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**THE GAMBLER THEORY IN AGRICULTURAL VOCATIONAL AND TECHNICAL OCCUPATIONS:**

**BY**

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***Abstract***

*In recent times, researches in agricultural, vocational and technical education has drastically expanded their horizons of inquiry to a more eclectic approaches. While the fundamental precepts of research and theory remains alive as ever, there is an increasing emphasis on the relationship between theory and research in entirely all fields of human endeavour. While the basic purpose of theory is to understand reality, there are donating problems in the course of practicalizing research as how to explain the esoteric concepts and the relationship between theory and research, as well as verbalizing the theoretical framework for the purpose of publication in research literature. Presently, most of the theories of vocational and career education in use are alien, in bits and tentative in nature. There is need therefore to properly examine their appropriateness and relevance to workforce education in the 21st century. This paper, therefore, proposed the gambler theory for use in agricultural, vocational and technical occupations, with implications for job creation and national development.*

**Introduction**

A clear understanding and application at the notion of theoretical framework has remained a pre-requisite in the conceptualization, conduct and publication of research. Quite often, establishing and selecting meaningful and appropriate theoretical framework can be problematic, especially for beginning researchers. Also, there appears to be a gential lack of agreement on what is meant by theoretical framework, they are sometimes called conceptual frameworks and how to situate same in a study. In all, it would be difficult to imagine a study without a theoretical or conceptual framework (Marian,

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1998). Thus, researches in behavioural sciences, technical and workforce education will always be guided by theoretical frameworks.

The centrality of agricultural, vocational and technical education and their occupations in the development paradigm is no longer a myth. There are increasing evidences from developed nations that skills development in technical Vocational Education Training (TVET) which in this paper I will often be referring to career and workforce education, it a desiderata to drive national economic from potentials to realities (Egbule, 2012). This implies that while developed nations must continue to lay emphasis on TVET, for economic stability and welfare of her citizens, developing nations must urgently refocus their strategies with emphasis on TVET development. In Nigeria, the need to develop TVET is great, considering the increasing rates of social vices such as youth unemployment and restiveness armed robbery, kidnapping, Boko-Haram insurgent communal clashes and general insecurity. Lack of occupational skills is the root of joblessness and idleness, which eventually, result in poverty and unhealthy society.

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Technical vocational education training, though a very dynamic area, has developed slowly over the years, especially in developing countries, and so have the requisite theories in the area. Put succinctly, TVET embraces the education and training geared towards the acquisition of practical skills, knowledge and understanding necessary for employment in particular empatting, trade or group of occupations or trades (UNESCO, 1997; 2012). It is habits and related knowledge needed by workers to society’s need for workers. At present, the western world such as France, Britain, Germany and even the Soviet Union are now fully aware of the strategic relevance of TVET in national economic and social agenda, the United States of America Champions the development of vocational and related theories. Evidences from these countries and my experience in the course of advising graduate students reveal the growing need for more and relevant theories to guide research and development in TVET.

In everyday language, a theory means hunch or speculation; but not strictly so in agricultural, technical and workforce education.

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In TVET Cohen (1956) provided and vivid explanation of the process of theory conceptualization thus; every enquirer must begin not with a tabular rasa for recording frech facts, but with a fund of information…. The man who knows nothing about the subject may be free of bias, but he will not discover anything. Fact of nature do not stream into empty minds”. Consequently, theory may well be seen as a comprehensive explanation of an important feature of nature or phenomena and supported by facts, observations and inferences gathered over time.

Presently, there are fundamental impediments to the growth development and image of TVET, and hence its contribution to national economic growth. Prominent among these problems is the fact that TVET attracts low status and is not socially friendly. Consequently, in many countries of the sub-Saharan Africa, TVET is not attractive to parents, perspective students and the general public (Yakubu, 2001), TVET is seen as an alternative rather than an option (Akinsenide, 2014). Essentially, the aim of TVET is the professional education of youths and adults who intend to make a career in TVET occupation. Quite often the reverse is the case as must student engage in TVET out of indecision or nothing the to do, and many of students who are enrolled in TVET lack clear purpose of what they would do on graduation, otherwise referred to as gamblers, it has become necessary therefore not only to understand the motivational factors and rewards that lure youths into TVET careers, but also to critically research into and propose a theory that explains the dynamics of this gambler instinct and behaviour.

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**Relevance of Theory in Research**

Although, the definition of theory depends on the researchers conceptual paradigm, a theory simply means a generally accepted idea in an area of study Kerlinger (1979) provided a quantitative researcher’s perspective and defined theory as “a set of interrelated constructs (variables), definitions, an propositions that present a systematic view of phenomena by specifying relations among variables, with the purpose of explaining natural phenomena”. Creswell (1994) elaborated on Kerlinger’s definition by explaining that the relationships among variables are commonly stated in terms of magnitude and direction, which he referred to as a systematic view of theory. According to him, theory provides a bridge between the independent and dependent variables or constructs at any given study, thereby providing an all-embracing explanation for the nature and magnitude of how the independent variable would predict the dependent variable.

As a qualitative researcher, Marian (1998), gave an operational perspective of theory as hypotheses that suggests links among categories and properties derived from the analysis of qualitative data. According to her, thinking about data-“theorizing” is a step towards developing a theory and defines theorizing as “the cognitive process of discovering or manipulating abstract categories and the relationships among those categories”. Best and Kahn (1993) defined hypothesis as “a formal affirmative statement predicting a single research outcome, a tentative explanation of the relationship between two or more variables”. A theory undergoes a test for general acceptance if it will develop from a hypothesis to a true theory.

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Crewel (1994), grouped theories into three types, based on the degree of the theory’s generality or specificity as Grand Theories, Middle Range Theories and Substantive Theories. While the grand theories are used to explain major categories of phenomena and which are more common in the natural sciences, middle range theories fall somewhere between the working hypotheses of everyday life and grand theories, while the substantive theories offer explanations in a restricted setting, often expressed as propositions or hypotheses. Ary, Jacobs, and Ragavieh (1990) posited that theorizing, either at granted, middle range and substantive level must meet four criteria. It must add to the general understanding of observed phenomena, by explaining them in the simplest form as possible, fit clearly with observed facts and with established principles and should be inherently testable and verifiable. Finally, it should ginger further investigations and focus new discoveries. These four basic criteria are crucial for any discussion on proposing and evaluating theoretical frameworks.

Borchardt (2004,2007) enumerated ten assumptions or guides towards theory formulation. First, theory formulation begins with fundamental presuppositions (unconscious) or assumptions (conscious) which are not completely provable, but always have opposites. All theories are derived from our experience with the external would and like fundamental assumptions, theories are ultimately derived through observations. Theory and observation depend on each other and range from simple to complex. A new theory therefore is the combination of at least two other ideas or observations and cannot exist in a vacuum. Theory is both instrumentally and experientially driven. Although the development of new ideas multiplies the potential for what previous workers or researchers have done in the field is a prerequisite for proposing a new theory. Although every theory is subject to errors of commission and/or commission, a theory is capable of yielding satisfactory explanations and predictions even when it is incorrect. Although theory formation may be relatively simple, no theory is perfect and capable of explaining or predicting phenomena in infinite detail or with perfect precision.

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Kerlinger (1979) provided a vivid explanation of the relationship between theory and research. According to him, the fundamental purpose of research, is to create theoretical explanations of reality and the theory provides the conceptual basis for all research as it enables researcher to know where to start, (Marian, 1998). In other worlds, the basic purpose of theory is to understand reality and the basic purpose of research is to produce theory. Thus, there exists a symbiotic relationship between theory and research. Theory provides context without which the research could not be meaningful and research generates and tests theory without which the theory would not have meaning (Camp, 2000). In career and technical education research, substantive theoretical propositions based on appropriate discipline-based and research-based literature provide adequate theoretical frameworks. In all, theoretical frameworks provides a premise for the study and the premise leads directly to the research questions.

**Background and Justification to the Gambler Theory**

The issue of youth interest and enrolment into agricultural, career and technical occupations has remained a global Africa and the United Kingdom, agricultural, vocational and technical industry is facing a sever shortage of new recruits and will need new entrants over the next decade (www.guidian.com). In Nigeria, the number of able youths, with requisite education and training in agriculture, career and technical competencies, willing, and able to engage in entrepreneurship and production based activities has remained high regard for university education irrespective of the discipline or its relevance to the labour market, TVET and polytechnic education Nigeria attracts law status. The TVET programmes are not socially friendly and are often perceived as meant for those who are not academically strong. This problem significantly accounts for why TVET has not made the desired progress in Nigeria, as well as in many developing countries.

The interest of youths on we well as their choice of careers in agricultural, career and technical occupations in Sub-Saharan African countries although scattered, shows an overall decline in the number of students pursuing careers in these areas through college education (Zoldolke, 1996). A comparism of the number of candidates who sat for the Unified Tertiary Matriculation Examination (UTME), and the Monotechnics, Polytechnics and College Examination (MPCE) between 2011 and 2013 testifies to this fact:

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*Table 1: Comparison of University and MPCE Candidates who sat for the 2011-2013 UTME*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Year** | **Total UTME candidates** | **Total number** | **Percentage** | **Total number** | **Percentage** |
| 1 | 2011 | 1,703,790 | 1,493,699 | 87.76 | 201,091 | 12.3% |
| 2 | 2012 | 1,765,115 | 1,5041201 | 85.2% | 260,914 | 14.8% |
| 3 | 2013 | 1,991,069 | 1,727,996 | 86.8% | 263,073 | 13.2% |

*Source: Joint Admissions and Matriculation Board, 2013.*

The above table shows that only 12-14 percent of the UTME candidates preferred MPCE for the three consecutive years, as against 85-87 percent that choose the university. The discriminatory tendencies against TVET institutions is obvious and often, admission spaces in these MPCE institutions are left unoccupied. Effah (2013) attributed this behaviour to the prevalent British educational system foisted in Anglophone Africa which gave much encouragement to academic and university offerings but de-emphasized TVET and career focused training.

In the area of agriculture, students and youths have always shown least interest in the choice of agricultural careers at both the universities, polytechnics and colleges of education. Data on students choice of agriculture in two sampled universities in Nigeria –university of Ibadan and Delta State University is presented in table 2.

**Table 2:** Choice of Agriculture in the 2014 UTME for University of Ibadan and Delta State University

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **Course** | **Noof Agriculture** | **Course** | **No of applicants** |
| 1. | Agricex tension and rural development | 79 | Agric. Economics | 95 |
| 2. | Agric and Environmental engineering | 123 | Agric. Education | 64 |
| 3. | Agricultural Economics | 241 | Agriculture (General) | 89 |
| 4. | Agronomy | 46 | Animal science | 31 |
| 5. | Animal Science | 142 | Fisheries | 13 |
| 6. | Agriculture and Fisheries Management | 20 | Forestry and wildlife | 6 |
| 7. | Food technology | 170 | Social science | 11 |
| 8. | Forestry and forestry server management | 26 | TotalAgric applicants | 33,988 |
| 9. | Total university applicants | 41,775 | Agric Applicant | 0.909 |
| 10. | Agric applicants | 2.028 |  |  |

*Summary of data:www.jamb.org.gn/unifiedteme3/management. retrieved 15/14/2015*

Table 2 shows that while about 2% of the total number of applicants noted for agriculture and related cause at the University of Ibadan, less than 1/1 of the students indicated interest to study agriculture at Delta State University, Abraka in 244. A vocational and very uncreative course like fisheries attracted the least number of candidates in both universities. In a comparative basis, over 10,390 candidates representing 30.56% applied to Delta State University to study business and related comes in the UTME examination. At present, the three universities of agriculture in Nigeria are drifting from their core mandate socially friendly courses in order to attract students, survive and remain relevant. Most often, students who could not be admitted into their first choice courses like medicine, pharmacy and engineering are offered remedial option to go into agricultural and TVET programme.

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In many African countries, students interest enrolment in tertiary education in the field of agriculture is generally low, ranging from 0.6% in Cameron; 0.06 in Burkina Faso; 1.1% in Togo and 1.8% in South Africa to the highest percentage at 15.4% in Malaivi (Table 3). In all, women are under-represented in all areas of agricultural education research as students, instructors, extension agents and researchers (World Bank, 2007). The Gambler Theory in agricultural, Career and Technical Occupations.

In practice, gambling involves the wagering of money or something of material value on an event with an uncertain outcome and with the hope of winning additional money or material goods (en.wikipedia.org). Thus, to gamble means to take an action or plan that involves risk or chance that one may succeeded not generally, gambling requires three elements of consideration: chance, price, with the intension of IMMEDIATE GAIN! Most often, people who gamble always have this motive of immediate gain in mind while having on the chance of winning, but often loose sight of the obvious possibility of even total loss. Kenny Regers, in his hit album, the Gambler, sang thus: On a warm summers evening on a train bound for nowhere, I met up with a gambler… He said, “So I’ve made a life out of reading people’s faces, and knows what their cards were by the way they held their eyes… ‘If you’ve gonna play the game, boy, Yagotta learn to play it right. You got to know when to hold’em, know when to fold’em know when to walk way and know when to run. You never count your money when you’re sitting at the table. There’ll be time enough for counting when the dealin’s is done…

Generally, students who enroll in agriculture, career and technical programmes at the tertiary level can be grouped into four, based on their motive for enrolment as Gamblers, (Egbule, 2004; Olaitan, 1998; Uwadiae, 1992). A summary of the groups motives and characteristics of agriculture, career and technical.

**Table 3:** Groups, Motives and Characteristics of Agriculture Career and Technical Education Students

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Group** | **Motive** | **Characteristics** |
| 1 | Those who lack both interest and ability for agriculture, career and technical trades | Passers-by motive | This group of students only use agriculture, career and technical courses as a stepping stone to their career. They offer the courses just to complete the number of credit levels required of them. |
| 2 | Those who lack interact, but posses the ability for agriculture, career and technical occupations | Gambler motive | This group of students lack clear purpose and direction as to what they would specifically do after their graduation. This is more so after having been rejected in such courses as medicine, pharmacy, engineering, etc. |
| 3 | Those who have interest but lack ability for agriculture, career and technical trades. | Employee motive  **-6 -** | This group of students enroll in agriculture, career intention of seeking paid employment in government parastatals, commercial or private firms on graduation. For this group of students, the idea of setting up their own firms or being self employed is out of the question.  ***Patrick E.E*** |
| 4 | Those who possess both interest and ability for farming, career and technical | Career motive | This group of students enroll in agriculture, career and technical courses with a clear vocational objective of entry into self employment in career, technical and agricultural production activities. |

My experience with young adults in the teaching and learning of vocational courses at the tertiary level over the years reveals that the majority of the students belong to the gambler group. The gambler theory is therefore hinged on the current reality majority of students make their choice of courses and careers, not on account of their innate abilities and interest but on account of such factors as expectation (chance) of immediate financial records and parents, wishes. Also, is common to see most students enroll in agriculture, vocational and technical courses, either out of indecision or as a result of nothing else to do such students are often those who have been rejected in perceived more rewarding/prestigious courses or occupations. Such students often continue (to gamble) in their study of vocational courses with the intention to change to those perceived incrative and socially friendly courses, or to ultimately enter into vocational and technical trades if nothing else comes their way on graduation.

The implication of the above postulation is that for nations, especially developing ones to achieve sustainable social and economic development and security, emphasis should be on the forth group- the career motive groups. Enrolments into vocational and technical education programmes should result in the production confident, career and production oriented individuals- those who have made a deliberate choice of vocational and technical career and are willing and ready to engage in production and related activities. In this way, they will become employers of unemployment currently ravaging most nations. What needs to be done, therefore, is to evolve strategies to stimulate the intrinsic interest of students in agriculture, career and technical trades, and “convert” those from other groups to the career motive group.

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**Theoretical Links**

There are many theoretical links or explanations that are germane to why students pursue or enter various jobs. Proseser and Quigley (1949) developed and publicized sixteen theories which serve as a basis for a sound, quality vocational education programme. Although not essentially “Theories” but “propositions”, any attempt to disregard any of them can only result in undermining the programme of vocational education for the citizenry. Although all the sixteen theories are relevant, theories, 3, 4, 5 and 6 appear to relate more to the issue of career choice, progression and development as presented below.

1. Vocational education will be effective in proportion as it trains the individual directly and specifically in the thinking habits and the manipulative habits required in the occupation itself”.
2. “Vocational education will be effective in proportion as its enables each individual to capitalize his interest, aptitude degree”.
3. “Effective vocational education for any profession, calling, trade, occupation or job can only be given to the selected group of individuals who need it, want it, and are able to profit by it”.
4. “Vocational training will be effective in proportion as the specific training experiences for forming right habits of doing and thinking are repeated to the point the habits developed are those of the finished skills necessary for gainful employment”.

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The social learning theory of career development (SLTCDM) and the learning theory of career counselling (LTCC), (Krumboltz, 1994; Mitchel and Krumboltz, 1996) were propounded to address the issues of why people enter particular educational courses or jobs, why they change direction during their and why they may express various preferences for different activities at different points in their lives. A major outcome of their theories is that people develop their preferences through a variety of learning experiences, beliefs about themselves and the nature of their world through direct and indirect educational experiences. Other factors which impinge on the choice dispositions include genetic endowment and special abilities, race, gender and physical characteristics; environmental conditions and events (social, economic, cultural, political and natural); and task approach skills, resulting from interactions among learning experiences; genetic characteristics and environmental influences. As a result of the complex interaction of these sets of variables, people form generalizations or beliefs which represent their own reality and dispositions. These beliefs about themselves and the world of work influence their approach to learning new skills, and this ultimately affects their actions, job aspirations and life satisfaction.

Within the framework of the theory of job satisfaction and work adjustment, the ability of a specific job to fulfill an individual’s vocational needs is a determinant of the individuals’ job satisfaction.

Thus, satisfaction is a function of the correspondence between the reinforcer system of the work environment (which includes the material and non- material aspects of the job) and the individual’s needs, provided the individual’s abilities correspond with the ability requirements of the work environment (Dawis, Lofquist and Weise, 1968).

Job satisfaction is often defined as a single concept but treated in research as a complex set of variables. The various theoretical orientations to job satisfaction have been classified into “Content” e.g. the Herzberg Two-Factor theory, Maslow’s Need Hierarchy and Wolfs Need Gratification theory); and “Process” (e.g. the Drive theory and Equity theory) approaches by Campbell, Dunnettee, Lawler and Weick (1970).

The Need Gratification Theory (Wolf, 1970) states that job satisfaction results from the gratification of any need and that the degree to which an individual feels satisfied with his job is dependent upon the extent to which the individual perceives his personal needs as being satisfied by the organization he is working for. On the other hand; Adams (1963) developed the equity theory to explain job satisfaction among various categories of workers. This theory states that job

satisfaction is determined by expectations based on social comparisons. According to the theory, a worker compares his pay and remunerations to those of other employees with a similar job or similar qualifications and the greater the disparity between the “believed” actual” level of reward, the greater the tension or dissatisfaction.

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Herzberg’s Two-Factor Theory of Satisfaction (Herzberg, Mansner and Snyderman, 1959; Herzberg, 1966), also referred to as the motivation-hygiene theory of job satisfaction, has been extensively used to explain job satisfaction. Herzberg and his co-investigators summarized in their findings that there is one set of conditions which is termed motivator or satisfier factors (like recognition for achievement, task achievement, advancement, responsibility and work itself), the presence of will contributes to job satisfaction. There is another set of conditions termed hygiene or dissatisfied maintenance factors (like company and administrative policy, inter-personal relations technical competence, job security and working conditions), the absence of which leads to job dissatisfaction, the presence of which does not lead to increased job satisfaction. The motivator factors have been termed intrinsic or work content variables because they are all derived from the performance of the itself, while the hygiene variables have been referred to as extrinsic or work content factors because t are all derived from the environment surrounding the job. They concluded that it is only the fulfillment the motivator factors or satisfiers that can lead to an individual’s positive satisfaction in a job. Accord to them, the fulfillment of the hygiene factors can only prevent dissatisfaction but cannot lead sustained satisfaction. Thus, in Herzberg’s view, job satisfaction and dissatisfaction should not consider as opposite ends of the same continuum, but rather as different factors.

The above theoretical links and explanations revealed that there are many sources of job satisfaction as well as elements which under appropriate conditions is capable of attracting students to certain careers and bring satisfaction. In most agricultural vocational and technical trades where provision is not made for the satisfaction of various kinds of needs, the students become more concerned about their maintenance needs, which become more powerful sources of job satisfaction than their motivator variables.

**Conclusion**

The fact that youths shown agricultural, vocational and technical careers are an indication that the satisfying elements are largely absent. These elements, when combined with concrete efforts aimed at making TVET careers more attractive, including improved salary structure collateral or bring benefits and teaching and learning infrastructure in schools, the chances are more favourable for the development of the much needed future TVET practitioners who are more efficient, confident, stable and productive. The gambler theory as proposed in this paper offers a vivid explanation of this gambler orientation and behaviour. Career and TVET practitioners and researchers can apply this theory in developing their theoretical framework.

