0.30	0.09
232	3.71	0.56	0.06	1.57	5.08	10.59	17.87	0.31	0.09

233	3.56	0.63	0.04	1.45	4.85	10.26	17.24	0.30	0.09
282	3.66	0.75	0.02	1.29	4.56	9.83	16.45	0.28	0.08
283	3.61	1.07	0.00	0.93	3.87	8.80	14.67	0.25	0.06
160	3.60	1.57	0.06	0.56	3.05	7.54	12.78	0.22	0.05
162	3.61	1.03	0.00	0.97	3.93	8.90	14.83	0.26	0.07
160	2.55	0.97	0.00	1.03	4.07	9.10	15.17	0.26	0.07
160	2.66	0.87	0.00	1.14	4.28	9.41	15.70	0.27	0.07
164	3.17	1.07	0.00	0.93	3.87	8.80	14.67	0.25	0.06
163	2.50	0.51	0.08	1.66	5.24	10.81	18.30	0.32	0.10
163	2.50	0.51	0.08	1.66	5.24	10.81	18.30	0.32	0.10
164	3.22	0.53	0.07	1.62	5.16	10.70	18.08	0.31	0.10
160	3.34	0.48	0.09	1.70	5.31	10.92	18.52	0.32	0.10
160	3.55	0.97	0.00	1.03	4.07	9.10	15.17	0.26	0.07
161	3.51	1.33	0.02	0.72	3.41	8.11	13.59	0.23	0.05
160	3.52	0.87	0.00	1.14	4.28	9.41	15.70	0.27	0.07
163	3.53	1.03	0.00	0.97	3.93	8.90	14.83	0.26	0.07
162	3.56	0.58	0.06	1.53	5.01	10.48	17.65	0.30	0.09
282	4.06	0.93	0.00	1.07	4.14	9.20	15.34	0.26	0.07
162	4.01	0.66	0.03	1.41	4.78	10.15	17.04	0.29	0.09
160	4.03	0.97	0.00	1.03	4.07	9.10	15.17	0.26	0.07
161	4.08	1.10	0.00	0.90	3.80	8.70	14.50	0.25	0.06
159	4.01	0.69	0.03	1.37	4.71	10.05	16.84	0.29	0.08
149	4.05	0.78	0.01	1.25	4.49	9.73	16.26	0.28	0.08
148	3.66	1.10	0.00	0.90	3.80	8.70	14.50	0.25	0.06
147	3.67	1.41	0.03	0.66	3.29	7.92	13.31	0.23	0.05

140	3.60	1.00	0.00	1.00	4.00	9.00	15.00	0.26	0.07
260	3.55	0.41	0.13	1.84	5.55	11.26	19.19	0.33	0.11
222	3.46	0.69	0.03	1.37	4.71	10.05	16.84	0.29	0.08
164	3.01	1.14	0.00	0.87	3.73	8.60	14.35	0.25	0.06
165	3.56	0.39	0.14	1.88	5.67	11.38	19.42	0.27	0.07
166	4.02	0.90	0.00	1.10	4.21	9.31	15.52	0.27	0.07
165	4.01	0.75	0.02	1.29	4.56	9.83	16.45	0.27	0.07
164	4.03	1.79	0.11	0.44	2.76	7.08	12.18	0.21	0.04
153	4.06	1.45	0.04	0.63	3.23	7.82	13.17	0.23	0.05
155	4.06	1.10	0.00	0.90	3.80	8.70	14.50	0.25	0.06
156	4.07	1.03	0.00	0.97	3.93	8.90	14.83	0.26	0.07
160	4.08	1.18	0.01	0.84	3.67	8.50	14.19	0.24	0.06
161	4.09	0.81	0.01	1.21	4.42	9.62	16.07	0.28	0.08
159	4.50	1.00	0.00	1.00	4.00	9.00	15.00	0.26	0.07
160	3.98	0.97	0.00	1.03	4.07	9.10	15.17	0.28	0.08
101	3.09	0.78	0.01	1.25	4.49	9.73	16.26	0.28	0.28
102	3.10	0.90	0.00	1.10	4.21	9.31	15.52	0.27	0.07
140	3.60	0.93	0.00	1.07	4.14	9.20	15.34	0.26	0.07
141	3.67	1.98	0.17	0.35	2.54	6.72	11.76	0.20	0.04
143	3.68	1.25	0.01	0.78	3.54	8.30	13.85	0.24	0.06
144	3.69	1.93	0.15	0.37	2.59	6.81	11.86	0.20	0.04
141	3.70	1.10	0.00	0.90	3.80	8.70	14.50	0.25	0.06
142	3.81	1.49	0.05	0.61	3.17	7.73	13.04	0.22	0.05
140	3.90	0.41	0.13	1.84	5.55	11.26	19.19	0.33	0.11
142	3.90	0.48	0.09	1.70	5.31	10.92	18.52	0.32	0.10

145	3.91	0.53	0.07	1.62	5.16	10.70	18.08	0.31	0.10
146	3.92	0.61	0.05	1.49	4.93	10.37	17.45	0.30	0.09
148	3.93	1.41	0.03	0.66	3.29	7.92	13.31	0.25	0.05
288	4.06	1.10	0.00	0.90	3.80	8.70	14.50	0.25	0.06
282	4.10	0.90	0.00	1.10	4.21	9.31	15.52	0.27	0.07
283	4.11	0.58	0.06	1.53	5.01	10.40	17.65	0.30	0.09
287	4.12	1.49	0.05	0.61	3.17	7.73	13.04	0.22	0.05
287	4,12	1.25	1.01	0.78	3.54	8.30	13.88	0.24	0.06
288	4.13	0.81	0.01	1.21	4.42	9.62	16.07	0.28	0.08
141	3.52	0.48	0.09	1.70	5.31	10.92	18.52	0.32	0.10
142	3.53	0.51	0.08	1.66	5.24	10.81	18.30	0.32	0.10
150	3.54	0.75	0.02	1.29	4.56	9.83	16.45	0.28	0.08
156	3.55	0.75	0.02	1.29	4.56	9.83	16.45	0.28	0.08
160	3.57	0.69	0.03	1.37	4.71	10.05	16.84	0.29	0.08
150	3.58	0.87	0.00	1.14	4.28	9.41	15.70	0.27	0.07
17740.00									7.93

APPENDIX F

VARIANCE FOR TOTAL ITEMS

X	F	FX	$(X-\bar{x})$	$(X-\bar{x})^2$
1	75	75	-2.94	8.6436
2	220	440	-1.94	3.7636
3	1000	3000	-0.94	0.8836
4	2100	8400	-0.06	0.0036
5	1180	5900	-1.06	1.1236
Σ	**4500**	**17740**		**14.418**
$(\bar{X})$	3.94			
$\overline{(X)}$	12.20			