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**ENTREPRENEURIAL SKILLS REQUIRED BY RETIREES IN SNAIL PRODUCTION FOR SUSTAINABLE BUSINESS IN DELTA STATE, NIGERIA**

**BY**

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***Abstract***

*The study identified entrepreneurial skills required by retirees in snail production for sustainable business in Delta State, Nigeria. Three research questions and one hypothesis guided the study. The study made use of survey research design. The population for the study was 204, made up of 51 snail farmers and 153 teachers of Agricultural Science in Delta State, Nigeria. A 37-skill item questionnaire was used for data collection. The questionnaire was validated by two experts. Test-retest technique was used to determine the internal consistency of the instrument. A reliability coefficient of 0.89 was obtained. Mean and standard deviation were used to answer the research questions and t-test statistic was used to test the hypothesis. It was found that retirees required 11 entrepreneurial skills in planning, 13 in feeding and 9 in marketing for snail production business. It was recommended that the identified skills be used to retrain retirees in snail production business.*

**Introduction**

Snails are bilaterally symmetrical invertebrates with soft-segmented exoskeleton in the form of calcerous shells. They belong to the phylum mollusca. In West Africa, snails dwell mostly in humid forest areas from where they are gathered by villagers for consumption and other uses (Ademosu and Omidigi, 1999).

The meat has traditionally been a major ingredient in the diet of people living in high rain forest zone. Agbogidi, Okonta and Ezeani(2008) also reported that snails are high in protein, iron and low in fat. Adeyeye (1996) noted that snails contain almost all the amino acids required by man. In recent times, the wild snail population has declined considerably due mainly to the impact of man and other anthropogenic factors including deforestation, slash and burn agricultural practices and overexploitation of this animal resource stemming from the world teaming population. Consequently, the few remaining species are captured before they reach maturity (Esak and Takerhash, 1992).

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The need to enhance the mass production of snails cannot be overestimated because snails can be reared both on small scale and large-scale production systems (Elinsile, 1982). Snail rearing can be seen as a veritable means of generating income and to achieve self sufficiency in hard times as presently experienced in Nigeria today. There is now a renewed interest in snail farming because of its inherent importance to food security and sustainable livelihood in rural households. The importance of snail farming cannot be underscored because of the great prospects in the business. To many researchers snailery or heliculture is a money spinning business (Odunaiya, 1998). The amount of capital required for the establishment of a snailery is appreciably small and the practice requires little labour with no strenuous physical exertion (Goodman, 2008). Physically challenged people including the dumb, lame; deaf etc can also rear snails conveniently. Snails generally are noiseless and quite easy to handle (Agbogidi *et al*., 2008). They can be reared in urban environment without infringing on the peace of neighbors. The practice also has the need for small space requirement. Besides, snails have been shown to adapt to various environmental conditions hence can be raised in small towns, cities, farms, at background or commercial levels and villages. For this reasons, the market and demand for snails in the locality is very high and could re-engage retirees for sustainable livelihood.

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Retirees, in the context of this study, are individuals who have disengaged from the initial employment after long services but are still willing and able to continue their existence in a desirable but less strenuous occupation with affordable investment. For the retirees to re-engage in snail production business, they require entrepreneurial skills.

Entrepreneurial, in the view of Meredith, Nelson and Neck (1990), means combining personal characteristics, financial means and resources within one’s environment. Sett (2004), described being entrepreneurial as having quality business vision, opportunity, mission, strategies and resources. In the context of this study, entrepreneurial means the ability of the retirees to find an opportunity and gather the necessary resources to invest in the business in which they are interested and skilled.

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Skills, in the view of Ibrahim (2007), is a specified ability to do something well. Ejiofor (2010) explained skills as well established habits of doing things by people. Onu and Ugwuoke (2009) speculated that one who lacks skills may not be useful to himself and the society. This implies that retirees who lack entrepreneurial skills in snail production may not be able to establish the business, let alone sustaining it.

Snail is traditionally, a major ingredient in the diet of the people of Delta state. Snails are taken in large numbers in Delta state; most snails consumed in Delta state are supplied by farmers who simply hunt the snails from the forest where the snails naturally live. Ajayi, Tewe, Moriathy and Awesu (1979) reported that snailery is a profitable business. According to Akinbile (1999), snail farming is one of the least recognized aspects of livestock production in Nigeria. Hence, could be a source of sustainable livelihood to retirees if they are equipped with entrepreneurial skills required in snail business.

**Objectives of the Study**

The purpose of this study therefore was to identify entrepreneurial skills required by retirees in snail production for sustainable business in Delta State. Specifically, the study sought to identify entrepreneurial skills required by retirees in:

1. entrepreneurial skills required by retirees in planning snail production business
2. entrepreneurial skills required by retirees in feeding snails
3. entrepreneurial skills required by retirees in marketing snails

**Research Questions**

***Onwudiwe, N., Dibuah, S.C & Chukwukelu, I.S.***

The following research questions guided the study:

1. What entrepreneurial skills are required by retirees in planning snail production business?
2. What entrepreneurial skills are required by retirees in feeding snails?
3. What entrepreneurial skills are required by retirees in marketing snails?

**Hypothesis**

HO1: There is no significant difference in the mean ratings of the responses of snail farmers and teachers of Agricultural Science on the entrepreneurial skills required by retirees in planning snail production business

**Methodology**

Survey research design was adopted for this study. Olaitan, Ali, Eyo and Sowande (2000) stated that survey research design is the plan, structure and strategy that the investigator wants to adopt in order to obtain solutions to research problems using questionnaire for collecting, analyzing and interpreting the data.

The population for the study was 204 made up of 51 snail farmers and 153 teachers of Agricultural Science in Delta State. The entire population was involved in the study because the size was small.

Questionnaire was developed and used for collecting data from respondents. The questionnaire had a four-point response scale options for Highly Required (HR), Averagely Required (AR), Slightly Required (SR) and Not Required (NR) with a corresponding value of 4, 3, 2 and 1 respectively. Three experts validated the instrument and reliability coefficient of 0.89 was obtained using test-retest method. Items with mean weight of 3.0 and above were accepted while items with less mean weight were rejected. The data were analysed using means, standard deviation while t-test was used to analyse the hypothesis.

**Result**

**Research Question 1**

What entrepreneurial skills are required by retirees in planning snail production business?

**Table 1:** Entrepreneurial skills required by retirees in planning snail production business

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **Statement items** | **Mean** | **SD** | **Remark** |
| **1** | Identify snail species consumed in the area | 3.63 | 0.74 | Required |
| **2** | Identify sources of snail | 3.42 | 0.90 | Required |
| **3** | Set goals for the business | 3.30 | 0.92 | Required |
| **4** | Determine site for a snail project | 3.43 | 0.89 | Required |
| **5** | Formulate specific objective for snail business | 3.27 | 0.93 | Required |
| **6** | Review the objectives periodically to meet economic or business situation | 2.85 | 0.94 | Required |
| **7** | Identify labour requirements for snail production | 3.45 | 0.90 | Required |
| **8** | Decide the type of snail house to build | 3.28 | 0.84 | Required |
| **9** | Determine housing requirement for the snail production project | 3.12 | 0.81 | Required |
| **10** | Identify the breeding requirements for snail production | 3.26 | 0.80 | Required |
| **11** | Identify sources of fund to establish the businesses | 3.33 | 0.76 | Required |

Source: Field Work, 2016

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The data presented in Table 1 revealed that all the 9 items had their mean values ranged from 3.85-3.63. This showed that the mean values were above the cut-off point of 2.50, indicating that the respondents agreed that all the 11 items were entrepreneurial skills required by retirees in planning for snail production business. The Table also showed that the deviation of the responses ranged from 0.74-0.94, indicating that the respondents were unanimous in their responses.

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**Research Question 2**

What entrepreneurial skills are required by retirees in feeding snails?

**Table 2:** **Entrepreneurial skills are required by retirees in feeding snails**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **Statement items** | **Mean** | **SD** | **Remark** |
| 1 | Identify types of feed for snail | 3.45 | 0.64 | Required |
| 2 | Identify sources of feed | 3.49 | 0.76 | Required |
| 3 | Identify snail feeding habits | 3.68 | 0.88 | Required |
| 4 | Identify snail feed requirement at each stage of development | 3.30 | 1.07 | Required |
| 5 | Feed the snails | 3.33 | 1.03 | Required |
| 6 | Provide adequate feed to the snails | 3.05 | 0.77 | Required |
| 7 | Provide water in shallow containers | 3.09 | 0.83 | Required |
| 8 | Keep record of use of feed | 2.78 | 0.73 | Required |
| 9 | Provide water for snails at all times | 3.42 | 0.88 | Required |
| 10 | Recognize signs of nutrient deficiencies | 2.89 | 0.80 | Required |
| 11 | Remove leftover food daily | 1.53 | 0.64 | Not Required |
| 12 | Clean the feed trough daily | 3.22 | 0.78 | Required |
| 13 | Clean the water trough daily | 3.34 | 0.63 | Required |
| 14 | Feed the snails only in the evening | 3.13 | 0.77 | Required |
| 15 | Provide feed in one lump | 1.62 | 0.82 | Not Required |

Source: Field Work, 2016

The data presented in Table 2 revealed that all the 15 items had their mean values ranged from 1.53-3.68. Thirteen mean scores were above the cut-off point of 2.50. The respondents agreed that the 13 items were skills required by retirees

in feeding snails. Items 11 and 15 were rejected because their mean scores were below the cutoff value. The table also showed that the standard deviation of the responses ranged from 0.63 – 1.07, indicating that the respondents were not too far from the mean and from the opinion one another in their responses.

**Research Question 3**

What entrepreneurial skills are required by retirees in marketing snails?

**Table 3: Entrepreneurial skills required by retirees in marketing snails**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **Statement items** | **Mean** | **SD** | **Remark** |
| 1 | Locate market for the sale of snail | 3.48 | 0.80 | Required |
| 2 | Advertise snail products to promote patronage | 3.18 | 0.87 | Required |
| 3 | Clean snail shells before marketing | 2.51 | 0.91 | Required |
| 4 | Fix price for different grades of snail  **-15 -** | 3.08 | 0.78 | Required |
| 5  ***Onwudiwe, N., Dibuah, S.C & Chukwukelu, I.S.*** | Determine the means of transporting snails to customers | 2.95 | 0.82 | Required |
| 6 | Distribute snail to the customers at their base | 2.86 | 0.71 | Required |
| 7 | Store snails awaiting market | 1.86 | 1.01 | Not Required |
| 8 | Store live snails in air tight containers | 1.43 | 0.87 | Not Required |
| 9 | Make effective use of market information | 3.33 | 0.84 | Required |
| 10 | Determine when sale snails for maximum profit | 3.60 | 0.75 | Required |
| 11 | Keep accurate records of sale of snail. | 3.39 | 0.88 | Required |

Source: Field Work, 2016

The data presented in Table 3 revealed that all the 11 items had their mean values ranged from 1.43- 3.60. Nine mean scores were above the cut-off point of 2.50. The respondents agreed that 9 out of 11 entrepreneurship skills were required by retirees in marketing of snail. The table also showed that the standard deviation of the responses ranged from 0.77-1.13, indicating that the respondents were not too far from the mean and from the opinion of one another in their responses**.**

**Hypothesis**

HO1: There is no significant difference in the mean ratings of the responses of snail farmers and teachers of Agricultural Science on the entrepreneurial skills required by retirees in planning snail production business.

**Table 4:** T-test analysis of the mean responses of snail farmers and teachers of Agricultural Science on the entrepreneurial skills required by retirees in planning snail production business

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Respondents** | **N** | **Mean** | **SD** | **t-value** | **t-tab** |
| Agric Teachers | 153 | 3.64 | 0.63 | 1.91 | 1.96 |
| Snail Farmers | 51 | 3.12 | 0.45 |  |  |
| **Total** | **204** |  |  |  |  |

Table 10 presents the t-test summary analysis of mean ratings of teachers of Agricultural Science and snail farmers on the entrepreneurship skills required by retirees in planning snail production business. The result showed that the t-value (1.91) was less than the t-tab (1.96) at 0.05 level of significance. This indicates that there is no significant difference between the mean ratings of teachers of Agricultural Science and snail farmers on the entrepreneurship skills required by retirees in planning snail production business. Therefore, the null stated hypothesis (Ho) is accepted.

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**Discussion of the findings**

The result in Table 1 showed that identification of snail species consumed, set business goals, formulate specific objectives for the snail business, determine housing and labour requirement among others were entrepreneurship skills required by retirees in planning snail production business. The findings were in agreement with the views of Igbinosa (2002) who states that for success in any business, the individual involved must decide in advance what to do, how to do it and who is to do it. Olaitan (2008) identifies planning for a project as follows: stating the objectives of the project; determining the site of the project; identifying material resources necessary for the project; identifying the labour requirement; and budgeting for the project and keeping records. Equipping retirees with these skills will help to run snail business successfully.

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The result in Table 2 showed that identification of types of feed, sources of feed, feeding habit of snail, feed requirement at stage of development, record keeping, good feeding regime amongst others were entrepreneurial skills required by retirees in feeding snails. The finding was in conformity with the findings of Olainiya (2004) that feed should be provided regularly to the snails in the evening since the cooler temperature stimulate activity and help the snail to move easily and feed. Generally, snails usually hide on shelter plants during the day when it is dry and move to food plants to eat at night or early in the morning when they are wet with dew (Udoh, Akanyung and Igiran, 2005). Cobbinah (1993) also observed that the type and quality of feed given to the snails depend on the stage of development of the snail.

**Entrepreneurial skills required by retirees in marketing snails**

The findings in Table 3 indicated that locating market for snail, advertisement, fixing price, distribution of snails to customers, use of market information, accurate record keeping amongst others were entrepreneurial skills required by retirees in marketing snails. In line with the findings, Chika and Wilson (2005) reaffirmed that snails should be carried to the market in suitable containers like baskets or box. According to the author, snails could be stored alive in containers filled with materials such as sawdust or chopped maize husk for long as 6 – 8 weeks. The findings of Kotler (2001) were in conformity with the findings of the study when the author observed that several skills were necessary for a farmer to succeed in marketing of agricultural products. According to the author, the required skills include: finding buyer or searching for market; grading and standardization of the products; storage of the products; processing of the products; advertisement and production; fixing prices; and recording financial transactions.

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**Hypothesis**

The findings in Table 4 showed that there is no significant difference between the mean ratings of teachers of Agricultural Science and snail farmers on the entrepreneurship skills required by retirees in planning snail production business. This implies that irrespective of respondents designation they same perception of entrepreneurial skills required by retirees to run fish breeding enterprise remains the same.

**Conclusion**

Snail is traditionally a major ingredient in the diet of the people of Delta State. Snails are eaten in large numbers in the State which makes the livestock more viable for business due it acceptance**.** Snail production business is capable of providing sustainable income for its farmers. Following these observation, the study was carried out to identify entrepreneurial skills required by retirees in snail production as a life sustaining business. The study found out that 33-skill items are required by retirees in planning, feeding and marketing of snail as a business.

**Recommendation**

Agricultural extension agents and vocational centers should use entrepreneurial skills in planning, feeding and marketing, as identified by this study for training of retirees in snail production as a sustainable business.

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**EFFECT OF DIET CONTAINING AFRICAN NUTMEG (MONODORA*MYRISTICA*)**

**ON PERFORMANCE OF PULLET CHICKS**

**BY**

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***Abstract***

*This research was carried out to determine the potency of Monodoramyristicaspice as feed additive in egg-type chicken diet. Feeding trial which lasted for 35 days was conducted on 150 three weeks (21 days) old lohmann breed egg-type birds .The design used was a completely randomized design (CRD) to investigate the effects of the spice on the growth parameters. The birds were randomly allocated to 5 dietary treatments designated as D1,D2, D3, D4 and D5 having 0%, 0.25%, 0.5%, 0.75% and 1.0% of Monodora respectively with each replicated 3 times at 10 chicks per replicate. The analysis of variance of data collected showed significant (p < 0.05) improvement on daily body weight gain, feed conversion ratio and protein efficiency by the addition of Monodoramyristicain to the diets at 0.25%, 0.5%, 0.75% and 1.0% inclusion. From results obtained may be concluded that Monodoramyristicais valuable spice that should be used to supplement pullet chicks diet at a level not below 0.5% (5gkg-1) inclusion and should be used as part of the ingredients for chick feeds.*

***Key Words:*** *Additive, diets, Monodoramyristica, performance, pullet chicks, spice.*

**Introduction**

Poultry production is among the livestock industry which products are in high demand by consumers. Poultry business attracts landless and poor resource persons due to its quick returns and short gestation period. Poultry out numbers all other forms of livestock in Nigeria and not surprisingly is found throughout the country wherever there are human settlements (Adeyemo & Onikoyi, 2012). Adesiji, Tyabo, Bolarin, Ibrahim, and Baba (2013), observed that poultry are efficient converters of feed to egg and meat within a short period of time and in terms of nutritive value, poultry egg rank second to cow milk. The poultry production is being affected by availability of good quality feed at affordable price because feeding constitutes about 70% of the cost of production (Akinwumi, Adegeye, Ikpi & Olayide, 1999; Osei *&*Twumasi (1989) and Akpodiete *&* Okagbare. 2000). Ukachukwu and Obioha (1997) contended that the prohibitive price of animal products is contributed by the high price of feeds.

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To minimize this situation farmers and nutritionist have been using synthetic growth promoters additive and classical or synthetic feed additives have been questioned due to the potential development of resistant to a number of pathogenic microbe species (Wegener, Aarestrup, Gemer-Smidt & Bager1998) and having harmful effect on humans. These situations have created a gap and alternative substances from plant origin which should be used to protect the consumers of poultry products. There are numerous plants -herbs and spices with essential oil, aromatic, fragrant and pungent properties with anti-microbial characteristics. In this group is African nutmeg which produces soft-ball sized edible seeds that have nutmeg-like flavour, with high protein composition and also having rich medicinal properties (Ojiako & Igwe, 2007). The seeds are widely used in preparation of delicacies and traditional medicine concoctions (Egharevba *&* Ikhatua, 2008). The seeds are used by humans as a remedy for constipation, when mixed with palm oilin. Roasted and powdered seeds of the plant are very effective in curing stomach ache. The seeds when grounded are rubbed on the forehead to cure headache (Gill, 1992). The seeds have aromatic property, contains essential oil, rich in flavonoids and phenolic terpenes, which have been described as exerting anti-oxidative properties (Nakatani, 2000; Nwachukwu, 2009). The seeds are used as condiments and carminative (Mayhem & Penny, 1988; Mba, 1980). The proximate analysis of the seed showed the absence of lead (Burubai, 2007) which makes it non- poisonous. It is also highly abundant in the Southern part of Nigeria (Ekeanyanwu*,* Ogu & Nwanchukwu, 2010).

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In spite of these wide range potential benefits of African nutmeg, it is not yet a popular spice in poultry diet. It is therefore necessary to determine the effect of the spice on growth performance of egg type chicken at starter phase.

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**Materials and Methods**

The experiment was carried out at the Poultry Unit of the Teaching and Research Farm of Michael Okpara University of Agriculture, Umudike. The seeds of African Nutmeg (*Monodoramyristica)* were sourced from markets in Umuahia (Abia State) and Nsukka (Enugu State) Nigeria. The seeds were sun-dried, de-husked and crushed with a clean grinding machine before use as test ingredients in the feed. One hundred and fifty (150) day-old Logmann breed egg-type chicks were procured from a local dealer for the experiment. These birds were raised in a brooding pen using kerosene stoves placed under metal hovers as source of heat to keep the deep litter brooding house warm. Light was provided using lantern and electricity whenever it was necessary. The chicks were fed commercial starter mash during the brooding stage which lasted twenty-one days and from twenty-two (22) days the birds were weighed and randomly transferred to rearing pens. The routine health management practices carried out was provision of a vet / foot dip at the entrance of the poultry house; daily washing of drinkers and feeders; provision of clean water and feeds; changing beddings once every month and cutting surrounding vegetation. They were also given routine vaccines at appropriate time, merek vaccine (Newcastle Disease Vaccine, NDV-B1) at day old through intraocular; anti - biotic and anti- stress from two (2) days to seven (7) days through drinking water, gumboro vaccine (IBDV) at the age of ten (10) days through drinking water ; lasota (NDV) at age of twenty- one (21) days through drinking water; coccidiostat was administered through drinking water at the of six(6) weeks through drinking water and lasota vaccine was again given to the birds at seven (7) weeks.

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The experiment was carried out in a completely randomized design (CRD) with the five treatment designated as D1, D2, D3, D4 and D5as showed in table 1 and which also represented different inclusion levels of 0.0 , 0.25 , 0.5 , 0.75 and 1% respectively. The one hundred and fifty (150) birds were randomly assigned to the five (5) treatments and each treatment was replicated three times. There were thirty (30) birds per treatment and ten (10) birds per replicate. The birds were kept on deep litter throughout the experimental period which lasted 9 weeks. Data were collected on weight gain, feed intake, feed conversion ratio, protein efficiency ratio and mortality. The collected data were subjected to analysis of variance at 0 .05 level of significance and means separated by Duncan Multiple Range Test.

**Table 1:** Composition of the experimental diets containing varying levels of *Monodoramyristica at* starters’ stage

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Ingredient | D1 (0.0 %) | Chicks D2 (0.25%) | Mesh  D3 (0.5%) | D4 (0.75%) | D5 (1.0%) |
| 1. | Maize | 52.25 | 52.00 | 52.25 | 52.25 | 52.25 |
| 2. | Wheat Offal | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 |
| 3. | Lyon Bean | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| 4. | Soya Bean | 19.00 | 19.00 | 19.00 | 19.00 | 19.00 |
| 5. | Fish Meal | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 |
| 6. | PKC | 2.5 | 2.5 | 2.5 | 2.50 | 2.50 |
| 7. | Bone Meal | 3.00 | 3.00 | 2.50 | 2.50 | 2.25 |
| 8. | Calcium Phosphate | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 |
| 9. | Common Salt | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 |
| 10. | Vit./min.(Pre- Mix) | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
|  | Lysine | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
|  | Methonine | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
|  | M. myristica | 0.00 | 0.25 | 0.50 | 0.75 | 1.00 |
|  | Total | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

The vitamin/mineral pre -mix (Animal care services (Nig.Ltd, Lagos) provided the following vitamin and mineral per kg of diet:Vit.A, 8000I.U.Vit.D3 ,18000I.U;Vit.E,20I.U; Vit.K,2.0mg; Vit.B1,1.55mg;Vit.B2,4.4mg;Vit.B6,2.35mg;Vit.B12,0.013mg;Biotin,0.042mg;Niacin,23.5mg Pantothenic acid,6.5mg Folic acid,0.65mg, Mn,75mg ;Zn,45mg ; Cholie,150mg, Fe,20mg Cu,5mg;Mg,1.10mg; Se,0.01mg; Co,0.02mg;B.H.T,90mg; Ethoxyquin, 33mg

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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Calculated |  |  |  |  |  |
| Energy (kg/cal) | 3125.00 | 3125.00 | 3125.00 | 3125.00 | 3125.00 |
| Crude  Protein (% ) | 20.65 | 20.65 | 20.65 | 20.65 | 20.65 |

**Table 2: Growth performance of egg-type chickens fed *Monodoramyristica* containing diets at starter (pullets) phase**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| S/N | Parameters | D1 (0.0%) | D2 (0.25%) | D3 (0.5%) | D4 (0.75%) | D 5(1.0%) | SEM |
| 1. | Daily feed intake (g/b/d) | 51.20c | 51.65b | 51.65b | 52.27a | 52.13a | 0.11 |
| 2. | Initial body weight (g/b) | 56.20 | 56.20 | 56.20 | 56.20 | 56.20 | 0.01 |
| 3. | Final body weight (g/b) | 650.40d | 655.00c | 668.20b | 668.73b | 680.93a | 1.06 |
| 4. | Daily weight gain (g/b/d) | 16.98c | 17.11c | 17.49b | 17.50b | 17.85a | 0.03 |
| 5. | FCR | 3.00a | 2.52b | 2.48b | 2.43b | 2.24c | 0.01 |
| 6. | Protein efficiency ratio | 1.61c | 1.92b | 1.95b | 1.98b | 2.20a | 0.01 |
| 7. | Mortality (%) | 0.22 | 0.00 | 0.2 | 0.2 | 0.2 | 0.02 |

*Means in a row with different superscripts are significantly different from one another (P < 0.05). FCR – feed conversion ratio; g, b&d - gramme, bird and day; 0.0%, 0.25%., 0.5%, 0.75% & 1.0% levels of Monodoramyristica inclusion in the diets SEM: Standard error of the means.*

**Result and Discussion**

Table 2 summarized the effect of *Monodoramyristica* on the growth performance of egg type chicks at starter stage. There were significant (P < 0.05) differences in average daily feed intake (ADFI) of the treatment groups. ADFI of birds fed diet D4 (0.75% *Monodoramyristica*) was similar (P>0.05) to that of birds fed diet D5 but higher (P < 0.05) than those of birds fed diets D1 – D3. ADFI of D5 birds was similar (P > 0.05) to those of D2 and D3 but higher (P < 0.05) than that of D1 (the control), while the ADFI of D1 – D3 were similar (P > 0.05). The average daily feed intakes observed for the diets were 51.20g/b/d,51.65g/b/d,1.65g/b/d,52.27g/b/d and 52.13g/b/d for 0.0%, 0.25%, 0.5%, 0.75% and 1.0% inclusion levels, respectively.

*Monodoramyristica* was observed to improve feed intake; indicated appetite stimulating properties like other spices such as tumeric (Wenk, 2003), ginger (Okoye, Ugwuene & Mbarah, 2006). Coloney (1997) and Herawati (2010) reported separately that though spices like ginger stimulates appetite, higher inclusion in a ration up to 20% showed lower feed intake. It implies that uses of spice in poultry feed must be guided. The result was in line with the submission on ginger in cassava peel meal based weaned rabbit diet (Okoye, Ugwuene & Mbarah, 2006) with a higher average daily feed intake recorded. The result implies that *Monodora*like some other spices such as red chilli, black pepper, thyme, tumeric and ginger can positively influence the appetite and feed utilization in egg-type chicks.

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The improvement in appetite could be traced to the presence of the vitamins such as thiamine in sufficient level. This thiamine may have been deficiency in the control and other lower levels of inclusion. The higher intake of *Monodoramyristica* diets could also be attributed to high palatability of the diets. This implies that birds have well developed sense of taste and were able to detect the flavouradded by *Monodora myristica*.

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There was significant (P < 0.05) difference in average daily weight gain among the treatment groups. Birds fed diet D3 were similar (P > 0.05) to those of birds fed D4­ but higher (P < 0.05) than those of birds fed D2 and D1. Daily weight gain of birds fed D5 were significantly (P < 0.05) higher than that of the control. Observed daily weight gains were 16.98 g/b/d, 17.11 g/b/d, 17.49 g/b/d, 17.50 g/b/d and 17.85 g/b/d for birds on treatment diets containing *Monodoramyristica* at 0.0%, 0.25%, 0.5%, 0.75% and 1.0% inclusion levels, respectively.

The result was also in line with the report by Herawati (2010) that red ginger had significant effect on weight gain and feed conversion ratio of broilers fed diets containing it. Suriya*et al.* (2012) reported that 0.5% garlic inclusion improved the growth performance of broilers. A similar report of improved growth performance parameter was by Soltan*et al.* (2008) who used 0.5 – 1.0 ganise/kg diet. Dried oregano leaves (1.25, 2.5 and 3.75g/kg) were reported to improve feed conversion ratio in early maturing female turkeys (Bampidis*et al.,* 2005). Onu (2012) observed significant results with *Telifairiaoccidentalis* leaf extract at inclusion levels of 40, 80, 120 and 160 ml/L of drinking water on weight gain, feed conversion and protein efficiency ratios of starter broilers. The results were inconsistent with Christaki*et al.* (2012) who reported that 10 or 20g/kg diet had no effect on the performance parameters of laying quail. Inconsistent results might be attributed to various conditions such as environment, levels of inclusion, effects of other ingredients and genetic limits of the birds. The quantities of *Monodoramyristica* inclusion in the experiment were 0.0g/kg, 2.5g/kg, 5g/kg 7.5kg and 10g/kg respectively. *Monodoramyristica*diets improved the weight gain over the non-*Monodora* diet. It could be suggested that *Monodoramyristica* provided and/or enabled provision and mobilization of adequate protein needed for tissue growth. This was in line with report by Alka-Shama*et al.* (1996) that certain substances derived from plant can be used to fortify protein thereby improving its utilization. The weight gain, though lower than the rate reported by Al-Harthi (2001) for a mixture of spices pepper with canella.

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Feed conversion ratio (FCR) revealed significant (P < 0.05) difference among the treatment groups. FCR of birds fed diet D2 (0.25% *Monodoramyristica*) was similar (P>0.05) to that of birds fed diets D3 and D4 but higher (P < 0.05) than those of birds fed diet D5. FCR of birds fed D1 (*Monodoramyristica*-free diet) was higher (P < 0.05) than those of D2 – D5 while the FCR of D2 – D4 were similar (P > 0.05) and that of D5 was the lowest. The observed feed conversion ratio were 3.00, 2.52, 2.48, 2.43 and 2.24 for birds on treatment diets containing *Monodoramyristica* at 0.0%, 0.25%, 0.5%, 0.75% and 1.0% inclusion, levels respectively.

Feed conversion ratio was significantly (p< 0.05) better in *Monodoramyristica* diets than in the *Monodora-*free diet. This implies that the levels of inclusion of the test spice (*Monodoramyristica*) in the experiment were able to create higher impact on the feed conversion ratio. It is important to note that the improvement in feed conversion ratio implied an improved efficiency of feed utilization for *Monodoramyristica* containing diets. The result was in line with the report observed with oregano oil extract (Botsoglou*et al.,* 2003). The low weight gain and poor feed conversion ratio observed in the control diet could be due to reduced nutrient absorption and low amino acid availability or amino acid imbalance as a result of the high level of anti-nutritional factors associated with some of the ingredients like Lyon beans, *Mucunacochinchinensis* (Ukachukwu, 2000). The birds may have been subjected to amino acid stress to counter act toxins thereby limiting growth. *Monodoramyristica* in diets at various levels (0.25%, 0.5%, 0.75% and 1.0%) appeared to be effective detoxicant as evidenced in the feed conversion ratio and weight gain. The result was in line with the report by Dahal*et al.* (2011) that cardamom, mint and thyme influenced broilers’ feed conversion positively. It is also similar to the data by Nwaiwu*et al.* (1999) that African nutmeg “uzizza” and “uda” had significant effect on feed conversion of broiler chicks. The result was in agreement with the result of Abbas (2010) that ferogeek, parsly and sweet basil seeds had positive effect on feed conversion of broiler chicks.

There were significant (P < 0.05) differences in protein efficiency ratio (PER) of the treatment groups. PER of birds fed diet D2 (0.25% *Monodoramyristica*) was similar (P > 0.05) to that of birds fed diets D3 and D4 but lower (P < 0.05) than those of birds fed diet D5 (1.0% *Monodoramyristica*) and higher (P < 0.05) than that of D1 (the control). The observed protein efficiency ratios were 1.61, 1.92, 1.95, 1.98 and 2.20 for birds on treatment diets containing *Monodoramyristica* at 0.0%, 0.25%, 0.5%, 0.75% and 1.0% inclusion levels, respectively.

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The protein efficiency was improved in *Monodoramyristica* diets indicating that the test spice not only stimulated digestion and absorption of nutrients but also mobilized available protein for the birds’ utilization. It implies that *Monodora* contributed some essential amino acids and mobilized some from other feedstuffs for growth, repairs and normal body metabolism. The result was in line with the report of Prins (1977) that spices enhance the mobilization of protein from feed for growth, repairs and synthesis of biochemical in the body.

The improvement in the growth performance parameters with *Monodoramyristica* were similar to the reports on tumeric, ginger, cinnamon, thyme, bay leaf, clove and black pepper (Thakare, 2004); on coriander, tumeric, red chilli, black pepper and cumin (Platel& Srinivasan, 2001); ginger (Saeid, Shanoon &Marbut, 2011) and African nutmeg, uzizza and uda (Nwaiwu& Imo, 1999). The improvement in the growth performance of the birds especially in the feed conversion ratio by 1.0% *Monodora* addition indicated rapid growth and subsequent egg production.

**Conclusion**

At the end of the biological trial involving the use of *Monodoramyristica* as feed additive on egg-type chicken at starter phase, it could be concluded that average daily feed intake increased as a result of adding *Monodora* significant increase in the feed take was observed when the inclusion level was above 0.5%. However, 0.75% and 1.0% inclusion levels produced similar (P>0.05) daily feed intake. The increased feed intake is an indication that *Monodoramyristica* has ability to stimulate appetite and improve the palatability of the feed. Daily body weight gain, feed conversion ratio and protein efficiency were improved (P<0.05) by the inclusion of *Monodora* into the diets. Lower inclusion level below 0.5% did not produce significant (P>0.05) improvement.

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The highest significant (P<0.05) improvement with respect for daily weight gain, feed conversion ratio and protein efficiency was 1% inclusion level. This implies that level of inclusion should be regulated bearing in mind that it needed in smaller quantity and even smaller quantity could improve feed utilization. The daily weight gain is also an indication that *Monodoramyristica* facilitates digestion and absorption nutrients in the gut. It was recommended that *Monodoramyristica* should also be used as part of pullet chicks diets and the inclusion level may be up 25g/Kg of diet.

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**WORK SKILL IMPROVEMENT NEEDS OF WOMEN FARMERS IN BITTER LEAF PRODUCTION FOR JOB CREATION AND NATIONAL DEVELOPMENT IN ANAMBRA STATE.**

**BY**

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***Abstract***

*This study was conducted in Anambra State to determine the work skill improvement needs of women farmers in bitter leaf production for job creation and national development. The study made use of survey research design, three (3) research questions and null hypothesis guided the study. A 40 work skill cluster questionnaire was used for the study and the data collected were analysed using mean, standard deviation, Improvement Need Index (INI) and t-test. Results revealed that women need improvement in 13 planning skills, 13 production skills and 7 marketing skills in bitter leaf production for effective bitter leaf production as a panacea for job creation and national development. In line with the results, it was recommended among others that the identified skills should be incorporated into the secondary school curriculum and should be used to retrain women, retirees, civil servants through workshops and seminars to ensure job creation and national development.*

***Key words:*** *Work skill, women farmers, Bitter leaf, Improvement, National Development*

**Introduction**

Nigeria economy is evolving and depends heavily on the oil economy. The current economic meltdown in Nigeria occasioned by the fall in the price of crude oil, corruption, unemployment, poverty, insurgency and other social vices necessitates that the economy be diversified into Agriculture especially vegetable production. According to Onuche (2016), the south east state, Anambra seems to have hit a milestone on the generation of foreign exchange from vegetable export as the Nigerian economy plummets from the over-reliance on oil. In the same vein, The Anambra State ministry of Agriculture has successfully assisted some rural farmers to export pumpkins leaves (ugu) and bitter leaves (Onugbu) into United Kingdom in 2016 <http:///forum/agriculture/Anambra-Bgins-vegetable-export-uk-o>. This is in a bid to improve the state of Agriculture and the state of the economy in general. Improvement is the act of making something better. In context of this study, improvement implies making the works skills possessed by women farmers in Anambra State better for effective bitter leaf production for job creation and national development. On the other hand, Okon (2003) defined work skill as the human capability to technical work efficiency and competency while Osinem and Nwoji (2005) see work skill as the ability to perform an act expertly. It is the efficiency, expertness and competency displayed in successfully performing a work or task. Work skill in bitter leaf production is categorized into planning skills, production skills and marketing skills.

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Bitter leaf is a popular shrub in Africa. Eze and Adeyemi (2012) writing on the morphology of bitter leaf plant indicated that bitter leaf is a shrub that can reach twenty-three feet in height; has grey to brown coloured rough textured and flaked bark with branches that that are brittle and breaks easily; has leaves that are oblong to lance-like in shape and bears small white flowers. Meara (1989) reported that bitter leaf belong to the family of compositea, he noted the species grown in Africa to include Vernonia amygdalibna, Vernonia lymenolepsiss, Vernonia colourata and Vernonia calvoana.

Bitter leaf is eaten as vegetable in many African countries and it is believed to have numerous medicinal benefits as it relieves skin infection such as ringworm, itching, rashes, eczema; stomach ache, diabetes, loss of memory, prostate cancer, general weakness, pneumonia, stroke and induce blood clothing in wounds (Akinpale, 1999). Bitter leaf is very useful in restoring human stamina and helps in toning the vital organ of the body especially the liver and the kidney (Igile, Oleszek, Burden and Jurzysta, 1995; Okon, 2011). The sesquiterpene lactone composition of V. amygdalina helps in the prevention of atherosclerosis in man, Bitter leaf extracts is known to induce apoptosis, render cancerous cells more sensitive to chemotherapy, inhibit the growth of cancerous cells and suppress metastasis of cancerous cells. Its ability to reduce estrogen level in the body due to its ability to suppress aromatase activity reduces the progression of breast cancer in women (Izevbigie, Brgant and Walker, 2004). In the same vien, Farombi and Owoeye (2011) reported that V. amygdalina is rich in phytochemicals like sapponins, phenolics, lignans, xanthones, anthraquinones, edotides and sesquiterpenes which elicit biological effects including cancer chemoprevention.

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Bitter leaf is called *“Onugbu”* by the Igbos, Yorubas call it *“Ewuro”*, Hausas called it *“shuwaka”* in Cameroon it called *“Bayingi”* or *“Ndole”* in Tanzania. It is called *“mujonso”*, the French call it *“Verononia”* while the Gambians call it *“docta”* (Eze and Adeyemi, 2012). Nutritionally, Fube, and Dionga (2011) reported that bitter leaf contain high quantity protein, iron, manganese and cellulose.

The numerous benefits of bitter leaf necessitate an increased production in Nigeria. Erebor (1995) categorized work operations in bitter leaf production to include nursery, pre planting, post planting and post harvest. In Anambra state most of these operations are carried out by both rural and urban women farmers who plant bitter leaf as supplementary vegetable for the family. Occasionally the surplus is sold in the market. Emerson (2000) stated that women are poorer than men as they are disproportionately employed in unpaid, underpaid and non-formal sectors of the economy. ILO (2007) reported that women suffer the effect of financial and economic downturn more than men. It is on this note that this study seeks to determine the work skill improvement needs of women farmers in bitter leaf production in Anambra State. The need for increased production of bitter leaf among women farmers necessitate the need for improving the work skill for bitter leaf production among women farmers for job creation, increased income, food security and national development

**Statement of Problem**

The alarming rate of inflation, food insecurity and malnutrition currently pervading the country demands an introspective assessment of local food supplements like bitter leaf which can be used to complement and balance diets of the increasing population with a view to attain food security, create jobs and achieve over all national development. In Anambra State most women plant bitter leaf as a supplementary crop around the home and many of them lack vital work skills needed to meet production responsibilities and marketing of bitter leaf in commercial quantity. Despite the nutritional, economic and medicinal value of bitter leaf efforts geared towards the production of bitter leaf among women farmers is limited to small scale and therefore pose a challenge to commercialization of bitter leaf production in Anambra State. If the work skills of these women farmers in Anambra State are improved, it is likely that they will be motivated to adopt improved method of production, harvesting and marketing of bitter leaf and increased vegetable output, food security, job creation and national development.

**Purpose of Study**

The main purpose of this study was to determine the work skill improvement needs of women farmers in bitter leaf production for job creation and national development in Anambra State. The following specific objectives guided the study

1. Determine the planning skills improvement need of women farmers in bitter leaf production in Anambra State.

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1. Determine the production skills improvement need of women farmers in bitter leaf operations.
2. Determine the marketing skills improvement need of women in bitter leaf production in Anambra State

**Research Questions**

The following research question guided the study

1. What are the planning skills improvement need of women farmers in bitter leaf production in Anambra State
2. What are production skills improvement needs of women farmers in bitter leaf production in Anambra State
3. What are the marketing skills improvement needs of women farmers in Anamabra State

**Hypothesis**

The hypothesis formulated to guide the study was tested at .05 level of significance.

**H01:** There is no significant difference between the response of rural and urban women farmers on the marketing skill improvement of needs of women farmers in bitter leaf production in Anambra state.

**Methodology**

The study used descriptive survey design and was aimed at determining the work skill improvement need of women farmers in bitter leaf production for job creation and national development in Anambra State. A survey research design in the opinion of Ali (2006) is a descriptive study which uses a sample of a definite population of an investigation to document, describe and explain what is in existent or the present status of phenomena investigated. The population of the study consisted of all women who are bitter leaf farmers in Anambra State, a purposive sample of 207 was drawn from the study area consisting of 198 women bitter leaf farmers and four (4)Agricultural education lecturers from the department of agricultural education Nwafor Orizu College of Education Nsugbe and five (5) Agriculture lecturers from Federal College of Education Technical Umunze. Azuka (2011) stated that purposive sampling is a sampling method in which elements are chosen based on the purpose of the study. A structured questionnaire consisting of 40 work skills cluster was developed and used for data collection. The questionnaire was divided into two components of skills needed and skills performed. The needed skills was assigned four point response option of highly needed (4) Average needed (3) slightly needed (2) and not needed (1) while the skills performed component was also assigned a four point response scale of high performance (HP), average performance (AV) low performance(LP) and No performance (NP) with corresponding values of 4, 3, 2 I respectively. The agricultural science lecturers responded to the skill needed component while women bitter leaf farmers responded to the performed skill component.

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Four experts from Anambra State ADP validated the instrument; their correction and suggestion were used to produce the final copy of the instrument used for data collection. The reliability of the instrument was sought using Cronbach alpha method. A reliability co-efficient of 0.81 was obtained. Three research assistances who were trained for the job were used to administer the research instrument to the respondents in the study area. Two hundred and seven (207) copies of the questionnaire were administered on the respondents but only 204 copies of the questionnaire were retrieved and analysed using percentage, mean, standard deviation, Improvement Need Index (INI) and t-test.

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To determine the improvement need of women bitter leaf farmers, the Improvement Need Index developed by Olaitan and Ndomi (2000) were employed as follows

1. The weighted mean of each item under skills needed component (x) was calculated
2. The weighted mean of each item under the skills performed component (x) was calculated.
3. The difference between the two weighted means for each items (Xn – Xp = NG) was also calculated for each item

**Decision Rule**

1. Where the difference (NG) was zero (O), there was no need for improvement because the level at which the skill is needed was equal to the level at which the women farmers could perform the skill.
2. Where the difference (NG) was negative (-) for any item it means that improvement was not needed because the level at which the skill was needed was lower than the level at which the women farmers could perform the skill

Where the (NG) was positive for any item, it means that improvement was needed because the level at which the skill item was needed was higher than the level at which the women farmers could perform the skill.

**Results**

The result of this was obtained from the research questions and the hypothesis tested:

**Research Question 1:** What are the planning skill improvement needs of women farmers in the bitter leaf production in Anambra state?