S_2 SQUARED 148.84

Mean $(\bar{x})$ = $\frac{\Sigma FX}{\Sigma F} = \frac{17740}{4500}$

= 3.94

Variance (x) = 12.20

Square of (x) = 148.84

APPENDIX G

CRONBACH ALPHA (α) COEFFICIENT FOR RELIABILITY OF THE INSTRUMENT

The formula as given by Stanley and Hopkins (1992) as

$$\alpha = \frac{K}{K-1}\left(1-\frac{\Sigma S^2_{1)}}{S^2_2}\right)$$

$$\alpha = \frac{87}{86}\left(1-\frac{7.93}{148.84}\right)$$

$\alpha = 1.0116 \times 0.94$

$\alpha = 0.95$

Where α = alpha coefficient

K = the number of items

$S^2_{1 =}$ the variance of each individual item

$S^2_{2 =}$ the variance for total items

APPENDIX H

List of Industries/ companies in North East Geo- Political Zone, Nigeria

S/n	Industries
	ADAMAWA STATE
1	Power Holdings Company of Nigeria, Yola
2	Adamawa Broadcasting Corporation, Yola
3	Affcot Nigeria Plc
4	Adama Plastic Ltd
5	Bajaburi Industrial Complex, Baja bure, Yola
6	Savannah Sugar Company, Numan
7	Adama Beverages, Yola
8	Apro Fim Jimeta Yola , Adamawa state
9	Nigerian Television Authority, Yola
10	Adamawa Press Ltd Yola
11	Julius Berger Nigeria Plc Yola
12	Nitel Ltd Mubi
13	A.B.G Communication Ltd Yola
14	Network International Numan
	BAUCHI STATE
1	Power Holdings Company of Nigeria, Bauchi
2	Bauchi Meat Product Company
3	Nigeria Asbestos Ltd, Bauchi
4	Bauschi Fertilizer Blending Company
5	NITEL
6	Bauchi State Television

7 NTA Bauchi

BORNO STATE

1 Boplast Industries Ltd Maiduguri

2 Dairy Processing Plant Maiduguri

3 Maiduguri Flour Mills Ltd

4 Power Holdings Company of Nigeria, Maiduguri

5 Muzaki Engineering limited Maiduguri

6 NNPC Maiduguri

7 Borno Express Company Ltd

8 Lion Insurance Company Maiduguri

9 REB Maiduguri

10 NITEL Maiduguri

11 Daissy Plant Maiduguri

12 Chad Basin Development Authority Maiduguri

S13 OBS Communication Ltd Maiduguri

14 Water Treatment Plant Maiduouri

15 Leventis Motors Maiduguri

16 ELF Engineering Maiduguri

17 Preussage Maiduguri

18 PHCN Biu

19 PHCN Bama

20 PHCN Dambua

21 AUCB and Rural development Maiduguri

22 NPC Gubio

24 Maiduguri Printing Press

GOMBE STATE

1 Power Holdings Company of Nigeria, Gombe

2 Ashaka cement company plc, Gombe

3 NNPC/ PPMC Depot Gombe

4 UBRBDA Dadinkowa

5 NITEL Gombe

6 SAPECO Nigeria Gombe

7 Gombe State Broadcasting Corporation

TARABA STATE

1 Power Holdings Company of Nigeria, Jalingo

2 Nigeria Beverages & Production company ltd , Jalingo

3 Philip Electricals, Jalingo

4 Tempair Electricals, Jalingo

5 Senior Partners Technical Works, Jalingo

6 Shuaibu Auto Electricals, Jalingo

8 NITEL Jalingo

9 Taraba Television

10 NTA Jalingo

11 Ahmed Partners, Jalingo

11 Emmy Electricals, Jalingo

YOBE STATE

1 Power Holdings Company of Nigeria, Damaturu

2 Nguru Foods and Processing Company Ltd

3 Yobe Flour and Feeds Mills, Potiskum

4 Gujiba Fertilizers Blending Plant

5	PHCN NGuru
6	PHCN Gashua
7	PHCN Potiskum
8	Boga Printing Press Gashua
9	NITEL Potiskum
10	REB Kuka Gadu
12	Jumbo Electrical Potiskum
13	Benson Technical Potiskum
14	Auto Electrical Workshop Potiskum
15	Auto Electrical Workshop, Damaturu

Source: ITF IAGR Department and Institutions (2010)

APPENDIX I

List of Electrical Installation and Maintenance Work Trade Teachers and Industry Training Officers in North East Geo- Political Zone, Nigeria

S/NO	States	No of teachers	No ind. Train.officers
1.	Adamawa	14	14
2.	Bauchi	10	7
3.	Borno	10	24
4.	Gombe	7	7
5.	Taraba	24	11
6.	Yobe	18	15
TOTAL		83	78

(Field survey, 2012**)**

APPENDIX J

List of Science and Technical colleges in North East Geo-Political Zone, Nigeria

S/No	Institution	No of teachers
	Adamawa State	
1	Federal science and Technical college Michika	4
2	Government Science & Technical College, Yola	3
3	Government Science & Technical College, Mubi	3
4	Government Science & Technical College, Numan	4
	Bauchi State	
5	Government Science & Technical College, Guaman	4
6	Government Science & Technical College, Gadan	3
7	Vocational Training Technical College, Bauchi	3
	Borno State	
8	Federal Science and Technical College, Lassa	4
9	Government Science & Technical College, Bama	3
10	Government Science & Technical College, Damboa	3
	Gombe State	
11	Government Science &Technical College, Kumo	4
12	Government Day Technical College, Gombe	3
	Taraba State	
13	Federal Science and Technical College, Jalingo	4
14	Government Science & Technical College, Gembu	3
15	Government Science & Technical College, Wukari	4
16	Government Science & Technical College, Bali	3
17	Government Science & Technical College, Jalingo	3
18	Government Science & Technical College, Zing	3
19	Government Science & Technical College, Takum	4
	Yobe State	
20	Government Science & Technical College, Geidan	4
21	Government Science and Technical College, Gashua	**3**
22	Government Science and Technical College,Potiskum	**4**
23	Government Science and Technical College,Dapchi	**3**
24	Government Science and Technical College,Damaturu	**4**
		83

Field Survey Report (2012)

APPENDIX K

Mean Opinions of Electrical Installation and Maintenance Work Trade teachers on entrepreneurial managerial retraining needs

S/NO	HN	N	MN	NN	CNN	MEAN
1	50	10	10	5	5	4.32
2	49	12	10	4	5	4.54
3	39	20	10	10	01	4.52
4	40	20	10	5	5	3.54
5	39	20	10	4	7	4.42
6	10	10	30	15	15	2.49
7	10	05	35	30	04	1.52
8	39	20	10	10	01	3.94
9	02	20	4	51	03	1.52
10	30	20	10	10	10	4.01
11	40	10	20	5	5	4.20
12	59	10	09	01	01	3.56
13	69	05	02	02	02	3.54
14	04	10	10	01	55	1.22
15	05	05	10	10	50	1.45
16	10	10	10	40	10	2.39
17	10	05	20	10	35	1.23
18	40	20	10	05	05	4.12
19	41	10	10	10	09	3.50
20	40	20	10	05	05	3.60
21	41	10	10	10	09	3.50
22	48	12	10	05	05	3.64
GRAND MEAN						3.20

APPENDIX L

Mean Opinions of Industry Training Officers on the Entrepreneurial Managerial retraining needs

S/NO	HN	N	MN	NN	CNN	MEAN
1	45	20	05	02	03	3.86
2	50	10	10	03	02	4.30
3	45	20	02	05	03	3.86
4	48	10	10	02	05	3.94
5	51	10	04	03	02	4.21
6	10	10	50	03	02	2.21
7	05	05	05	50	15	2.11
8	49	10	01	5	5	4.43
9	04	01	05	50	10	2.01
10	10	40	05	10	15	3.89
11	44	10	06	10	5	3.52
12	50	10	10	02	03	4.45
13	48	12	02	10	03	3.87
14	05	05	10	50	05	2.10
15	02	03	55	10	05	2.24
16	05	05	60	02	03	2.44
17	03	02	60	05	05	2.24
18	40	10	20	02	03	3.51
19	46	14	10	03	02	3.54
20	44	16	5	5	5	3.51
21	48	12	10	3	2	3.60
22	49	11	10	3	2	3.55
GRAND MEAN						3.33

APPENDIX M

Mean Opinions of Electrical installation and maintenance work trade teachers on Entrepreneurial motivational retraining Techniques

S/NO	HN	N	MN	NN	CNN	MEAN
23	60	07	03	05	05	3.58
24	50	10	10	05	05	3.55
25	55	10	10	02	03	4.03
26	54	10	10	03	03	4.12
27	51	10	10	03	06	3.94
28	50	07	03	05	05	3.60
29	49	10	10	10	01	3.96
30	40	20	10	05	05	4.12
31	41	10	10	10	09	4.07
32	30	20	07	13	10	3.98
33	46	10	10	10	08	3.58
34	41	12	10	03	04	3.53
35	46	10	10	10	08	3.58
36	48	10	10	10	02	3.54
37	48	10	10	10	02	3.54
GRAND MEAN						3.78