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**Table 1:** *Need Gap Analysis of mean rating of the responses on planning skill improvement needs of women farmers in bitter leaf production (n=204)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sno | Items | Xn | Xp | Xn-Xp (NG) | Remark |
|  | **Planning Skills: The ability to** |  |  |  |  |
| 1 | Set goals for bitter leaf production | 2.89 | 2.81 | 0.08 | IN |
| 2 | Locate site for planting bitter leaf | 3.11 | 2.40 | 0.71 | IN |
| 3 | Secure loan | 2.56 | 2.33 | 0.23 | IN |
| 4 | Survey the land for planting | 2.78 | 2.08 | 0.70 | IN |
| 5 | Clear the vegetation on the land | 3.44 | 3.11 | 0.33 | IN |
| 6 | Till the trees and carry-out stumping | 2.78 | 1.98 | 0.80 | IN |
| 7 | Remove the debris | 3.00 | 2.86 | 0.14 | IN |
| 8 | Fertilize the soil with organic matter | 3.22 | 2.33 | 0.89 | IN |
| 9 | Demarcate the land into plots (6m X 4m) | 2.67 | 2.12 | 0.55 | IN |
| 10 | Carry out soil tillage | 3.22 | 2.29 | 0.93 | IN |
| 11 | Acquire the bitter leaf stem | 2.67 | 2.60 | 0.07 | IN |
| 12 | Acquire processing and storage facilities | 2.89 | 1.73 | 1.16 | IN |
| 13 | Locate unskilled labourers | 2.78 | 2.33 | 0.45 | IN |

Xn= mean of needed; Xp = mean of performance; NG = Need Gap; n= number of respondents; IN = Improvement needed.

Results in Table 1 revealed that all the 13 items on planning skill improvement need of women farmers in bitter leaf production had need gap from 0.07-1.16 and were positive. This indicated that women farmers could not perform the planning skills to the level needed. This implies that women farmers need retraining in all the planning skills in bitter leaf production in Anambra state for job creation and national development.

**Question 2:** What is the production skill improvements needed of women farmers in bitter leaf production in Anambra State?

**Table 2:** *Need Gap Analysis of mean rating of the responses on production skill improvement needs of women farmers in bitter leaf production (n=204)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sno | Items | Xn | Xp | Xn-Xp (NG) | Remark |
|  | **Production Skills: The ability to-** |  |  |  |  |
| 1 | Irrigate the soil for planting | 2.56 | 2.68 | -0.12 | INN |
| 2 | Cut the bitter leaf stem (25-30cm) for planting | 3.33 | 3.05 | 0.28 | IN |
| 3 | Apply the rooting powder | 2.67 | 2.22 | 0.45 | IN |
| 4 | Plant stem cutting at a spacing of 30-40cm X 30-60cm | 3.33 | 2.58 | 0.75 | IN |
| 5 | Weed bitter leaf garden with selective herbicides | 3.11 | 1.88 | 1.23 | IN |
| 6 | Apply fertilizer Nitrogenous fertilizer | 2.78 | 2.34 | 0.44 | IN |
| 7 | Control disease infestation | 2.56 | 2.38 | 0.18 | IN |
| 8 | Apply pesticide to kill pest | 3.22 | 1.90 | 1.32 | IN |
| 9 | Earthen up to improve root development | 2.67 | 2.85 | -0.18 | INN |
| 10 | Prune at 20-50 cm from the ground to encourage branching and bigger leaves  **-32 -**  ***Nwokoye, C. F. & Okeke, D.O*** | 2.89 | 2.75 | 0.14 | IN |
| 11 | Replace the plant when old | 2.44 | 2.90 | -0.46 | INN |
| 12 | Harvest bitter leaf by picking at 2-3weeks intetval | 3.00 | 2.87 | 0.13 | IN |
| 13 | Bale the leaves in bundles | 2.56 | 2.66 | -0.10 | INN |
| 14 | Sprinkle water on leaves to keep fresh | 2.67 | 2.94 | -0.27 | INN |
| 15 | Store the leaf bundles on a cool dry place in upright position | 2.89 | 2.69 | 0.20 | IN |
| 16 | Process bitter leaf | 3.22 | 2.35 | 0.87 | IN |
| 17 | Dry the processed bitter leaf | 2.78 | 2.57 | 0.21 | IN |
| 18 | Keep production records | 3.22 | 2.78 | 0.44 | IN |

Xn= mean of needed; Xp = mean of performance; NG = Need Gap; n= number of respondents; IN = Improvement needed; INN = Improvement not needed

Data in table 2 shows that 13 out of 18 items on production skills had their need gap values ranging from 0.13 – 1.32 and were positive. This is indicative that the women farmers could not perform these production skills to the level needed for effective bitter leaf production for job creation and national development. This result indicates that the women farmers need retraining in these 13 production skills for effective bitter leaf production.

On the other hand, 5 production skills had negative need gap value which ranged from -0.46 to -0.10. this implies that the 5 items on production skills were being performed to the level needed for bitter leaf production by the women farmers in Anambra state and therefore does not need retraining.

But it is imperative to give a holistic retraining to women farmers on all the production to ensure effective bitter leaf production for job creation, poverty alleviation and national development.

**Question 3:** What are the marketing skills improvement need of women farmers in bitter leaf production in Anambra State?

**Table 3:** *Need Gap Analysis of mean rating of the responses on marketing skill improvement needs of women farmers in bitter leaf production (n=204)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sno | Items | Xn | Xp | Xn-Xp (NG) | Remark |
|  | **Marketing Skills: The ability to** |  |  |  |  |
| 1 | Set marketing goals | 2.89 | 1.96 | 0.93 | IN |
| 2 | Process and package bitter leaf chlorophyll juice | 2.78 | 2.22 | 0.56 | IN |
| 3 | Package processed bitter leaf | 3.00 | 2.40 | 0.60 | IN |
| 4 | Advertise bitter leaf product | 2.44 | 2.82 | -0.38 | INN |
| 5 | Identify local market link | 2.33 | 2.69 | -0.36 | INN |
| 6 | Identify export market link | 2.67 | 1.88 | 0.79 | IN |
| 7 | Conclude sales | 3.11 | 2.69 | 0.42 | IN |
| 8 | Keep record of sales | 3.00 | 2.39 | 0.61 | IN |
| 9 | Calculate profit and loss account | 2.89 | 1.31 | 1.58 | IN |

Xn= mean of needed; Xp = mean of performance; NG = Need Gap; n= number of respondents; IN = Improvement needed; INN = Improvement not Needed

Table 3 indicates that 7 out of 9 marketing skill items had positive need gap values ranging from 0.36-1.58. This shows that the 7 items were not being performed to the needed level by the women farmers for bitter leaf production. The implication is that women farmers need re-training in 7 out of 9 marketing skills for bitter leaf production and marketing. However, 2 out of 9 items on marketing skills had negative need performance gap values of -0.38 to -0.36. This indicates that the women farmers could perform the items greater than the level needed for marketing bitter leaf in Anambra State and therefore do not need retraining in the two items on marketing skills for bitter leaf production in Anambra state.

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Generally, women farmers need to be retrained in all the marketing skills needed for bitter leaf production as no skill can be practiced in isolation.

**Table 4:** Need gap analysis of mean rating of the responses on marketing skills improvement need of rural and urban women farmers in bitter leaf production in Anambra State (n=195)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S/N | Items | XPR | SD(R) | XPU | SD(U) |
|  | **Marketing Skills: The ability to-** |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1 | Set marketing goals | 1.87 | 0.90 | 2.13 | 1.04 |
| 2 | Process and package bitter leaf chlorophyll juice | 2.09 | 1.00 | 2.47 | 1.08 |
| 3 | Package processed bitter leaf | 2.27 | 1.04 | 2.65 | 1.67 |
| 4 | Advertise bitter leaf product | 2.67 | 0.96 | 3.09 | 0.93 |
| 5 | Identify local market link | 2.68 | 1.03 | 2.42 | 1.23 |
| 6 | Identify export market link | 1.76 | 0.91 | 2.12 | 1.11 |
| 7 | Conclude sales | 2.52 | 1.09 | 3.02 | 1.08 |
| 8 | Keep record of sales | 2.23 | 1.O2 | 2.42 | 1.15 |
| 9 | Calculate profit and loss account | 1.56 | 0.67 | 1.74 | 0.76 |
|  | **GRAND TOTAL** | **2.18** | **0.96** | **2.45** | **1.05** |

XPR = mean of performance (Rural); SD(R)= Standard Deviation (Rural); XPU = mean of performance (Urban); SD(U)= Standard Deviation (Urban)

Table 4 indicated the need gap analysis of mean rating of rural women farmers ranged from 1.56 to 2.68 with a grand mean of 2.18. The standard deviation ranged from 0.67 to 1.09. On the other hand, the urban counterpart had their grand mean value of 2.45 and the standard deviation ranged from 0.76-1.23. This indicates that the responses are closely related.

**Hypothesis 1:**

**Ho1:** There is no significant difference between the response of rural and urban women farmers on the marketing skill improvement of needs of women farmers in bitter leaf production in Anambra state.

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**Table 5:** T-test analysis of the mean responses of rural and urban women farmer on the marketing skills improvement need of women farmers in bitter leaf production in Anambra State.

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|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Location | N | Mean | SD | t-cal | t-tab | Remark |
| Rural | 129 | 2.18 | 0.96 |  |  |  |
|  |  |  |  | 1.2630 | 1.960 | **Accept** |
| Urban | 66 | 2.45 | 1.05 |  |  |  |

Result in Table 5 shows that t-cal (1.26) is less than the t-tab 1.96 which indicates that null hypothesis is accepted that there is no significant difference between the response of rural and urban women farmers on the marketing skill improvement needs of women farmers in bitter leaf production in Anambra state.

**Discussion of Results**

The results of the study revealed that women farmers need retraining in all the 13 planning skills, 13 production skills and 7 marketing skills in bitter leaf production in Anambra state. This result is in agreement with the report of Eze and Adeyemi (2012) on work skill improvement needs of women farmers in bitter leaf production for sustainable income in Abakiliki, Nigeria. It indicated that women farmers needed improvement in 10 works skill in nursery preparation, 13 work skills in pre-planting and planting and 16 work skills in post planting and post harvest operation in bitter leaf production. The result is also in line the findings of Olaitan, Alawa and Ekong (2009) in study on Capacity building needs of farmers in improving soil nutrients for enhancing crop production in Cross River, Nigeria.

The authors found out that farmers required capacity building on 58 skill areas in soil testing and analysis, manure and manuring and fertilizer application in improving soil nutrients to enhance crop production. The result is related to the findings of Asogwa, Dumbiri and Omeje (2010) in a study on competency improvement need of okra farmers for commercial production to enhance income in Enugu State, where it was found out that okra farmers in Enugu state needed capacity building in 10 competencies in planning, 16 competencies in pre-planting and 10 competencies in post planting and post harvesting in Enugu State.

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The result is also in tandem with the findings of Asogwa, Olaitan and Asouzu (2010) in a study on quality assurance of women in Agriculture in processing Bambara groundnut unto *‘Okpa’* in Anambra State where it was found out that the quality assurance of women in agriculture in processing bambara to ‘*okpa’* was average; and that the women needed empowerment on competencies required in processing nuts into floor and preparing *‘Okpa’* from floor. The findings of the authors cited above help to validate the findings of this study.

**Conclusion**

The study assessed the work skill improvement need of women farmers in bitter leaf production in Anambra state. The perception is that bitter leaf is planted as a backyard vegetable crop at a subsistence level. Bitter leaf is not commonly commercialized in the study area resulting in a very low output. The nutritional, medicinal, economic benefits and the recent export opportunity for bitter leaf products necessitates that work skill improvement need of women farmers be determined to enhance commercial production of bitter leaf. The study revealed that women need improvement in 13 planning skills, 13 production skills and 7 marketing skills in bitter leaf production for effective bitter leaf production for job creation and national development.

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**Recommendations**

1. In line with the findings of the study, it was recommended that:
2. The identified skills should be incorporated into the secondary school curriculum.
3. The identified skill should be used to retrain women, retirees, civil servants through workshops and seminars,
4. Government establishments and corporate institutions should embark on extensive bitter leaf production
5. The government should provide production incentives to women farmers in form of grants, loan, subsidies, and credit facilities for bitter leaf production.
6. Indigenous technology should be improvised for the processing of bitter leaf products.

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**STUDENTS’ PERCEPTION ON RELEVANCE OF STUDENTS’ INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES) FOR CAPACITY BUILDING OF VOCATIONAL HOME ECONOMICS STUDENTS**

**BY**

**UNOMAH ELIZABETH NGOZI (Ph.D.)**

***Abstract***

*The study focused on student’s perception of the relevance of Students’ Industrial Work Experience Scheme (SIWES) to Vocational Home Economic student’s capacity building. The study adopted the survey design and was guided by five research questions. The entire population was 120 students from four tertiary institutions. Entire population was used the study because of the size. A 25-item structured questionnaire with four options scale of Strongly Agreed, Agreed, Disagreed and Strongly Disagreed was used for data collection. Data were analysed using means. The study found out that SIWES is beneficial to Vocational Home Economics Students SIWES collaboration with vocational education enhances skill acquisition and knowledge development for capacity building. However, the study also revealed some problems. Based on the findings the study recommended among others that SIWES duration should be extended to one year for all progammes as against six months. All establishments should be made to pay some allowances to the students during SIWES to encourage them to stay for the length of time needed to train them for capacity building.*

**Introduction**

Education has been identified as a tool for socio-economic development and technological advancement in any society. This is why many countries invest heavily on education and gear the educational programmes towards the attainment of the needs of their society. Consequently, education is to serve as an instrument to equip the citizens with knowledge, attitudes, values skills and competence towards building a stable and economically strong society that will guarantee the individual’s well being. For this to be achieved, education must focus on capacity building of individuals and groups. Capacity building can be defined as a method of holding individuals to develop and strengthen their skills, instincts, abilities processes and resources that are needed by organizations and communities to survive, adapt and thrive in the fast growing world. Chukwu (2009) defined it as skills development and knowledge needed by groups in order to participate well in the labour market. The surest way of attaining capacity building is through vocational education in collaboration with Students Industrial Work Experience Scheme (SIWES) programme.

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Vocational Education as defined by Olaitan (1994) and Clement (2007) in Anero (2013) is that education that provides the recipient with the basic knowledge and practical skills needed for entry into any occupation. Uwaneze and Okafor (2013) also defined vocational and technical education as the study of technical and related science and acquisition of practical skills, attitudes and knowledge relating to occupation in the various sectors of the economy and social life. The National Policy on Education (FRN 2014) defined vocational education as that aspect of education which leads to the acquisition of practical and applied skills as well as basic scientific knowledge.

Vocational education is a learning process that is practically oriented and the learning outcomes are determined through the practice of what is taught and learnt. Hence vocational education programmes are designed to facilitate the development of success in any occupation.

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The importance of vocational and technical education as explained by Etokerren (2009) lies in the fact that it equips the youth with technical skills and managerial skills to manage human and material resources of their own business.. The nature of vocational education reveals that it encourages education for office occupation, teaching, business and entrepreneurship. Hence Vocational Home Economics curriculum at the tertiary level of education has focused on the teaching of knowledge and competencies for the maintenance of the well being of individual family and communities. Such competences are expected to equip Home Economics graduate with means of livelihood. The competencies include those practical skills required in vocational profession, self employment or knowledge needed in the retail and provision of services (Olaosebikan, 2011). Egbri and Chukwunedu (2013) on their part explained that Technical Vocational Education and Training is meant to prepare the learners with the right skills and values needed to be self employed or be employable in the world of work. However, there is an existing gap between what obtains in the classroom and what is needed in the world of work. In order to bridge this gap between theory and practical in the classroom with industrial skills, the Students Industrial Work Experience Scheme (SIWES) was established. Mafe (2010) stated that The Students Industrial Work Experience Scheme (SIWES) is a planned and supervised intervention programme based on stated and specific learning and career objectives, and geared towards developing the occupational competences of the participants. It is a programme required to be undertaken by all students of tertiary institutions in Nigeria pursuing courses in specialized area such as engineering, technical and business education Home Economics, applied sciences and applied arts.

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The Students Industrial Work Experience Scheme (SIWES) was established in 1974 by Industrial Training Fund (ITF) to provide industrial work experience among others. The principle underlying industrial work experience scheme for students is the desire to relate practical with theoretical learning which characterized conventional classroom situation, with a view to striking a balance between them (Duigna 2002) in Okoh (2010). Hence Students Industrial Work Experience Scheme is basically a co-operative arrangement between educational institutions and employers in business and industry aimed at bridging the gap between school and the real world of work. Okoro (1996) referred to the partnership between institutions and learning and industrial and business establishments as co-operative education. According to him, vocational education aims at preparing individuals for gainful employment, while the Student Industrial Work Experience (SIWES) aims at improving the quality of vocational education by providing occupational experiences to complement the theoretical and practical experiences received in school. Okoro (1996) further stated that the co-operative vocational experience programmes have as their central suppose the development of educational competence, using employment in the real jobs as sources of learning.

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The collaboration between formal education and industrial sector, according to Onyesom and Onagite (2013) help to create enabling environment for students to acquire hands on experience, knowledge, skills and appropriate attitude to work. To further explain the need for this collaborative education, Mafe (2010) noted that there are two basic forms of learning – education and training – both of which are indispensable to the productive world of work and the functioning of the society. He explained that theoretical knowledge alone would not usually prepare an educated person for the world of work. A worker or productive individual must not only be knowledgeable but must also be versatile in the application of skills to perform defined jobs or work. Therefore the need to combine theoretical knowledge with practical skills in order to produce results in the form of goods and services or to be productive is the essence and rational for industrial training. In context of this study, co-operative, partnership and collaborative are used interchangeably.

Perception is defined by the dictionary as the process of using Senses to acquire information about environment or situation. This has to do with the attitude or the understanding of what is thought or observed. According to Okoye and Chris-Abey (2015), the concept has to do with our disposition to issues or ideas. From observation, students believe that exposure to SIWES is very beneficial to them, because it enhances skill development, academic performance, as well as increases their chances of employment after graduation.

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However, the students encounter many challenges, during SIWES programme Ubale (2014), identified some of the problems to include: duration for training which is inadequate for acquisition of meaningful skills, students reporting later at their places of assignment due to inability to secure the right places of attachment as well as rejection of students by some organizations. Furthermore, students arrange for their own accommodation which must be convenient for them. This may also pose a problem to them because of the financial implication. This can result in students finding themselves in places other than what they wanted. Lastly, some of the industry based supervisors may be hostile to the students and may not be ready to help the students to learn. Considering all these challenges, it may be necessary to ask whether SIWES is actually meeting up with the task of helping students to develop their capacity for vocational Home Economics

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**The objectives of SIWES as stated by Afolabi (2009) include:**

1. To provide avenue for students to acquire industrial skill and experience in their course of study.
2. To expose students to methods and techniques in handling equipment and machinery that may not be available in their institutions.
3. To expose and prepare students for industrial work situations they are to meet after graduation.

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1. To make the transition from school to the world of work easier and enhance students/contacts for later job placement.
2. Provide students with opportunity to apply their knowledge in real work situation, thereby bridging the gap between theory and practice.
3. Enlist and strengthen employer’s involvement in the entire educational process and prepare students for employment in industry and commerce.
4. To prepare the students for a business career by merging their analytical power with self reliance, thereby help them develop entrepreneurship skills.

In order to be successful, students in Vocational Education (Home Economics inclusive) need actual work experience or on the job training in real work environment. This will enable them learn how to apply theories learnt in the classroom to real life situation.

**Statement of the Problem**

In our institutions of higher learning tremendous time is spent on theories at the expense of teaching practical skills. This is as a result of lack of teaching materials and facilities needed to help students develop the necessary skills needed in industries. Okoh (2001) observed that there is lack of practical skills among graduate of Nigerian institutions of higher learning. This situation has given rise to complaints, among parents and industries, that graduates of our tertiary institutions are half-groomed, lack manipulative skills and not employable (Odu, 2010). Hence, there is a gap between what students are exposed to in the classroom situation and what is actually obtainable in the industrial sector.

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To bridge the gap between school and industry, the Industrial Training Fund (ITF) was set up by the federal government and was given the responsibility of the Students Industrial Work Experience Scheme (SIWES). The duration of this programme differ in terms of type of institution and the student’s course of study. It is assumed that at the end of the programme, the training received by the students shall have infused into them the necessary skills they need for capacity building. According to Mafe (2010), the major benefit accruing to students who conscientiously participate in industrial training are the skills and competencies they acquire. These skills remain as lifelong assets. He also stated that knowledge and skills acquired through training are internalized and become relevant when required to perform jobs or functions. However, it appears that some of the students cannot demonstrate the skills acquired through SIWES. This is contrary to what is expected of the students after the programme. This development poses a problem to capacity building of students in Home Economics. The question here is: Is SIWES actually exposing the students to acquire the needed skills for capacity building? Therefore, the concern of this study is to ascertain whether SIWES is meeting its mandate of providing the necessary skills needed for student’s development and capacity building or to find out how beneficial the SIWES programme is to the students in their development and capacity building.

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**Purpose of the Study**

The major objective of this study is to examine students’ view on the relevance of SIWES programme to capacity building of student of vocational home economics. Specifically the paper wants to:

1. Determine how beneficial SIWES exposure is to practical skills development of students.
2. Ascertain if duration of SIWES programme affects the depth of the skills acquired by students.
3. Examine how far the SIWES programme has helped students in understanding concepts used in their course of study.
4. To ascertain the competence of the co-operating organizations in the provision of training and supervision of students.
5. Determine if SIWES has relationship with their choice of job.

**Research Questions**

The following research questions were formulated:

1. How beneficial is SIWES exposure to practical skills develop of student?
2. What effect does duration of SIWES programme have on the depth of skills acquired?
3. How does exposure to SIWES help students understand the concept used in their course of study?
4. How competent are the organizations where students had their training in terms of facilities and personnel.
5. What is the relationship between exposure to SIWES and job opportunities for the students?

**Research Design**

The study adopted a descriptive survey design, employing the use of questionnaire.

**Area of Study**

The study was carried out in all the four institutions of higher learning in Delta State offering Vocational Home Economics. These four institutions are owned by the Delta State government. These institutions are Delta State University, Abraka, College of Education, Agbor, College of Education Warri and College of Physical Education Mosogar. The study covered all the 120 final year Home Economics students in these four tertiary institutions who have completed their industrial training. The entire population was studied because of the small size. On the whole the sample size was one hundred and twenty (120) respondents.

**Instrument for Data Collection**

Structured questionnaire was developed to elicit information from the respondents. The instrument sought information on the relevance of SIWES to skill acquisition of students in tertiary institutions. The instrument is made of 25 items with four options of Strongly Agree (4), Agree (3), Disagree (2) and Strongly Disagree (1)

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Table 1: Populations Distribution According to Institution

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Tertiary Institution** | **No of Final Year Students Sampled** | **% of Respondents** |
| 1. | Delta State University, Abraka | 63 | 53 |
| 2. | College of Education, Agbor | 29 | 24 |
| 3. | College of Education Warri | 17 | 14 |
| 4. | College of Physical Education, Mosogar | 11 | 9 |
|  | **Total** | **120** | **100** |

**Validity of the Instrument**

The instrument was validated by three experts from the Department of Vocational Education, Delta State University, Abraka.

**Reliability of the Instrument**

The reliability of the instrument was determined by using 30 students from one of the colleges not involved in the study. Through the use of split half and Pearson Product Moment

Correction method reliability co-efficient of 0.75 was obtained. This was considered appropriate.

**Data Collection and Analysis**

Copies of questionnaire were administered to the respondents and their responses were analysed using mean scores. A mean score of 2.50 and above confirmed agreement; while a mean score below 2.50 means disagree for decision rule.

**Findings and Discussion**

**Research Question1**

How is exposure to SIWES beneficial to Skills Development of Students?

Table 2: Mean Responses of Students on SIWES Exposure and Skill Development

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Item** | **Mean** | **Remark** |
| 1. | SIWES exposure helps us develop more interest in practical activities in laboratory | 2.83 | Agreed |
| 2. | The ways of handling equipment and materials are enhanced after SIWES exposure | 3.0 | Agreed |
| 3. | Laboratory performance improves after SIWES exposure | 3.08 | Agreed |
| 4. | Students are exposed to better ways of doing things | 3.66 | Agreed |
| 5 | Laboratory procedure tend to be more difficult after SIWES exposure | 1.83 | Disagreed |

The data presented in Table 2 showed that the students perceived SIWES exposure as an exercise that helps one develop interest in practical activities in the laboratory. The

respondents also agreed that SIWES enhances ways of handling equipment and materials in the laboratory. This implies that SIWES is very relevant to the students’ skill acquisition.

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**Research Question 2**

What effect does duration of SIWES programme have depth of skills acquired?

Table 3: Mean Response of Students on SIWES Duration and Depth of Skill Acquisition

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Item** | **Mean** | **Remark** |
| 1. | There is no relationship between SIWES duration and skill acquired | 1.83 | Disagreed |
| 2. | Skill acquired will be better if SIWES duration is increased | 3.08 | Agreed |
| 3. | The experience of SIWES will remain the same even if the time is not increased | 1.91 | Disagreed |
| 4. | No amount of time allocated will enhance skill acquisition | 2.16 | Disagreed |
| 5 | Students performance in the class will be better for students who spend more time in SIWES than those who spent shorter time | 2.83 | Agreed |

Table 3 showed that students did not agree that length of time spent on SIWES programme does not have relationship with the depth of skill acquired. It was agreed that their performance in the classroom will be better if more time is spent on SIWES programme. This implies that

with increase in time more skills will be acquired. This means that time spent on SIWES programme is not enough.

**Research Question 3**

How does exposure to SIWES help students understand the concept, used in their course of study?

Table 4: Mean Responses of Students SIWES Exposure and Understanding of Concept

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Item** | **Mean** | **Remark** |
| 1. | SIWES experience makes teaching of concepts in related course easier | 3.5 | Agreed |
| 2. | Concepts used in classroom are different from those used in the industries | 1.75 | Disagreed |
| 3. | SIWES exposure concretizes abstract concepts and makes learning more meaningful. | 3.58 | Agreed |
| 4. | SIWES does not make learning concrete | 1.83 | Disagreed |
| 5 | Students exposed to SIWES cannot perform better in classroom learning than those who lack the experience. | 1.91 | Disagreed |

Table 4 showed that students attested to the fact that SIWES exposure concretizes abstract concepts used in the classroom. The Table also showed that the students agreed that the concepts used in the industries are similar to those used in the classroom. The implication in that there is a close relationship between SIWES and what obtains in the classroom.

**Research Question 4**

How competent are the organizations where students had their training in terms of facilities and equipment?

Table 5: Mean responses of students competencies of personnel and equipment

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|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Item** | **Mean** | **Remark** |
| 1. | SIWES placement had adequate personnel who were involved in the training of the students | 2.83 | Agreed |
| 2. | Students were adequately supervised by the both the industrial based and institution based supervisors. | 2.91 | Agreed |
| 3. | Students were posted to work in almost all the sectors in their place of SIWES | 1.75 | Disagreed |
| 4. | The place of SIWES had adequate modern facilities | 3.40 | Agreed |
| 5 | Students were given unhindered access to some of the facilities | 1.83 | Disagreed |

The data in table 5 showed that the students were adequately supervised by both industry and institution based supervisors. It also showed that the SIWES establishments were adequately staffed to provide the necessary training required by the students. It also showed that though their place of SIWES had adequate modern facilities, they were not allowed access to some of them.

**Research Question 5**

What is the relationship between Exposure to SIWES and Job Opportunities for the students?

Table 6: Mean responses on SIWES exposure and job opportunity

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Item** | **Mean** | **Remark** |
| 1. | Exposure to SIWES increases students chances for employment | 3.41 | Agreed |
| 2. | SIWES exposure cannot influence career choices of students | 1.87 | Disagreed |
| 3. | SIWES exposure can be an added advantage for employment opportunities | 3.75 | Agreed |
| 4. | Experience in SIWES exposure students to organizational routine | 3.66 | Agreed |
| 5 | Exposure to SIWES help students to appreciate their career choices | 3.5 | Agreed |

The findings showed that in Table 6, the students responses showed that exposure to SIWES increases students chances of career also showed that SIWES can influence employment opportunities for students. The students also agreed that it improves their curriculum vitae and this places them at a better chance of gaining employment.

**Discussion**

From the analysis of data all the students agreed that SIWES experience in very relevant to capacity building since it helps to develop interest in practical activities in laboratory. They also agreed that SIWES experience exposes them to acquiring marketable skills by giving them opportunities to handle materials and equipment in their place of SIWES.

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The result showed that the students agreed that SIWES that experience makes abstract concepts used in the classroom concrete. This implies that exposure to SIWES makes for better understanding in the classroom situation. This agreed with the findings of   
Okoro (1996) who stated that SIWES aims at improving the quality of vocational education by providing occupational experiences to complement the theoretical and practical experiences received in school. Okoh (2010) also stated that SIWES is aimed at bridging the gap between school and the world of work.

From the findings some of the students agreed that their places of SIWES had modern facilities and equipment. They also agreed that they had competent staff who undertook their training using those facilities. However, some disagree that they were not allowed to have access to some of the facilities. This is not good for the skill development, of these students. The federal government through ITF should make it mandatory for employers of labour to accept certain number of students for SIWES. This will help all students have access to all the facilities needed to develop their skills.

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In addition, the students are also of the view that SIWES duration is short. They expressed their minds on the advantage of extension of SIWES period as it will enable them acquire more skills for capacity building.

Finally, the students agreed that exposure to SIWES creates opportunity for career choices. This agrees with the view of Mafe (2010) who pointed out that SIWES is a planned and supervised intervention programme based on stated, specific learning and career objectives geared towards the occupational competencies of the participants.

**Conclusion**

SIWES is a school-industry partnership programme. Based on the findings of this study, SIWES is relevant to capacity building of vocational Home Economics students. Students exposure to SIWES, is a deliberate effort towards improving the students level of knowledge, skills and attitudes required for carrying out specific activities in a given task. Skill acquired by these students during SIWES will enhance their knowledge and change their behaviour towards the work assigned to them. Hence SIWES is relevant to students’ capacity building for the present and future engagements.

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**Recommendations**

1. Government should enact laws that will make it compulsory for all involved in SIWES to allow their students have a feel of all departments in their establishment so as to enhance their experience.
2. The SIWES duration should be extended to one year as it makes room for better learning.
3. All establishments organizing SIWES programme should be made to pay some allowances to the students. This will go a long way to boosting the moral of the students and sustain their interest in the training programme.

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**TVET PARTNERSHIP AND PROFITABILITY OF SMALL SCALE BUSINESS IN AKWA IBOM STATE; A PANACEA FOR ECONOMIC GROWTH**

**BY**

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***Abstract***

*The purpose of this investigation was to examine the influence of TVET Partnership on Profitability of Small Scale Businesses in Akwa Ibom State, Nigeria. Two research questions and two null hypotheses were raised to guide the study. An experimental design was adopted for the study. The researcher structured questionnaire titled: TVET Partnership and Profitability Questionnaires” (TVEPPQ) and the financial statements of the firms were used to generate data for the study. A simple random sampling technique was used to select a sample size of 150 small scale business operators in Akwa Ibom State. Test-retest method was used to determine the reliability of the study with r-values of 85 and 87 respectively. Mean and Standard Deviation were used to answer the research questions while the independent t-test was used to test the null hypotheses. It was discovered that firms who combine the skills of personnels from various areas of Vocational Education do perform significantly in the areas of profitability, customers patronage and investments than firms pooling all their human resources from a specialized area of TVET. It was recommended among others that small scale firms should organize their core human resources to reflect the core areas of TVET for improved performance and productivity.*

***Key Words:*** *Partnership, Profitability, Technical and Vocational Education and Training (TVET)*

**Introduction**

It is often believed that two good heads are better than one. This is often true when it comes to successful management of every business operation. The goal of vocational business Education is to ensure that the right types of skills, attitudes and values are imparted to the recipient of the program in order to successfully manage any type of business ventures they would like to be interested in. According to Ezeani and Urama (2014), it is the role of vocational education to among others impact the right types of skills for the survival of businesses in the economy. This includes but not limited to the business skills, but technical, Agricultural, Nursing and other entrepreneurial skills to its recipients for outright successful operation of the business enterprises in the economy.

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In recent times, a more feasible approach to conducting any successful business venture is through partnership. Partnership was defined by Bassey (2005) as any legal form of business operation between two or more individuals who share management and profit. According to Samuel (2015), a partnership is any type of business organization in which two or more individuals pool money, skills and other resources and share profit and loss in accordance with terms of the partnerships agreement. In absence of such agreement, a partnership is assumed to exist where the participants in an enterprise agree to share the associated risks and rewards proportionately.

Partnership can be applied in any form or venture in order to make the result more rewarding. According to Stanley (2010) Technical and Vocational Education and Training (TVET) practicability has always been a stand-alone thereby resulting to lower productivity and a huge decease in the capability to reduce unemployment and other social vices associated with unemployment.

***Charity, F.I. & Abasiene, S.B.***

Partnership in Technical and Vocational Education and Training (TVET) was classified by Bassey (2014) into horizontal and vertical partnership. The Horizontal TVET partnership exists when two or more personnel from a specific area of TVET come together to pool resources to form a business venture. Example is when two or more computer educators come together to establish a business venture with the sole purpose of making profits to be shared according to a set agreement. On the other hand the vertical TVET partnership exists when two or more personnel from different areas of TVET come together to pool resources with the aim of profit making to be shared accordingly. Example in this case exist when a Accountant, an Agricultural Business personnel, an auto-mechanic and an electrician contribute resources to form business with the aim of pooling a greater amount of resources and at the same time getting a huge amount of profits to be shared according to their perceived agreement .

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The ability of this perceived partnership to blossom depends to a great extent on the level of vocational education and training received by the partners according to their specific areas. It is quite obvious that education is the key to increased productivity. In line with this view, Okolocha (2006) stated that technical and Vocational Education and Training is the bedrock of sustainable development of any nation. Vocational Education is defined by the National Teachers Institute (NTI; 2008) as the type of education that involves the use of the right instructional devices, methods, techniques and knowledge for developing skills. Similarly, the Federal Republic of Nigeria (2013) defined technical education as that aspect of education that leads to the acquisition of practical and applied skills as well as basic scientific knowledge. Technical education to UNESCO (2002), is that form of education which begins with a broad based which facilitates horizontal and vertical articulation within the education system and between school and the world of work, thus, contributing to the elimination of all forms of discrimination.

According to Bassey (2014), TVET partnership is a profitable venture that can bring a boost in the profit making of firms. Profit is determined in small scale firms by deducting all expenses from all receivable revenues. In Accounting Parlance, Net Profit is determined by deducting expenses from Gross Profit. Profit making to Samuel (2015), is the primary purpose of firms engaging into whatever businesses they are in. Several firms to Bassey (2005) have collapsed due to the inability of not meeting up their profit maximization objectives.

Profits are usually expressed in the monetary value of the country where the business is undertaken. Profits are usually classified into Gross and Net Profit. Gross profit can be defined by Samuel (2015) as a form of profit garnered by firms at the point of trading without considering the firms expenses. Net profit is the true profit of the firm after deducting the expenses of the firm. It is seen as Gross profit less expenses. Net profit in this sense therefore, expresses the true profit-making ability of the firm. But profit making is as a result of improved customer’s base of the firm.

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Customer base according to Bassey (2014) refers to the number of people, clients and agents that patronizes the services or products of the organization. The customers are the basic reason why firms are in business. They represent the core stakeholders of the business enterprises; therefore, the products and services of the firm should be able to satisfy the wants of the customers. TVET vertical partnership would likely produce customer base having a singular wants or products. But vertical TVET partnerships involving personnel from different aspects of TVET areas would likely produce core customer base with diverse needs, wants and aspirations. Customers bases are usually done or compared using quantitative measures or revenue garnered at the year ended. This is usually achieved by comparing the accounting books for sales figures. It is on this background that this study on TVET partnership and profitability of small scale business is undertaken.

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**Statement of the Problem**

A closer look at the industrial status of Akwa Ibom State will reveal among others that the state is an industrially backward state owing to lower entrepreneurship, high rate of business failure, low rate of risk-taking among others. The high rate of business failure is often as a result of low capital formation poor skills, inflation low patronage and most importantly, low profitability due to a streamlined nature of business which often times are outwit by higher competitors leaving the unprepared business man to his peril.

This rate of business failure had tried to discourage other entrepreneurs from venturing into the business foray. The profit making ability of most of the existing enterprises has dwindled to a greater extent due to the vulnerability as a result of a streamlined type of business. It is against this shortcoming that this research work is carried out to determine the influence of TVET partnership on the profitability of small scale businesses in Akwa Ibom State, Nigeria.

**Purpose of the Study**

The main purpose of this study was to determine the influence of TVET partnership on the profitability of small scale Businesses in Akwa Ibom State. Specifically, the study was intended to:

1. Determine any difference existing in the profit-making of firms having vertical TVET partnership from those having a horizontal TVET partnership.
2. Determine any difference existing in the customer base of firms having vertical TVET partnership from those having a horizontal TVET partnership.

**Research Questions:**

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The following questions were asked by the researchers to guide they study.

1. What difference exists in the profit making of small scale businesses having vertical TVET partnership from small scale businesses having a horizontal TVET partnership?
2. What difference exists in the customer base of small scale businesses having vertical TVET partnership from small scale businesses having a horizontal TVET partnership?

**Null Hypotheses**

The following null hypotheses were formulated to guide the study at .05 level of significance;

1. There is no significant difference in the profit-making of small scale businesses having vertical TVET partnership from those having Horizontal TVET partnership.
2. There is no significant difference of the customers bases and investment of small scale businesses having vertical TVET from those having Horizontal TVET partnership.

**Methodology**

The study was conducted in Akwa Ibom State, South-South Nigeria. Akwa Ibom State is one of the 36 states of Nigeria with 31 Local Government Areas, with headquarters in Uyo. The major tribes of the people are Ibibio, Annang and Oron. The people of Akwa Ibom are predominantly farmers, civil servants, and few small scale businesses. It is based on the availability of limited numbers of registered small scale businesses to the state that prompted the researchers to undertake the study in Akwa Ibom State.

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An experimental design was adopted for this study. The researchers divided the business owners into two groups namely; the Horizontal (c) and Vertical (Ex). The horizontal group include the bringing together of businesses with a single line of operations, example; carpentary, welders, computer operators, retail and wholesaling, etc., while the vertical group (Ex) inoders bringing together of small scale business from different TVET areas of caterer combine with a computer operator, an Accountant with an advertiser, retailer with auto-mechanic, an agricultural business man and the Accountant, among others. This design was considered appropriate because the researchers were interested in finding the significant difference between the groups. The population consisted of all 240 small scale business registered with the Corporate Affairs Commission (CAC) as at 31st March, 2015. The Yaro-Yameni formular was used to select the sample size of 150 small scale business for the study.

The simple random sampling technique was used to select a sample size of 150 small scale business owners that was divided into the two (2) groups of 100 for the experimental and 50 for the control groups.

The researchers structured an questionnaire titled “TVET partnership and profit-making questionnaire “(TVET PPQ) and the firms financial statements (profit and loss Account and Balance Sheet as at 31st March, 2015 were used for the study. The instrument was face validated by three research experts in the department of Vocational Education, University of Uyo, Uyo. Comments and suggestions were finally incorporated into the final copy. The test-retest reliability method was used in determining the reliability of the instrument. An r-index of .85 and .87 were obtained for the two variables respectively. The researchers used mean (X) and standard deviation (SD) in answering the research question while the independent t-test was used to test the null hypotheses.

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**Result**

Table 1: Means (x) and Standard Deviation (SD) analysis of the difference between Horizontal (H) and Vertical (V) = N = 150

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Statements** | **SA** | **A** | **D** | **SD** | **X** | **SD** | **Decision** |
| 1. | TVET partnership attract more customers | 77  308 | 44  132 | 19  38 | 10  10 | 3.25 | 5.24 | A |
| 2. | TVET partnership always results to huge revenues than none TVET partnership | 90  360 | 50  150 | 10  20 | - | 3.53 | 4.14 | A |
| 3. | TVET partnership always bring about conflict due to differences in ideology | 70  280 | 50  150 | 15  30 | 15  15 | 3.16 | 3.8 | A |
| 4. | Cost per unit (CPU) in TVET partnership are low thereby encouraging more consumers for profit making. | 89  356 | 34  102 | 34  2102 | 19  38 | 8  8 | 3.36  3.71 | A |
| 5. | TVET partnership has made firms to have a clear-cut business plan for the future | 70  360 | 50  150 | 10  20 | -  - | 3.54 |  | A |

Grand mean 3.37 2.18

From the data v analysis in Table 1: It can be seen that all the items met and surpassed the mean rating of 2.50. This implies that there is a positive difference in the profit-making of

small scale businesses having horizontal and vertical TEVT partnership in Akwa Ibom State.

**Research Question 2**

What difference exists in the customer bases of small scale businesses having vertical TVET partnership from small scale businesses having a horizontal TVET partnership?

**Table 2:** Means (x) and Standard Deviation (SD) analysis of the difference between Horizontal (H) and Vertical (V) of the Customer base N = 150

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Statements** | **SA** | **A** | **D** | **SD** | **X** | **SD** | **Decision** |
| 1. | TVET partnership attract customers with diverse needs | 70  280 | 50  150 | 30  60 | -  - | 3.27 | 2.17 | A |
| 2. | Customers always have products from TVET partnership firms to patronize. | 70  360 | 60  180 | -  - | -  - | 3.6 | 2.21 | A |
| 3. | TVET partnership have products that usually well packaged for customers satisfaction | 100  400 | 40  120 | -  - | 10  10 | 3.53 | 2.09 | A |
| 4. | TVET partnership provides after-sales service for customers patronage. | 77  308 | 44  132 | 14  28 | 10  10 | 3.23 | 1.99 | A |
| 5. | TVET firms have more customer base than ordinary firms | 89  356 | 34  102 | 19  38 | 8  8 | 3.52 | 1.15 | A |

Grand Mean 3.42 1.27

From the data analysis in Table 2, it can be seen that all the items met and surpassed the mean rating of 2.50. This implies that there is a positive difference in the customers bases of

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small scale businesses having horizontal and vertical TEVT partnership in Akwa Ibom State.