APPENDIX N

Mean Opinions of Industry training officers on the Entrepreneurial motivational retraining techniques

S/NO	HN	N	MN	NN	CNN	MEAN
23	48	12	02	05	10	4.31
24	40	10	05	05	05	4.04
25	45	15	05	05	05	4.31
26	40	10	10	10	05	3.73
27	40	10	10	10	05	3.73
28	45	15	10	02	03	3.94
29	50	10	5	5	05	4.02
30	52	8	5	5	05	4.16
31	54	06	5	5	5	4.30
32	54	06	05	05	05	4.30
33	49	10	01	10	05	3.89
34	49	10	10	01	05	3.89
35	53	07	10	03	02	4.09
36	51	09	10	03	02	4.01
37	50	10	10	02	03	4.19
GRAND MEAN						4.06

APPENDIX O

Mean Opinions of Electrical Installation and Maintenance work trade teachers on Entrepreneurial marketing retraining needs

S/NO	HN	N	MN	NN	CNN	MEAN
38	60	10	03	05	02	3.54
39	10	10	50	05	05	2.22
40	50	20	03	05	02	3.50
41	10	30	10	20	10	2.18
42	40	20	10	05	05	3.80
43	43	20	10	02	05	3.60
44	44	10	06	10	10	3.54
45	46	10	04	10	10	3.60
46	48	10	10	02	10	3.60
47	50	10	10	05	05	3.54
GRAND MEAN						3.83

APPENDIX P

Mean opinions of industry training officers on the Entrepreneurial marketing retraining needs

S/NO	HN	N	MN	NN	CNN	MEAN
38	50	10	10	02	03	4.31
39	05	05	10	s 40	15	2.09
40	40	20	05	05	05	3.55
41	05	05	50	10	05	1.68
42	44	16	10	02	03	4.31
43	44	10	06	10	05	4.16
44	48	10	02	10	05	4.24
45	49	10	01	10	05	4.43
46	50	10	10	02	03	4.08
47	52	10	08	03	02	4.17
GRAND MEAN						3.70

APPENDIX Q

Mean opinions of Electrical Installation and maintenance work trade teachers on the Entrepreneurial financial and accounting retraining needs

S/NO	HN	N	MN	NN	CNN	MEAN
48	55	10	10	02	03	3.59
49	56	10	08	04	02	3.56
50	52	10	05	08	05	3.72
51	50	10	10	05	05	3.57
52	51	10	10	04	05	3.54
53	40	10	10	10	10	3.62
54	43	07	10	10	10	3.56
55	40	10	10	10	10	3.63
56	42	15	03	10	10	3.50
57	50	09	01	10	10	3.51
58	52	15	03	0	10	3.60
59	40	20	10	10	0	3.87
60	44	16	10	5	05	3.98
61	05	10	10	10	45	2.45
62	10	10	10	10	40	2.38
63	40	20	0	10	10	3.57
64	40	10	10	05	15	3.70
65	42	10	10	08	10	3.54
66	10	10	10	10	40	2.33
GRAND MEAN						3.43

APPENDIX R

Mean opinions of industry training officers on Entrepreneurial financial and accounting retraining needs

S/NO	HN	N	MN	NN	CNN	MEAN
48	42	10	8	10	05	3.78
49	42	10	8	10	05	3.78
50	40	18	10	02	05	3.64
51	38	18	10	02	07	3.50
52	44	16	10	03	02	4.01
53	46	10	04	10	05	4.19
54	38	20	12	02	03	3.59
55	40	20	10	03	02	4.20
56	39	11	10	10	5	3.89
57	40	20	5	5	5	3.73
58	48	20	2	3	2	4.21
59	35	20	5	10	5	3.97
60	40	10	10	10	5	3.80
61	05	05	40	10	15	2.32
62	10	10	10	40	5	2.09
63	40	20	10	03	2	3.51
64	42	18	10	2	3	4.17
65	49	10	01	10	5	3.73
66	05	05	50	10	5	2.30
GRAND MEAN						3.59

APPENDIX S

Mean opinions of Electrical installation and maintenance work trade teachers on Entrepreneurial personal effectiveness techniques

S/NO	HN	N	MN	NN	CNN	MEAN
67	50	10	10	05	05	3.54
68	52	08	10	05	05	3.80
69	51	08	12	07	03	3.57
70	03	10	07	40	20	2.01
71	10	07	03	20	40	2.27
72	40	20	10	05	05	3.54
73	10	08	02	20	40	2.27
74	40	20	10	05	05	3.72
75	10	05	05	40	10	2.14
76	42	13	05	05	05	3.76
77	10	05	03	12	40	2.14
78	53	10	10	03	04	3.54
79	56	10	5	5	04	3.81
80	05	05	50	10	10	2.18
81	60	10	02	05	05	3.63
82	58	10	10	01	01	3.58
83	60	10	02	02	06	3.70
84	55	10	05	05	05	3.56
85	48	10	10	02	10	3.58
86	01	10	10	10	49	2.26
87	52	10	08	04	06	3.74
	GRAND MEAN					3.14

APPENDIX T

Mean opinions of industry training officer on Entrepreneurial personal effectiveness techniques

S/NO	HN	N	MN	NN	CNN	MEAN
67	40	20	10	2	3	3.53
68	41	19	10	2	3	3.60
69	42	18	10	2	3	3.62
70	10	10	40	10	5	2.06
71	10	10	10	40	5	2.63
72	40	20	10	02	03	3.68
73	09	01	40	10	10	2.49
74	41	10	09	10	5	3.85
75	10	10	10	40	5	2.34
76	42	18	10	2	3	3.94
77	05	05	40	10	15	2.46
78	40	20	10	2	3	3.71
79	40	21	09	3	2	4.18
80	05	05	40	10	15	1.70
81	42	18	10	2	3	3.85
82	43	17	10	2	3	3.52
83	40	20	10	2	3	3.57
84	40	21	09	5	0	3.91
85	41	19	10	5	0	3.51
86	10	10	10	40	5	2.31
87	40	20	10	0	5	3.57
GRAND MEAN						3.23

APPENDIX U

Z- TEST FOR HYPOTHESIS HO1

Column1		Column2	
Mean	3.20122	Mean	3.339876
Standard error	0.032461328	Standard error	0.074502
Median	3.275	Median	3.1
Mode	3.37	Mode	3.55
Standard deviation	0.242918336	Standard deviation	0.298009
Sample variance	0.059009318	Sample variance	0.08881
Kurtosis	1.806535821	Kurtosis	1.724678
Skewness	-0.8522757553	Skewness	-0.68525
Range	1.37	Range	1.18
Minimum	1.22	Minimum	2.01
Maximum	4.54	Maximum	4.45
Sum	70.4	Sum	65.17
Confidence level (95.0)	0.065053955	Confidence level (95.0)	0.158798

	Variable 1	Variable 2
Mean	3.20122	3.339876
Known Variance	0.08881	0.07682
Observations	80	75
Hypothesized mean difference	0	
Z	1.065321	
Z Critical two tail	1.959964	

APPENDIX V

Z-TEST FOR HYPOTHESIS HO2

COLUMN1		COLUMN2	
Mean	3.781428571	Mean	4.065563
Standard Error	0.050791614	Standard Error	0.048278
Median	3.34	Median	3.035
Mode	3.15	Mode	3.03
Standard Deviation	0.10044818	Standard Deviation	0.193114
Sample Variance	0.036117033	Sample variance	0.037293
Kurtosis	1.363079608	Kurtosis	1.770354
Skewness	-0.978940002	Skewness	0.564542
Range	0.71	Range	0.82
Minimum	3.53	Minimum	81.2
Maximum	4.12	Maximum	4.31
Sum	75.6	Sum	81.2
Count	80	count	75
Confidence level(95.0)	0.109728611	Confidence level(95.0)	0.102903