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**Testing of Null Hypotheses**

**Ho1:** There is no significant difference in the profit-making of small scale businesses having vertical TVET partnership from those having Horizontal TVET partnership

**Table 3: T**-test Analysis of Differences between TEVT Partnership on Profit of small scale business in Akwa Ibom State N = 150

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **N** | **X** | **X** | **df** | **SD** | **t-cal** | **t-crit** | **Decision** |
| Vertical TEVT partnership | 100 | 1550 | 10.33 | 148 | 5.34 |  |  |  |
|  |  |  |  |  |  | 8.11 | 1.96 | S\* |
| Horizontal TEVT Partnership | 50 | 899 | 8.99 |  | 2.11 |  |  |  |

S\* = Significant at .05 alpha level

From the data analysis in Table 2 it can be seen that the t-cal-value of 8.11 was higher than the t-crit-value of 1.96, at degree of freedom of 148 and at .05 level of significance. Based on the above, the null hypothesis is rejected. Hence, there exist a significant difference in the profit-making of small scale business having horizontal TVET partnership and those having vertical TVET partnership.

**Ho2:** There is no significant difference in the customer base of small scale businesses having vertical TVET partnership from those having Horizontal TVET partnership.

**Table 4:** T-test Analysis of Differences between TEVT Partnership on Customers index N = 150

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables** | **N** | **X** | **X** | **SD** | **t-cal** | **df** | **t-crit** | **Decision** |
| Vertical TEVT partnership | 100 | 2519 | 4.14 |  |  | 148 |  |  |
|  |  |  |  |  | 3.14 |  | 1.96 | S\* |
| Horizontal TEVT Partnership | 50 | 416 | 4.16 | 2.01 |  |  |  |  |

S\* = Significant at .05 alpha level

From the data analysis in Table 3, it can be seen that the t-cal-value of 3.14 was higher than the t-crit-value of 1.96, at the degree of freedom of 148 and at .05 alpha level. Based on the forgoing, the null hypothesis is rejected. Hence, there exist a significant difference in the area of customer base between horizontal TVET partnership and vertical TVET partnership.

**Findings of the Study**

The following were the findings of the study:

1. There is a positive difference in the profit-making between small scale firms having horizontal TVET partnership and those having vertical partnership.

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1. There is a positive difference in the customer base between small scale firms having horizontal TVET partnership and those having vertical partnership.
2. There is a significant difference in the profit-making function between small scale business having horizontal TVET partnership and those having vertical partnership.
3. There is a significant difference in the customers base between small scale business having horizontal TEVT partnership and those having vertical partnership.

**Discussion of Findings**

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The data analysis in Table 3 indicated that there exist a significant difference in the profitability between the horizontal with vertical TVET partnership and the horizontal TVET partnership firms. The findings of the study had indicated that firms entering partnership with different area of technical and Vocational Education (TVET) do post a greater profit than those firms having only a specialized form of partnership involving only one aspect of TVET. The researchers discovered that the partnership involving an agricultural scientist, a business educator and an auto-mobile operator would yield a greater probability, greater investment, turnover, customer appreciation rate than a partnership that is composed of two or more partner from a single or straight line area of TVET.

The finding of this study agrees with Onwu (2005) who opined that a collaboration of idea from different perspectives is a pre-requisite for a successful joint venture business operation. In this regards, the partnership must reflect the different core areas for improved performances, in that if there is any shortage in the income flows from one avenue the other department may still continue to bring in more revenue to cover up in the central income flow.

**Conclusion**

This study had shown that partnership in TVET is a pre-requisite for improved performances for small scale businesses in Akwa Ibom State and beyond. The partnership discussed in this paper includes vertical partnership and horizontal partnership. The horizontal partnership is the coming together of different individuals from a particular TVET sector to form a common business with the purpose of sharing profit and loss according to their agreed ratios. On the other hand, the vertical partnership exist when two or more individuals from different TVET sector comes together to form a business with a view of making and sharing profits according to their prescribed ratios.

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**Recommendations**

Based on the findings and conclusion reached by the researchers, the following were recommended;

1. The Federal Government of Nigeria should increase the finding of TVET for increased productivity in order to reduce the level of unemployment in the society.
2. Managers of small scale businesses should endeavour to employ personnel from different TVET core areas and then diversity their operation and finance in order to maximize the huge potentials in the Nigerian market economy.
3. It is expected that graduates of vocational Education should teem-up together, pool resources and start a concrete business that would satisfy the demands of consumers in their locality.
4. The National Universities Commission (NUC) and the National Board for Technical Education (NBTE) should endeavour to include the concept of TVET partnership in TVET curriculum as a course or topic(s) in the undergraduate programme of TVET to complement the entrepreneurial spirits of the students upon graduation.

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***Arowolo, A.A, Abdulmalik, I.Y & Hosea, I.D***

**TEACHERS’ PERCEPTION ON THE USE OF SIMULATED WORK ENVIRONMENT FOR TRAINING OF AUTOMOBILE CRAFTSMEN IN THE TECHNICAL COLLEGES**

**BY**

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**Abstract**

*The study was designed to assess teachers’ perception on the use of simulated work environment for training of automobile craftsmen in the Technical Colleges. One-shot case study research design was employed because it allowed a single group to be treated after which changes could be measured. Automobile Diagnostic Simulation, a simulation developed for teaching petrol engine maintenance was used as a simulated work environment (SWE). Two specific purposes and research questions as well as two hypotheses were formulated to guide the study. The population for the study is made up of a total of 49 respondents who are Motor Vehicle Mechanics Work (MVMW) teachers from the six technical colleges in Lagos state and two technical colleges in Abuja (FCT). No sampling was carried out because the population size is manageable. A structured Questionnaire was used for data collection. The questionnaire sought to elicit information on the perceived usefulness and perceived ease of use of simulated work environment in training of automobile craftsmen in the Technical Colleges. The finding of the study showed that teachers perceive the automobile diagnostic simulation used as SWE as useful and easy to use. However, panning of image, diagnosis logic and repairs logic were rated as difficult to use. The study also found out that there is no significant difference in the perception of male and female teachers on the usefulness of SWE but the male perceived SWE to be easier to use than the female teachers. The study recommended that beyond provision of computers and internet facilities in the Technical Colleges, government and other non-governmental organisations should invest in development and provision of simulations relevant for training of craftsmen in the Technical Colleges. Deliberate opportunities should also be created to expose female teachers to trainings that would hone their skills in usage of simulation technologies.*

***Keywords:*** *Perceived usefulness (PU), Perceived ease of use (PEOU), Automobile Diagnostic Simulation, Simulated Work Environment (SWE), Technical Colleges, Automobile Craftsmen.*

**Introduction**

Demand for vehicles of higher fuel efficiency, smarter controls, advanced infotainment systems have increasingly made today's automobile run on incredibly complex technologies. These technological complexities are creating mounting challenges for automobile craftsmen. Savani (2014) noted that cars today are more of complex electronic machines than mechanical machines. For instance, the door lock apparatus, which used to be a small mechanical device, has now been replaced by the Electronic Passive Entry System (EPES) which comprised of electronic sensors, controllers, actuators, and advanced software algorithms that are much more complex. Akpakpavi (2014) also noted that as vehicle technology and maintenance processes are advancing, the problems facing automobile craftsmen have rather compounded. Although, the advancement in vehicle technology has led to better comfort and smarter controls for users, it has also compounded the skills required by automobile craftsmen for diagnosis and repairs of the automobile. Automobile craftsmen often referred to as mechanics in Nigeria are expected to be able to inspect, maintain and repair motor vehicles. The increase in the demand for these sophisticated automobiles has also increased the demand for skilled automobile craftsmen. However, the Technical Colleges play a strategic role in the training of automobile craftsmen in Nigeria.

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Technical colleges in Nigeria are regarded as principal vocational institutions producing craftsmen at the National Technical Certificate (NTC) level and master craftsmen at the Advanced National Technical Certificate (ANTC) level for various sectors of the economy. It offers various mechanical related trades among which are Motor Vehicle Mechanics Work (MVMW). MVMW trade in Nigeria technical colleges is designed to produce competent automobile craftsmen for Nigeria technological and industrial development. According to National Board for Technical Education (NBTE, 2007), automobile craftsmen are expected to test, diagnose, service and completely repair any fault on motor vehicle to manufacturer’s specification. However, this is far from the reality in Nigeria. Technical College graduates of MVMW have been observed to lack the requisite skills required for practice in the automobile industry. Udogu (2015) noted that the product of MVMW yet lack the required set of skills needed to undertake maintenance on the automobile engine. In the opinion of Jika (2010), the curriculum used in MVMW is not much of the problem, though there is a need to set up a system for periodic update of the curriculum. The author attributed the lack of skills of MVMW graduates to the use of old and obsolete technologies in the training of craftsmen. Agbata (2010) noted that if nothing is done to improve the quality of skill training given to students in the technical training institutions, the craftsmen needed to work on today's cars may have to be imported just as automobiles are imported into the country. Hence, the need to rethink how automobile craftsmen are trained in the Technical Colleges is imperative. In order to produce competent automobile craftsmen, the learning environment for training of the craftsmen must be similar to that obtainable in the industry.

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Producing automobile craftsmen fit to meet the demands of the industry can only be achieved when the learning environment in which they are trained is similar to what is obtainable in the industry. This is in line with the opinion of Okoro (1999) that effective vocational education can only be rendered where the training jobs are carried out the same way, with tools and machines as in the occupation itself. However, the learning environment provided in the Technical Colleges in Nigeria, is far from the reality of the work environment. Aduwa-Ogiegbaen and Iyamu (2005) found out that in Nigeria, chalkboard and text books continue to dominate classroom activities in most of the colleges in Nigeria. Oyenuga (2010) also noted that due to lack of appropriate training facilities in the Technical Colleges, teachers are forced to adopt the traditional talk-chalk method in teaching automobile operation or at best make do of obsolete technologies in teaching practical skills. The advent of computer simulation now affords training institutions the opportunity to provide a computer simulated replica of work environment. Tools, machine and work processes can all be simulated on a computer for classroom instruction.

Simulated Work Environment (SWE) is a computer based learning environment where the real work situation, events, processes or environment is recreated. Hartley (2006) defined computer simulations as a technology enabled environments created to facilitate learning through immersion, engagement, and adaptive surroundings that ultimately provide guidance and constructive feedback to the learner. Simulation has been defined by Gaba (2004) as replicating or amplifying real experiences with guided experiences, often immersive in nature. Fibson (1985) similarly highlights the essence of simulation as a replication of the essential aspects of reality so that reality can be better understood, controlled and practiced. Alessi and Trollip (2001) stressed that simulation provides the learner with the ability to interact with a model of a real world situation or activity. Vardis (1998) noted that Simulated Work Environment (SWE) offers many opportunities to learners that extend far beyond the traditional lecture, classroom, tutorial or laboratory setting. It has the potential to provide learners with an opportunity to take a new role, to learn by doing, to experiment, to take risks, to solve problems and to make decisions within a safe context that is as close as it is obtainable in the real workplace. For instance, in learning how to carry out repairs on an automobile engine, the students have to learn base on the cases reported by clients but in SWE, the teacher have control over the nature of problems or conditions presented to the student. This help to strengthen learning, in the sense that the students can learn in a logical sequence.

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A number of simulated work environment have been developed for training of automobile craftsmen. These simulated work environments ranges from fully immersive simulations capable of teaching complex automobile processes to non-immersive simulations. In this study, a SWE known as Automobile Diagnostic Simulation will be employed. The Automobile Diagnostic Simulation (ADS) is a SWE designed to teach basic diagnosis and repair processes of the petrol engine. The Simulation was developed by Arowolo and Ede (2016) for teaching petrol engine maintenance in the Technical Colleges. The simulation (ADS) developed by Arowolo and Ede (2016) have been trial tested on NTC II students of Technical Colleges in Abuja (FCT) was found to improve students’ achievement, interest, and skills in diagnosis and repairs of the petrol engine. Computer simulations have been found to be effective in improving students’ achievement, interest and learning of complex skills (Abd-el-aziz, 2013; Nwachukwu, 2006). However, with all of the lofty advantages of learning in a Simulated Work Environment (SWE), the perception of the Technical College teachers on SWE is critical to the effective implementation of SWE in training of automobile craftsmen in the Technical Colleges.

Perception of teachers on SWE is a strong determinant on the extent to which simulation would be deployed in the training of automobile craftsmen. Perception is closely related to attitudes. It is how people interpret situation or events from which they produce actions based on their perception. Bussey, Dormody, and VanLeeuwen (2000) stated that the strongest predictor of the level of adoption of technology in education is the perception of the teachers of the attributes of such technologies. Kyriacou (2010) also noted that teachers’ belief plays a vital role in the integration of computer simulations in the classroom. Teacher beliefs can be considered to be ‘the individual conceptions about desirable ways of teaching and conceptions about how students come to learn. According to Wheeler (2006), teachers have been polarised in their acceptance of simulation technologies in the teaching and learning process. Whilst some have enthusiastically integrated these technologies into the classroom, others have been cautious in their welcome, and some have simply rejected it. Successful implementation of simulated work environment in the training of automobile craftsmen depends on teachers being convinced of the relevance of such technology as a means of providing access to a richer range of resources for themselves and their students (Addom, 2004).

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Perception of teachers is a strong determinant for the adoption of SWE in the classroom. Teachers who demonstrate positive perceptions toward technology usage may be more likely to utilize technology for instructional delivery. Davis, Bagozzi, and Warshaw, (1989) provides a model by which perception on the adoption of technology can be measured. The model states that the extent to which a technology would be adopted is dependent on users Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). As a consequence, SWE required for training of automobile craftsmen is dependent on teachers perceived usefulness as well as their perceived ease of use of the simulation. High level of PU and PEOU is a strong predictor of diffusing technology in the classroom. Hence, in this study, the perception of technical college teachers will be measured based on their perceived usefulness as well as their perceived ease of use of Automobile Diagnostic Simulation (ADS) as a simulated work environment for training of automobile craftsmen.

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**Purpose of the Study**

The purpose of this study is to assess teachers’ perception on the use of simulated work environment for training of automobile craftsmen in the Technical Colleges. Specifically, the study sought to determine:

1. the perceived usefulness (PU) of Automobile Diagnostic Simulation as a Simulated Work Environment (SWE) in training of automobile craftsmen
2. the perceived ease of use (PEOU) of Automobile Diagnostic Simulation as a Simulated Work Environment (SWE) in training of automobile craftsmen

**Research Questions**

The following research questions were formulated to guide the study:

1. What is the perceived usefulness (PU) of Automobile Diagnostic Simulation as a Simulated Work Environment (SWE) in training of automobile craftsmen?
2. What is the perceived ease of use (PEOU) of Automobile Diagnostic Simulation as a Simulated Work Environment (SWE) in training of automobile craftsmen?

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**Hypothesis**

The following null hypothesis guided the study at 0.05 statistical level of significance.

HO1 There is no significant difference in the mean response of male and female teachers on the perceived usefulness (PU) of automobile diagnostic simulation as a SWE for training of automobile craftsmen

HO1 There is no significant difference in the mean response of male and female teachers on the perceived ease of use (PEOU) of automobile diagnostic simulation as a SWE for training of automobile craftsmen

**Methodology**

One shot case study research design was used for this study.  This research design according to Gay, Mills and Airasian (2011) allows a single group to be studied at a single point in time after some treatment that is presumed to have caused change. No control or comparison group is employed. This design was used for this study because the MVMW teachers were used as the case study and no control or comparison group was employed. Automobile Diagnostic Simulation which is the simulated work environment was given to the MVMW teachers to use for a duration of two weeks and a questionnaire was used to test their perceived usefulness and perceived ease of use of the simulation. (X O), where X is the treatment (automobile diagnostic simulation) and O is the measurement using questionnaire.

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The study was carried out in Lagos State and Abuja (FCT). It covered all the public Technical Colleges in Lagos State and Abuja (FCT). There are six public Technical Colleges in Lagos and two in Abuja (FCT) making a total of eight (8) Technical Colleges. Lagos state is the commercial nerve centre of the nation and also the former federal capital of Nigeria while Abuja is the current Federal Capital city of Nigeria. The choice of Lagos state and Abuja is based on the level of ICT deployment obtainable in these two cities which is comparably higher than other states in Nigeria.

The population for the study is 49 MVMW teachers in the Technical Colleges. This is comprised of 7 MVM teachers from GTC Agidingbi-Ikeja, 6 from GTC Ikorodu,7 from GTC Ikotun,4 from GTC Odomola, Epe, 5 from GTC Ado-Soba, 7 from FSTC Yaba, 7 from GTC Garki, Abuja, and 6 MVMW teachers from FSTC Orozo. The respondents are teachers teaching Motor Vehicle Mechanics Work (MVM) in the Technical Colleges in Lagos state and Abuja FCT. No sampling was carried out because the population size of 49 is manageable.

A structured Questionnaire with 25 items was used as instrument for data collection. The instrument was divided into three sections A, B and C. Section A collected demographic data of the respondent such as name of school and gender, section B has 16 items which collected data on the perceived usefulness of simulated work environment and section C has 9 items and it collected data on the perceived ease of use (PEOU) of simulated work environment. Section A and B are on a five point Likert scale.

In order to determine the reliability of the instrument, it was administered to five teachers teaching Motor Vehicle Mechanics Works (MVMW) in Government Technical College, Nsukka which is outside the study area. The questionnaire administered was retrieved and analysed. The Cronbach alpha reliability method was adopted to determine the internal consistency of the instrument. A reliability coefficient of 0.89 was obtained

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Prior to administering the questionnaire, the teachers were given the Automobile Diagnostic Simulation to use for a period of two weeks after which the questionnaire was administered. The researcher employed the service of two research assistants to administer the questionnaire, one for Technical Colleges in Lagos State and the other for Abuja (FCT). All the questionnaires administered were collected two weeks after the teachers had used ADS. 46 questionnaires amounting to 93.88% was retrieved because three teachers could not be reached after the two weeks slated for the (treatment) use of the simulation.

Mean () and standard deviation was used to analyse the data collected. Real limit of numbers was used to interpret the mean score. Items with mean response of 3.00 and above were rated as agreed. t-test was used to test the hypothesis at 0.05 level of significance.

**Result**

The results of the analysis are presented in the tables below

**Research Question 1**: What is the perceived usefulness (PU) of Automobile Diagnostic Simulation as a Simulated Work Environment (SWE) in training of automobile craftsmen?

**Table 1: Perceived usefulness of Automobile Diagnostic Simulation as SWE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No** | **Perceived usefulness** | **Mean** | **SD** | **Rmrks** |
| 1 | Automobile Diagnostic Simulation (ADS) improved the quality of my instructional delivery in petrol engine maintenance | 3.86 | .50 | Agree |
| 2 | ADS was useful in helping students take control of their learning | 3.70 | .36 | Agree |
| 3 | ADS was useful in learning the theory of petrol engine maintenance | 4.21 | .29 | Agree |
| 4 | ADS gave me time to invest on other instructional area as students take control of their learning | 4.01 | .45 | Agree |
| 5 | ADS increased the motivation of students to learn petrol engine maintenance | 3.87 | .42 | Agree |
| 6 | ADS make students’ to become aware of the need to be grounded in theory before they can effectively learn the skills needed for practice | 4.14 | .35 | Agree |
| 7 | ADS is useful in learning on-the-job best practices | 4.04 | .35 | Agree |
| 8 | ADS is appropriate for the age range of students I teach | 3.83 | .65 | Agree |
| 9 | Though ADS is a simulated environment, students were able to transfer learning when presented with real experiences. | 4.27 | .35 | Agree |
| 10 | ADS fully integrates theory of petrol engine maintenance with practice | 4.01 | .59 | Agree |
| 11 | ADS gives a good representation of reality | 2.97 | .78 | Disagree |
| 12 | ADS provides immediate feedback which quickly help me in correcting area where my students are making mistakes | 3.32 | .12 | Agree |
| 13 | Aside from ADS do you think simulation is useful for classroom instruction | 3.73 | .23 | Agree |
| 14 | Using simulation is useful in augmenting for lack of industry based facilities in the Technical Colleges | 3.01 | .65 | Agree |
| 15 | Simulation is useful in augmenting for constant need for consumable materials in the workshop  **-60 -**  ***Arowolo, A.A, Abdulmalik, I.Y & Hosea, I.D*** | 3.71 | .49 | Agree |
| 16 | Simulation is useful in bringing the work environment where the students will eventually work to the classroom | 3.62 | .67 | Agree |
|  | **Mean total** | |  | | --- | | 3.77 | | |  | | --- | | .37 | |  |

The result in table 1 shows that all the items have mean values between the real limit of 3.01 to 4.27. These mean scores reveal that respondents agree with the fact that simulations are useful for training of automobile craftsmen.

**Hypothesis 1:** There is no significant difference in the mean response of male and female MVMW teachers on the perceived usefulness (PU) of automobile diagnostic simulation as a SWE for training of automobile craftsmen.

**Table 2**: T-test comparing mean response of male and female MVMW teachers on the perceived usefulness of simulated work environment.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | School Type | N |  | Std. | t-value | Sig. | Remarks |
| Perceived Usefulness (PU) | Male | 39 | 3.79 | .27 | 1.270 | .214 | Not Significant |
| Female | 7 | 3.75 | .23 |  |  |  |

Table 2 shows the comparison of means of male and female MVMW teachers on the perceived usefulness of simulated work environment in training of automobile craftsmen. The t-test presented the result of the p-value not to be significant at .05 level of significance. The p-value of .214 is above the probability level of .05. The null hypothesis was therefore accepted as postulated, that there is no significant difference in the mean response of male and female MVMW teachers on the perceived usefulness (PU) of automobile diagnostic simulation as a SWE for training of automobile craftsmen.