	Variable 1	Variable 2
Mean	3.781428571	4.056563429
Known Variance	0.036117	0.035132
Observations	80	75
Hypothesized mean diff.	0	
Z	2.822292063	
Z critical two tail	1.959963985	

APPENDIX W

Z- TEST FOR HYPOTHESIS HO3

Column1		Column2	
Mean	3.838125	Mean	3.709375
Standard error	0.041855	standard error	0.03221631
Median	3.37	Median	3.24
Mode	3.37	mode	3.24
Standard dev.	0.16742	standard dev.	0.12886524
Sample var.	0.92803	sample var.	0.01660625
Kurtosis	0.99709	kurtosis	0.024186037
Skewness	0.270978	skewness	-0.598422559
Range	0.69	range	0.47
Minimum	2.18	Mininum	2.09
Maximum	3.80	Maximum	4.43
Sum	38.3	sum	37.0
Count	80	count	75
Confidence (95.0)	0.08212	confidence (95.0)	0.06867439

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z-test two sample for means

	variance1	variance 2
mean	3.838125	3.708125
Known variance	0.02803	0.016606
Observations	80	73
Hypothesized mean difference	0	
Z	1.61s3211	
Z critical two tail	1.959964	

APPENDIX X

Z TEST HYPOTHESIS FOR HO4

Column1		Column2	
Mean	3.43432	mean	3.59642
Standard error	0.071805	standard error	0.046189224
Median	3.12	median	3.145
Mode	3 23	mode	2.95
Standard dev.	0.227068	standard dev.	0.1460663152
Sample var.	0.05156	sample var	0.021334444
Kurtosis	-0.17265	kurtosis	-1.057271177
Skewness	0.118974	skewness	0.233876377
Range	0.76	range	0.42
Minimum	2.33	mininum	2.09
Maximum	3.98	maximum	4.21
Sum	65.17	sum	68.21
Count	80	count	73
Confidence (95.0)	0.162435	confidence level(95.0)	0.104487284

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z-test two sample for means HO4

	Varince1	Variance2
Mean	3.43432	3.59642
Known variance	0.05156	0.021334
Observations	80	75
Hypothesized mean diff.	0	
Z	1.533211	
Z critical two tail	1.959964	

APPENDIX Y

Z test hypothesis for Ho5

Column1			Column2
Mean	3.14097	mean	3.230765
Standard error	0.076453941	standard error	0.043256
Median	3.032	median	2.41206
Mode	2.3407	mode	3.4074
Standard deviation	0.09821	standard dev.	0.17845
Sample var.	0.065423	sample var.	0.054387
Kurtosis	1.2439	kurtosis	1.35672
Skewness	-0.978940002	skewness	0.564542
Range	0.87	range	0.67
Minimum	2.01	minimum	1.7
Maximum	3.8085	maximum	3.9473
Sum	62.85	sum	64.6
Count	80	count	75
Confidence level	0.109728611	confidence level	0.102903

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z-test : two sample for Ho5

	Variance1	varaince2
Mean	3.14097	3.23076
Known variance	0.06754	0.05421
Observations	80	73
Z	1.82609	
Z critical two tail	1.959964	

APPENDIX Z

Validates' comments effected in final draft of questionnaire

S/No	Item	Suggestion Made	Correction Affected
1.	Letter to Respondents	To indicate the researcher's department	The researcher's department was inserted to read Department of Technology Education
2.	Section A (Introduction)	The response modes to read extent of need instead of extent of importance: Like highly needed, needed, moderately needed, not needed and highly not needed.	The response modes deleted to read extent of needs.
3.	Section B, C, D, E and F questionnaires	Questionnaires to be separated for teachers and Industry training officers	This was done by having the teachers and industry officers separately.
4	Section A, B, C, D, E and F questionnaire items	To increase the number of questionnaire items for teachers and industry training officers.	This was done by having the number for teachers and industry training officers increased accordingly.
5.	Pgs. 2, 3, 5, 6	Spellings and use of tenses to be effected	This was done and correct tenses used.
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