**Research Question 2:** What is the perceived ease of use (PEOU) of Automobile Diagnostic Simulation as a Simulated Work Environment (SWE) in training of automobile craftsmen?

**Table 3:** Perceived ease of use (PEOU) of Automobile Diagnostic Simulation as SWE

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/No** | **Perceived Ease of Use (PEOU)** | **Mean** | **SD** | **Remarks** |
| 1 | Automobile Diagnostic Simulation is easy to use and interactive | 3.16 | .59 | Agree |
| 2 | My interaction with ADS was intuitive and easy to figure out | 3.20 | .43 | Agree |
| 3 | I found it easy to teach petrol engine maintenance using ADS | 2.91 | .21 | Disagree |
| 4 | The diagnosis logic in ADS were flexible and easy to interact with | 2.89 | .48 | Disagree |
| 5 | The repair room logic was flexible and easy to interact with | 2.09 | .46 | Disagree |
| 6 | ADS instructions are easy to understand and execute | 3.14 | .39 | Agree |
| 7 | Panning image on the ADS was easy to get | 2.74 | .45 | Disagree |
| 8 | Easy to locate the certificate for the completion of each module | 3.83 | .85 | Agree |
| 9 | The modular arrangement of ADS makes it less cumbersome. | 3.27 | .75 | Agree |
|  | **Mean total** | 3.03 | 0.44 |  |

Table 3 shows the result of the perceived ease of use (PEOU) of simulated work environment in the Technical Colleges. From the table, the overall mean score is 3.02 which implies that the respondents perceived the simulation to be easy to use. However, the respondents disagree with item 3, 4, 5 and 7. These items have mean scores of 2.91, 2.89, 2.09 and 2.74 respectively, which is below the benchmark of 3.00

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**Hypothesis 2:** There is no significant difference in the mean response of male and female MVMW teachers on the perceived ease of use (PEOU) of automobile diagnostic simulation as a SWE for training of automobile craftsmen

**Table 4:** T-test comparing mean response of male and female MVMW teachers on the perceived ease of use (PEOU) of simulated work environment.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | School Type | N |  | Std. | t-value | Sig. | Remarks |
| Perceived Ease of Use (PEOU) | Male | 39 | 3.61 | .17 | 1.121 | .041 | Significant |
| Female | 7 | 2.42 | .29 |  |  |  |

Table 4 shows the comparison of means of male and female MVMW teachers on the perceived ease of use (PEOU) of simulated work environment in training of automobile craftsmen. The t-test presented the result of the p-value to be significant at .05 level of significance. The p-value of 0.041 is less than the probability level of .05. The null hypothesis was therefore rejected. Hence, there is a significant difference in the mean response of male and female MVMW teachers on the perceived ease of use (PEOU) of automobile diagnostic simulation as a SWE for training of automobile craftsmen.

**Discussion of Findings**

The findings for research question one presented on table 1 shows that the teachers perceived SWE as useful for the training of automobile craftsmen in the Technical Colleges. This agrees with Urama and Okoriecha (2013) who stated that teachers generally have the perception that blending technology in instructional delivery is relevant to student performance. Osodo, Chisikwa and Ongati (2010) also establish that the majority of teachers in the secondary schools in Nigeria have a positive attitude towards the use of computer technology in teaching and learning and hence favoured the integration of computer simulations into the curriculum. Tella and Oyedeko (2010) further noted that ICT now have far reaching implications in teaching and learning at the secondary school level in Nigeria, because teachers themselves have now perceived the usefulness of ICT. Although the mean response of male teachers is slightly higher than the female teachers, hypothesis 2 further showed that the difference is not statistically significant. Both male and female teachers perceive simulation as a useful tool in the training of automobile craftsmen in the Technical Colleges. This finding agrees with Almekhlafi and Almeqdadi (2010) who noted that both male and female teachers think technology should be adopted in delivery of instruction in the classroom.

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The finding on research question two shows that the overall response of the teachers can be categorized that they perceive Automobile Diagnostic Simulation easy to use as a simulated work environment. However, some items such as image panning, diagnosis logic and repair logic were rated as difficult to use. This finding agrees with Prensky (2001) who noted that technology is easier to use for this generation of students than their teachers. He described the students as digital natives, who are born into technology, grew up using technological tools like video games, game based simulations etc and naturally speak the language of technology. While he described the teachers as digital immigrants who are trying to learn how to use technology because it was not part of their growth process. He noted that the biggest challenge to education in the 21st century is having the digital immigrants (teachers) teach a new generation of students he described as digital natives.

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Hypothesis 2 presented in table 4 showed that there is a significant difference in the perceived ease of use of technology by male teachers than the female teachers. The male teachers were found to perceive automobile diagnostic simulation easier to use as a simulated work environment for training of automobile craftsmen than the female teachers. This agrees with a number of studies showing that female gender have more phobia for using technology than the male gender. The research conducted by Shashaani (1997) showed that females are less interested in computers and less confident than the male gender. The results also showed that males were more experienced in using computer based technologies than females. Following the same path, Hong and Koh (2002) found that female teachers were more anxious than male teachers toward computer hardware.

**Conclusion*s***

The teachers of MVMW perceive simulated work environment to be useful and easy to use. This perception is positive for the adoption of simulation technologies in the classroom. If perception is said to influence action, the perception of the teachers in the Technical Colleges shows a readiness to adopt simulation technologies in the teaching and learning process. Hence, intervention in providing relevant simulations for training of craftsmen to the Technical Colleges will yield a positive result.

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**Recommendations**

This study has shown that teachers have perceived simulated work environment as useful and easy to use in the training of automobile craftsmen. However, the female teachers found simulation technology not as easy to use like their male counterpart. Based on the findings of this study, the following recommendations are made:

1. Government should invest in equipping the Technical Colleges not just with computers and internet facilities but relevant simulated work environment relevant for training of craftsmen.
2. Periodic workshops, awareness campaign and regular retraining should be organised for teachers on the use of simulation technologies in the classroom. These workshops and trainings could be organised in the college by the school ICT department tailored to meet specific teaching and learning needs in the various trade area in the Technical Colleges.
3. Opportunities should be created to have female teachers participate in trainings so as to improve their skills in the use of computers.

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**SKILLS IN RICE PRODUCTION REQUIRED BY WOMEN FARMERS**

**FOR JOB AND WEALTH CREATION**

**BY**

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***Abstract***

*This research work was designed to examine the contributions of women farmers in rice production for global food security in Ebonyi state. Four research questions were formulated to guide the study. The researcher adopted a descriptive research design in carrying out this study. The total population of the study was 800 registered women rice farmers. The sample consist of 267 respondents. A simple random sampling technique was used to draw the sample of the study. The instrument was a questionnaire designed to collect data. The questionnaire was face validated by three experts from the Department of Technology and Vocational Educational, Ebonyi State University. The data collected were analyzed using mean with standard deviation. The findings indicated that farmers require Pre-planting activities in rice production the women such as skills in tilling the soil, nursery bed preparation and in determination of soil fertility. Also the women farmers require the skills in planting activities in rice production such as to plant rice seedlings using the right spacing and recommended depth, adding green manure in the paddy field and incorporate it with the soil before planting. The women such as farmers also require in post-planting activities in rice production the ability to use the right herbicides to control weeds and to apply the appropriate fertilizer on the rice plant. Harvesting skills were a/so required by the women farmer in rice production farmers. It was recommended among others that the extension agents should train the women farmers on these skills they lack in rice production so that the women can effectively contribute in rice production for global food security.*

**Key Words:** *Skill: Rice Production: Women Farmers: Wealth Creation*

**Introduction**

Agricultural production is the growing of crops and rearing of animals making use of natural resources such as soil, water, atmospheric air, sunlight and soil microbes. Agricultural production goes beyond crop production; it also involves animal husbandry such as fisheries, rabbit production, poultry as well as sheep and goat rearing (Egbe, 2011). In the context of this work, agricultural production is the cultivation of crops like rice and rearing of livestock’s for wealth creation. Rice is the seed of the monocot plants Oryza Sativa (Asian rice) or Oryza Glaberrima (African Rice). As a cereal grain, it is the most widely consumed staple food all over world and in Nigeria. Rice is the most important grain with regard to human nutrition and caloric intake, providing more than one-fifth of the calories consumed by human (Faostat, 2014). Rice production requires certain skills. Skills according to Okorie (2000) is the manner of doing things expertly. Skills are habit of doing something with little time and without wasting materials. Skills in rice production include the ability to carry out pre-planting operations such as land preparations, skills in planting operations such as using the appropriate distance and depth, skills in post-planting operations such as weeding, fertilizer application, and disease control. In most of the rural communities, women are engaged in rice production. Damisa, Samadi and Yohanna (2007) pointed out that women contribution to rice production is as high as 60-90% of the total rice production in Nigeria. Women farmers are those females who engage in agricultural activities. The activities of women rice production can help in creating wealth. Wealth creation in the context of this study is any legitimate activity engaged by man to produce goods and services for the comfort of man. Wealth can be created through rice production.

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Ebonyi State is blessed with a large portion of fertile land which is good for rice production. The climatic condition favours the cultivation of rice. Despite the faviourable climatic condition that favours rice production in the state, it has been observed that rice output has not met the demand of the consumers in the state and other areas. There is still low productivity of rice. It appears that the low productivity may be attributed to lack of required skills in rice production by the women farmers. For instance the farmers do not apply the appropriate fertilizers, herbicides and insecticides to improve the soil fertility, control weeds and insects respectively. The farmers still use unimproved planting materials which are of low yield, use crude farm tools and equipment in rice production, and also the farmers do not use the appropriate planting distances in rice production.

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In addition, the women farmers lack the skills of processing of rice for high value addition, rather they market the unprocessed rice to the middlemen who make more profit than the women farmers. It is on these bases that this work is designed to determine the skills required by the women farmers in rice production for wealth creation in Ebonyi State.

**Statement of the Problem**

Ebonyi State is blessed with large area of fertile land which is good for rice production. The climatic condition favours the cultivation of rice. Rice production in this area is carried out mostly by women. The women farmers are involved in activities of rice production such as weeding, planting, fertilizer application, harvesting and marketing. The problem is that despite the favourable climatic condition for rice production, it appears the women farmers lack the skills reained in rice prosx. Carry out the activities of rice production is not appropriate. For example, the farmers still use local rice species, do not use the appropriate planting distance and depth as well as non adoption of some recommended farm practices in rice production. Many of these women farmers still use low yielding and unimproved planting materials, primitive and labour-intensive farm tools. As a result of this the farmers always experience low yield of farm products which has indirectly affected their income and farm outputs. If this trend is allowed to continue, it may lead to shortage of rice supply in the entire Ebonyi State resulting to hunger, starvation and malnutrition among the people. It is on these bases that this work is designed to determine the skill in rice production by the women farmersice in rice production in Ebonyi State.

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**Purpose of the Study**

The purpose of the study is to determine the skills required by women farmers in rice production in Ebonyi State. Specifically, the study set out to determine:

1. The skills in pre-planting activities in rice production required by the women farmers.
2. The skills in planting activities in rice production required by the women farmers.
3. The in post-planting activities in rice production required by the women farmers.
4. The skills in harvesting activities in rice production required by the women farmers.

**Research Question**

1. What are the skills in pre-planting activities in rice production required by the women farmers?
2. What are the skills in planting activities in rice production required by the women farmers?
3. What are the skills in post-planting activities in rice production required by the women farmers?
4. What are the skills in harvesting activities in rice production required by the women farmers?

**Methodology**

The study adopted survey research design, the area of the study was Ebonyi state of Nigeria, the population of the study was 800 registered rice farmers, these comprise of 650 males and 150 females. A simple random sampling was use to select 267 farmers as the sample of the study. The instrument used for data collection was a structured questionnaire. The instrument was structured under four points rating scale such as:

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Strongly agree = 4 points

Agree = 3 points

Disagree = 2 points

Strongly disagree = 1point with their nominal values of 4, 3, 2 and 1 respectively.

The instrument was validated by 3 experts and the reliability of the instrument was determined by using Cronbach alpha which yielded reliability co-efficient of 0.82. The instrument had five sections. A,B,C,D and E. Section “A” collected data on the personal data of the respondents, Section “B” collected information on skills in pre-planting activities in rice production, Section “C” elicited information on the contribution of women farmers in planting activities in rice production, Section “D” gathered data on skills in post-plating activities in rice production and Section “E” collected data on skills in harvesting activities in rice production. The data were collected by the researcher administering all the 267 questionnaires to the respondents with the help of three research assistants who were trained on how to relate with the respondents. The data collected were analyzed using mean with standard deviation for the research questions while t-test was used to test the hypotheses formulated. In taking decision, 2.50 was adopted as the cut-off point and this was determined by adding all the nominal values of the rating scales and divided by the number of cases thus: 

Any item in the questionnaire with mean score of 2.50 and above was regarded as agreed by the respondents as the skills required by the women farmers while any item with the mean score below 2.50 was adjudged as disagreed by the respondents as the skills not required by the women farmers

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**Results**

What are the skills in pre-planting activities in rice production required by the women farmers?

**Table 1:** Mean ratings with the standard deviations of the respondents on the skills in pre-planting activities in rice production.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Item statements** | **SA** | **A** | **D** | **SD** | **X** | **SD** | **Remark** |
| 1. | Women farmers in site selection by the | 57 | 107 | 55 | 48 | 2.64 | 1.6272 | Agree |
| 2. | Skills clearing of the farm land using appropriate tools is carried out by women farmers | 115 | 62 | 50 | 40 | 2.94 | 1.715 | Agree |
| 3. | Skills in marking out of rice plot using appropriate tools is carried out by women farmers | 101 | 91 | 54 | 21 | 3.01 | 1.734 | Agree |
| 4. | Skills in Tilling of the soil using the appropriate tools by women farmers | 86 | 79 | 62 | 40 | 2.77 | 1.05 | Agree |
| 5. | Skills in nursery bed preparation in rice production by women farmers | 124 | 65 | 40 | 38 | 3.02 | 1.08 | Agree |
| 6. | Sills determination of soil fertility for rice production is usually carried out by women farmers | 95 | 74 | 51 | 47 | 2.81 | 1.10 | Disagree |
| 7. | Skills in selection of selection of improved rice varieties by the women farmers. | 80 | 92 | 50 | 45 | 2.77 | 1.66 | Agree |

Grand mean 2.57.

Table 1 showed that all the items had their mean scores above the cut –off point of 2.50. Therefore, it is an indication that the women farmers have the skills in pre-planting activities such as site selection, clearing of the site, marking out of plots and selection of improved seed varieties, of rice skills in tilling of the soil, nursery bed preparation and in determination of soil fertility.

**Research Question 2**

What are the skills in planting activities in rice production?

**Table 2:** Mean rating of the respondent on the skills in planting activities in rice production required by the women farmers.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Item statements** | **SA** | **A** | **D** | **SD** | **X** | **SD** | **Remark** |
| 1. | Skills in planting rice seedlings using the right spacing. | 72 | 112 | 63 | 20 | 2.88 | 0.89 | Agree |
| 2. | Skills in planting rice seedlings using recommended depth. | 61 | 124 | 57 | 25 | 2.82 | 0.88 | Disagree |
| 3. | Skills in transplanting rice of seedlings at the right time | 84 | 81 | 74 | 28 | 2.82 | 1.68 | Agree |
| 4. | Skills to determine the use of correct method of planting such as broad casting in rice production. | 90- | 102 | 57 | 18 | 2.98 | 1.72 | Agree |
| 5. | Skills in the use of machines in transplanting of rice seedlings by the women farmers | 88 | 92 | 47 | 40 | 2.85 | 1.68 | Agree |
|  | Skills in transplanting of rice seedlings at the right time by women farmers | 69 | 98 | 76 | 24 | 2.79 | 1.69 | Agree |
|  | The ability to add green manure in the paddy field and incorporate it by pudding before planting is carried out by the women farmers | 99 | 71 | 57 | 40 | 2.85 | 1.08 | Agree |

Grand mean 2.56.

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Table 2 showed that all the items had their mean scores above the cut-off point of 2.50. Therefore, the women farmers have the skills in transplanting of rice seedling, planting at the right time, using broad casting method of planting, use of machines in planting, planting of the rice seedlings using appropriate spacing, planting rice seedlings using the recommended depth adding of green manure in the paddy field and incorporate it by pudding.

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**Research Question 3**

What are the skills in post-planting activities in rice production required by the women farmers?

**Table 3:** Mean rating of the respondents on the skills in post-planting activities in rice production

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Item statements** | **SA** | **A** | **D** | **SD** | **X** | **SD** | **Remark** |
| 1. | Skills in the use the right herbicides to control weed in the paddy field | 24 | 61 | 92 | 90 | 2.07 | 1.43 | Disagree |
| 2. | Skills in the applying the appropriate fertilizer on the paddy field. | 28 | 70 | 90 | 79 | 2.17 | 1.47 | Disagree |
| 3. | Skills in the use of right pesticides to control pests by women farmers | 71 | 90 | 86 | 20 | 2.79 | 1.67 | Agree |
| 4. | Skills in the use of insecticides to control insect in the paddy field by the women farmers | 55 | 92 | 63 | 57 | 2.54 | 1.59 | Agree |
| 5. | Skills to control paddy disease like rice blast in the paddy field by women farmers. | 65 | 110 | 72 | 20 | 2.82 | 1.68 | Agree |
| 6. | Skills to control of flood by creating drainage on the paddy field by women farmers | 70 | 97 | 63 | 37 | 2.74 | 1.65 | Agree |
| 7. | Skill in protection of the paddy field from damage by livestocks by women farmers. | 82 | 105 | 52 | 28 | 2.90 | 1.70 | Agree |

Grand mean = 2.54.

Table 3 showed that all the items had their mean score above the cut-off point of 2.50, therefore, the women farmers have the ability to use the right pesticides in post-planting activities in rice production such as to control pest, the ability to use insecticide to control insects, controlling and paddy disease like rice blast, control flood and protect the paddy field from damage by livestocks, using the right herbicides to control weed in the paddy field and to apply the appropriate fertilizer on the paddy field.

**Research Question 4**

What are the skills in harvesting activities in rice production required by the women farmers?

**Table 4:** Mean ratings of the respondents on the skills in harvesting activities in rice production required by the women farmers?

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Item statements** | **SA** | **A** | **D** | **SD** | **X** | **SD** | **Remark** |
| 1. | Skills to detect when rice is matured and ready for harvesting | 56 | 111 | 68 | 32 | 2.71 | 1.64 | Agree |
| 2. | Skills to use the right tools like sickle to harvest paddy by women farmers. | 76 | 132 | 46 | 13 | 2.01 | 1.73 | Agree |
| 3. | Skills in threshing of rice paddy manually by women farmers. | 90 | 80 | 54 | 43 | 2.81 | 1.07 | Agree |
| 4. | Skills to use machine to thresh rice paddy | 82 | 75 | 68 | 42 | 2.73 | 1.65 | Agree |
| 5. | Ability to process harvested paddy using to cal means by women farmers. | 54 | 92 | 65 | 56 | 2.53 | 1.59 | Agree |
| 6. | Skills in cleaning of rice paddy without any impurity by women farmers. | 81 | 78 | 76 | 32 | 2.77 | 1.016 | Agree |

Grand mean = 2.54.

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Table 4 showed that all they had items their mean scores above the cut-off point of 2.50, therefore, the respondents agreed that women farmers have all the skills in harvesting of rice such as detecting when rice is matured and ready for harvest, and use of right tools like sickle to harvest paddy, use of threshing machine to thresh paddy but items 3 and 6 had their mean scores of 2.22, 2.23 respectively which are below the cut-off point of 2.50, therefore, it means that the women farmers do not have the ability to clean thresh rice paddy manually and without any impurity.

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**Major Findings**

The following findings emerged from the study based on the analysis of the data collected.

1. The women farmers require all the skills in pre-planting activities in rice production.
2. Thewomen farmers require all the skills in planting activities in rice production effectively
3. the women farmers require all the skills in post planting activities in rice production
4. The women farmers require all the skills in harvesting activities in rice production

**Discussion of the Findings**

The discussion of this study is presented as below; the work showed that the women farmers require all the skills in rice production such as nursery bed preparation, determination of soil fertility in rice production and clearing of the rice plot, farmers. This is in line with Eze (2012) who opined that the ability of the farmers to prepare nursery bed at the right time clear the rice plot with the appropriate tools are required for effective rice production.

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Also the study showed that the women farmers require the ability to carry planting activities such as planting rice with the correct distance and depth. This finding is in agreement with Egbe (2011) who reported that the skill to use the appropriate planting distances and depths is necessary for high yield in rice. The study also revealed that women farmers require the skills in post-planting activities such as weeding, pest and disease control and application of fertilizers and agro-chemicals. This finding in line with Uchenna (2009) who reported that the ability to carry out all the post-planting activity is required by any farmer.

Additionally, this research also revealed that the women farmers require the skills in harvesting of rice cleaning of paddy is not properly done by the women farmers. This is in line with Uguru (2000) who pointed out that, rural farmers lack the knowledge. This finding is in agreement with Ugeru (2000) who stated that harvesting skills are essential for every farmer, because improper timing of having and poor harvesting may head to loss of produce and wastage.

**Conclusion**

Rice production in Ebonyi State is being dominated by women farmers who, by close observation have limited skills in rice production for wealth creation. This work sought to find out the skills required in rice production by women farmers. Four purposes of study and questionnaire was used as an instrument for data collection. The result showed that the women farmers require the skills in pre-planting, planting and post-plating activities.

**Recommendations**

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Based on the finding of this study, the following recommendations were made:

Government in collaboration with the extension agents should orgarnize seminar, work-shork and conferences on the skills in pre-planting, planting, post-planting and harvesting activities in rice production for the omen farmers in Ebonyi state.

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**TVET AND ENTREPRENEURSHIP EDUCATION STRATEGIES FOR JOB CREATION AND NATIONAL DEVELOPMENT.**

**BY**

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***Abstract***

*This paper discusses TVET and Entrepreneurship Education Strategies for Job Creation and National Development bearing in mind the changing economic and environment of education and society at large. The concept of technical, vocational education and training, entrepreneurship education, objectives of vocational education and entrepreneurship education, strategies for achieving TVET and entrepreneurship education for job creation and national development has been evaluated in this write up. The following recommendations among others were made and conclusion drawn which include that vocational education should be included back in the primary school curriculum, situation where the teachers will teach and guide the pupils to produce items as handwork not asking the pupils to bring a certain amount of money as handwork, vocational and Technical Education students should be exposed to new ideas and technologies which are relevant in the world of work. Entrepreneurship is a key driver of our economy and the proper inclusion of vocational and technical education and entrepreneurship education in all aspects of teacher education studied in higher institutions will to a great extent help in reducing the problem of unemployment, idleness which leads to crimes such as insecurity, killing, bombing, low GNP, kidnapping, jealousy etc as well increase the gross national product and lead to a sustainable national development.*

**Introduction**

Nigeria is a country naturally endowed with entrepreneurship opportunities for the realization of full employment, capacity building, industrial and economic development. Education is an instrument for national development therefore to achieve the objectives of education, emphasis must be placed on the competency of the instructors who will implement them (Chukwuma 2012). The development of human capital has been a major concern towards nation’s development. Nigeria is blessed with both human and material resources that are not utilized and the need to utilize these human and material resources calls for a revisit into the implementation of vocational and technical education policy. These policies according to David (2014) as contained in the National Policy of Education (2004) are designed to achieve both technological and economic advancement of Nigeria. Thus at the junior level, seven programme areas of pre-vocational education have been identified and at the senior secondary level, the student is to concentrate on three components of each programme. This is intended to allow the student to have an in-depth study and preparation into final examination and for entry into the world of work or further study.

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Nigeria is faced with the challenges of trade and commerce, globalization, changes in technology, ICT revolution and the emergence of knowledge economy. Therefore Vocational and Technical education being that aspect of education designed to prepare individuals to acquire practical skill, basic and scientific knowledge and attitude required to function in a world of work which is faced with the challenges of globalization and competiveness, and the high literacy rate and lack of functional skills has been a major distortion to a transition to a knowledge economy.

The government need to implement new policies to ensure quality Vocational and Technical Education that will insist on instilling proper education and skill acquisition for the new generation of graduates who will serve as a driving force for innovation and growth to meet the emerging trends. These trends according to a paper published by Cisco (2011) include; Student coming into Vocational and Technical Education at an early stage; The international and vocational Educational and Training market moving in country; Student retention as a new battle ground; Delivery is now multi-channel and immersive; New funding models and cost shifting approaches are emerging to meet infrastructure requirements; new industry partnerships are driving broader, deeper and more tailored training and Movement between sectors is bringing old issues to boiling point. And to meet up with these emerging trends, there is the need to strategize the teaching and learning of Vocational and Technical and Entrepreneurship Education so as to meet up with skill demand in the world of work. Strategy is a high plan to achieve one or more goals under conditions of uncertainty (Wikipedia, 2017). The need to strategies to achieve the aims of TVET and Entrepreneurship Education for job creation and national development calls for this paper.

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Kuratko (2003) defined entrepreneurship as a dynamic process of vision, change and creation. Okwoli and Anyakwu (2010) further defined entrepreneurship as a foresighted, innovative and caring individual.  Accordingly, Osalor (2013) posited that entrepreneurship is a process of creating unique value. Anyakoha (2009) posited entrepreneurship Education as the process of acquiring the knowledge, attitude and skills of entrepreneurship. An entrepreneur therefore is someone who has the ability to create new ideas, a risk bearer and an inventor who organizes the other factors of production to create employment and make profit. The purpose of Entrepreneurship Education is to instill in individuals saleable skills and attitudes that will enable him fit in a world of work or survive as an employer

**The Concept of Vocational and Technical Education** **and Entrepreneurship Education**

Vocational and technical education in Nigeria came into existence as a result of high demand for skilled personnel and ever increasing technological advancement and unemployment situation in the country. This was to bridge the gap between theory and practice. The former curriculum was aimed at producing literate graduates with little or no skill and some of these literate graduates were not employable due to lack of saleable skills which lead to green jobs. The structure of our society is such that demands its schools to provide an education that will lead to self reliance and self sufficiency. It should be such that will provide job opportunity for individual with employable skill. To buttress this Jacob (2006) stated that in the early Nigerian education system, little focus was placed on Vocational training that could produce persons adequately skilled, confident and properly oriented towards eventual self employment and self reliance.  Vocational and Technical education is used as a comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life, (National Policy on Education, 2013).

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Vocational education according to Ogwo and Oranu (2006) is that aspect of the general school curriculum concerned with acquisition of knowledge, attitudes and skills necessary for securing and advancing in a given occupation. The Nigeria Educational Research and Development Council (1998) stated that the vocational education is that form of education which is obtainable at the technical colleges, designed to prepare individuals to acquire practical skill, basic and scientific knowledge and attitude required for craftsmen and technicians at sub-professional level. Yusuf (2006) defined vocational and technical education as that form of education that seeks to prepare persons for employment in recognized occupations. Odogwu (2005) opined that vocational education is a type of education that emphasizes preparation and participation in an occupation of social value. Ogwo and Oranu further stated that vocational education includes sub-professional training and retraining offered in and outside the school system for a gainful employment. Vocational education could be defined as that education that prepares and equips individual with employable skills which enables him to be self reliant after leaving school. Vocational education includes Business education, Agric education, Computer education, home economics education, industrial and technical.

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Technical education is a sub-set of vocational education (Ogwo and Oranu 2006). Aina, (1994) described technical education as skill training in crafts and in certain trades such as building, auto mechanics, and wood work. David (2014) defined Technical Education as that aspect of education which leads to the acquisition of practical and applied skills as well as basic scientific knowledge. UNESCO defined Technical Education as education designed at upper secondary and lower tertiary levels to prepare middle level personnel and at university management positions. UNESCO defined Technical and Vocational Education and Training TVET as those aspects of the educational process involving in addition to general, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupation in various sectors of economic life. Technical and vocational education and training can be defined as Education for practical skill training, knowledge and attitude in related science and technologies as well as trade and crafts.

Entrepreneurship Education according to Ejili (2013) is the education that equips the recipient with the knowledge, skills, values, attitudes and abilities to be creative and independent minded in order to create employment for himself and others. He further said that Entrepreneurship Education is the process that equips students with the additional knowledge, attributes and capabilities required to apply these abilities in the context of setting up a new venture or business. Anyakoha (2006) posited entrepreneurship education as a vital step that could empower individuals for survival so that they can become job creators. Entrepreneurship Education can be defined as that education that equips the individual with the knowledge, skills, attitudes and mind to create, innovate ideas that create labour for himself and others.

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**Objectives of Vocational/Technical Education**

The goals of Vocational Education according to National Policy on Education (2013) shall be to:

1. Provide the trained manpower in the applied sciences and business particularly at craft, advanced craft and technical levels.
2. Provide the technical knowledge and vocational skills necessary for agricultural, commercial and economic development.
3. Give the necessary training and impart skills to individuals who shall be self reliant economically.

In pursuance of the above goals, the main features of the curricular activities for technical colleges shall be structured in foundation and trade modules. The curricular for each trade shall consist of four components namely: General Education; Theory and related courses; workshop practice, industrial training and small business management and entrepreneurial training.

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The objectives of Vocational and Technical Education in the economic, political and social demands. According to the Federal Republic of Nigeria (2004) the aims of Technical Education are:

1. To provide trained manpower in applied sciences, technology and comer, particularly at the various levels.
2. To provide the technical knowledge and vocational skills required for the agricultural industry and economic development.
3. To provide people who can apply scientific knowledge to solve environmental problems.
4. To give an introduction to professional studies in engineering and other technological courses.
5. To offer training and teach the necessary skills that will lead to production of craftsmen, technicians and other skilled personnel who will be enterprising and self-reliant.
6. To enable our young men and women to have an intelligent understanding of the necessary complexities of technology.

**Objectives of Entrepreneurial Education**

Entrepreneurial Education according to Paul in Araba (2012) is structured to achieve the following objectives:

1. To offer functional education for the youths that will enable them to be self employed and self-reliant.
2. Provide the youth graduates with adequate training that will enable them to be creative and innovative in identifying novel business opportunities.
3. To serve as a catalyst for economic growth and development.

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1. Offer tertiary institution graduates with adequate training in risk management.
2. To reduce intensity of poverty in the communities societies and country.
3. Create employment generation
4. Reduction in rural urban migration
5. Provide the young graduates with enough training and support that will enable them to establish a career in small and medium sized businesses.
6. To inculcate the spirit of perseverance in the youths and adults which will enable them to persist in any business venture they embark on
7. Create smooth transition from traditional to a modern industrial economy.

**Strategies for TVET and Entrepreneurship Education for Job Creation and National Development in Nigeria**

Accordingly Ayodele (2006); Nwangwu (2006); Akpomi (2009); Baba (2013) enumerated the following strategies for effective entrepreneurship education.

1. There should be some form of genuine school work based learning incorporated in some studies as part of the national economic development strategies. This implies eroding the curriculum to incorporate more practical and industrial work base. When these experiences   are put in practice, it will lead to job creation and national development
2. There should be school based enterprise where students identify potential plan, business, create and operate small business using the school as a mini incubator.
3. Government should establish small business schools where interested students and community members can participate. This will make students to be self reliant.

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1. Government should develop entrepreneurship programme by matching students with locally  successful entrepreneurs with clearly established education programme. This is what the Indian government is doing to improve their economy. We can also adopt this system in this country.
2. National Directorate of Employment NDE and private individuals should establish an enterprise college aimed at fostering the specific skills required for entrepreneurship. This will serve as skill acquisition center.
3. There should new policies on tax payment by small scale enterprises. This can be achieved by the federal government creating an economic friendly environment which is geared towards reducing taxes paid by small scale businesses
4. There should be enough incentives for students of vocational and technical schools. This will motivate other students who are looking down on vocational courses as well encourage them to establish their own businesses after school.
5. More investment in time and financial resources is needed to integrate non-traditional innovative and creative entrepreneurship courses.
6. More openness to innovative pedagogy will lead to job creation and national development.
7. A shift in focus needs to occur from traditional theory and case studies to a creative and innovative orientation approach.
8. There needs to be a re-emphasis on entrepreneurial values, entrepreneurial thinking and entrepreneurial feeling to promote a witness instead of an aboutness approach
9. Getting feedback from students will improve the quality of skills acquired.

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1. The plan to instigate a research programme evaluating the changes in mindset that innovative pedagogy can achieve.
2. Apart from the above mentioned strategies, clear statement of mission statement, that is the goals, objectives, visions, way forward, policies will enable the entrepreneur to be focused and this will lead to job creation.

**Strategies for Vocational and Technical Education for Job Creation**

Okolocha (2012) stated the following as the strategies for revamping vocational and technical education

1. Institute flexible, workable and adaptable programme: By ensuring that key competencies are integrated into Vocational and Technical Education curricula and develop appropriate means of assessing the outcome.
2. Ensuring high quality and appropriately skilled vocational professionals: The country should insist on continuing training for teachers, trainers and counselors by offering a flexible training programme for teachers and encouraging the teachers through sponsorship.
3. Promotion and proper coordination of education industry and work environment: This could be achieved by promoting innovation, creativity entrepreneurship through provision of necessary equipment I terms of practical experience.
4. Encouraging continuing vocational technical education: There should be proper organization of teaching and learning activities which foster the development of Vocational and Technical Education.

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1. Investing in quality vocational and technical education programme: This could be achieved by raising the quality of Vocational and Technical Education teachers by improving the quality and competencies of teachers, trainers and school leaders.
2. Training and learning should take place in authentic and real work environment: Work based learning should be encouraged and institutions participating in Vocational and Technical Education should support the development of apprenticeship training.
3. Sharing ratio of Education Trust Fund (ETF) among the three tiers of higher institutions in Nigeria: The Education Trust Fund meant for training of teachers and trainer in Vocational and Technical Education should be shared adequately.
4. Adoption of uniform standard of training and certification: There should be uniform training for all Vocational and Technical Education students in all the higher institutions in Nigeria. The same curriculum should be adopted in Colleges of Education, Polytechnics and Universities in Nigeria. Since they will all function in the same labour market and society.
5. Setting up a national and local structure of VTE councils
6. Keeping appropriate up to date and indicators for vocational and technical education
7. Assessment criteria

Apagu and Andural (2012) in Pattarawat (2013) critically examined the current issues, in vocational and technical education in Nigeria. The authors concluded on strategies for reforming VTE in Nigeria in the 21st century as:

1. Ensuring equality of access to vocational education by all Nigerians.

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1. Coping with possible enrolment explosion in vocational education programmes in Nigeria.
2. Relevant curricula in vocational education
3. Reviving handicraft subjects at the primary school level
4. Planned talent search and development
5. Adaptation rather than wholesale adoption of the teaching/learning of imported technological knowledge skills.
6. Suggested vocational perspective of university education.

**Conclusion**

Technical and Vocational Education is a means of human resources development. It is a vital part of the educational system. It provides the much needed skilled manpower needed in this country as a developing country. The aim of vocational Education and entrepreneurship education is to promote the production of skilled and knowledgeable professional manpower, to revitalize and sustain the national economy, reduce unemployment and poverty, secure jobs, and improve their situation on the labour market, access to gainful employment by bringing younger people closer to the labour market. The strategies of Vocational and Technical education and entrepreneurship on productivity, innovation and employment growth and organization culture cannot be over emphasized. Entrepreneurship is a key driver of our economy. Furthermore, the proper and constant preaching and teaching of vocational and technical and entrepreneurship education will bring a positive change to our society.

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**Recommendations**

1. Vocational education should be included back in the primary school curriculum. A situation where the teachers will teach and guide the pupils to produce items as handwork not asking pupils to bring a certain amount of money as handwork.
2. Technical and Vocational Education is hinged on skills, knowledge and attitudes, these skills should be encouraged and financed to enhance national development.
3. There should be interaction between educational attainment and workforce skill.
4. Vocational and Technical Education students should be exposed to new ideas and technologies which are relevant in the world of work.
5. The qualification of technical and Vocational educators should be reviewed and reformed.
6. Quality assurance processes should be developed.
7. Government should implement policies to enhance capabilities.
8. Industrial training should be encouraged where TVET students will be encouraged to work with employers to improve workplace training.
9. The government should make loans accessible to graduates after leaving school by reducing the issue of collaterals.
10. There should be evidence of external continuing professional development undertaken by school staff.
11. There should be a vision for the future needs and development of the curriculum to incorporate activity based learning and student centred method.
12. The government should make the retraining of entrepreneurship teachers compulsory.

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1. The government and stakeholders should encourage entrepreneurship education through conferences and seminars.
2. There should be constant assessment and evaluation of the entrepreneurship curriculum by stakeholders.
3. Technical and vocational Education should attach more importance to developing greener skills for green occupation in a green society.

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**ASSESSMENT OF SKILLS REQUIRED BY GRADUATES OF RADIO, TELEVISION AND ELECTRONIC WORK TRADE IN TECHNICAL COLLEGES FOR SELF-EMPLOYMENT IN NORTH-EAST, NIGERIA.**

**BY**

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***Abstract***

*The study identified Practical Skills required for integration into Radio, Television and Electronic Works trade for self-employment of graduates in North Eastern Nigeria. A survey research design was adopted for the study. Three research questions and one hypothesis were formulated to guide the study. The population for the study was 190 made up of 140 students and 50 work based supervisors. Stratified random sampling technique was used to sample students. While the whole work based supervisors personnel were used for the study. A 114 structured questionnaire item was used for collecting data from the respondents. The instrument was validated by five experts. Split- half technique was used to determine the reliability of the instrument, which yielded a coefficient of 0.85. The data of the study was analysed using mean, to answer the research questions and Z-test to test the hypothesis at 0.05level of significance. The findings showed that the item content in research questions 1-3 were required by the graduates for self-employment in North-Eastern Nigeria. It was therefore recommended by the study that the whole content area and practical skills identified be integrated into Radio, Television, and Electronic works Trade program.*

***Keywords:*** *Skills, Assessment, Self-employment, and Technical colleges.*

**Introduction**

Radio, Television and Electronic Work (RTVEW) is one of the vocational courses offered at the senior secondary school level of Nigerian Technical Colleges. It is a trade curriculum with a wider description of specific behaviours expressed in modules of discrete practical tasks and related knowledge which the study is expected to demonstrate as a result of the educational process to achieve the objectives; these objectives of the course are to:

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1. Expose the students to the knowledge of flow and control of electrons in electrical circuit, and their behaviour and effects in vacuum and semi conductors
2. Give and impart skills to student who shall be able to install, maintain and service electronic appliances such as TV system, Radio system and DVD set.
3. Expose students to the effective usage of measuring instruments to detect and locate faults on electronic appliances in homes and offices. (National Board Business and Technical Examination Board) (NABTEB, 2007).

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To accomplish these objectives, the trade is structured into modules namely: Radio communication (CRT 13), Television system (CRT 16), Electronic Devices and Circuits (CRT12). (National Business and Technical Examination Board [NABTEB], 2007). A student is expected to be drilled in all these modules before being certified as holders of National Technical Certificate (NTC). This certificate qualifies Him/Her to secure job in industries, or be self-employed.

There are so many jobs for which skills could be acquired through technical college programme. However, it is important to state that there are inter alia job relating to clothing and textiles, food and nutrition; auto mechanics, plumbing and pipe fitting, carpentry and joinery, painting and decorating, welding and fabrication, electrical installation and maintenance among others. (Anyakoha, 2002). Recognising the indispensable need of these trades in the country, the Federal Government of Nigeria (FGN) established Technical Colleges in each state so that they can turn out graduates in various trades. It is expected that any student who graduated from such colleges should actually use the skills to practice in their vocation. The skills the students acquired from technical colleges can be categorised into two namely: the general and the technical skills. The general skills are inclined to no specific profession but are needed for well functioning of an employee while the technical skills are the job-readiness abilities that make the graduate fit for employment in a vocation (Julius,2012).

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A skill according to Ogbuanya and Bakari (2014) is an individual’s capability to control element of behaviour, thinking and feeling within specified contexts and within particular task domain. It is the ability to perform something well. Practical Skills in this study are skills involve in maintaining, repairing or servicing of all kinds of electronic appliances used by people in their homes. Electronic Appliances are those machines utilized for the accomplishment of certain household functions. Examples of some these Electronic Appliances are Television set, Radio, Tape Recorder, Decoder Video Machines, and Compact Disc among others. As people use these devices, wear and tear subjects them to regular maintenance and services to ensure outmost performance, durability, efficiency or long lifespan.

Maintenance is the action necessary for retaining or restoring a piece of equipment, or system to the specified operational condition to achieve its maximum useful life. The technical colleges are the institutions responsible for turning out craftsmen in these areas. These craftsmen are expected to have the requisite practical skills to embark on either self or paid employment in maintenance and repairs of these appliances. Since technical colleges are institutions that give full vocational training intended to prepare students for entry into various trades including RTVEW, it is important to assess the required skills of the trades from time to time to ascertain it worthiness.

Assessment of skills according to Oguduluwan and Chukuma (1999) and Suskier (2009) is the collection, review and use of information about a course to improve student learning. This means that assessment of course focuses on what the student knows, they are able to demonstrate, and values acquired when they graduate (Serban, 2004). Assessment is simply the process of gathering information on the attainment of stated objectives of a course. In this regard, the attainment of the stated objective of RTVEW trade is to impart the required skills required by graduates to manipulate tools and equipment in a paid job or solve problem in their vocation. (Nelson, 2010).Commenting on the indispensable importance of assessment of a course, (Department of Education and Training 2008) maintained that assessment is a critical tool that should be embraced by all stakeholders of institutions. The reason is the fact that heads of institutions from time to time think of how to address critical questions such as: the quality of the course, investment into the course, best areas to commit resources, successful or impart of the course, best strategies to improve learning, comparability of the courses to others.

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Teachings of RTVEW trade have made a remarkable progress in the aspect of imparting skills to its graduates so that they can perform well in their job description. However, with the emerging sensitive and sophisticated devices requires proper handling skills when using, repairing or maintaining them. There is a need to assess the RTVEW skills to have a specialized workforce especially at the craft level with job skills. The increasing complexities of industrial development and production have created new requirements for technical personnel, which the technical colleges have not been able to adjust to meet the skill requirement for their graduates to perform to the satisfaction of their employers (Osborn, 2006). Researchers such as Aliyu(2009), Julius(2012), Moses, Ezugu and Apagu (2014) decried that there is a widening gap between skill training giving by technical colleges and the actual skill requirements for job in various vocations. This means there is something vital missing from the graduates of technical colleges in Nigeria. In Kano state (North-North and Oyo state (South-south) graduates of technical colleges were criticized for being deficient in various practical skills and not performing maintenance and repair work to the expectation and satisfaction of their employee (Aliyu, 2009). However, in the north-eastern Nigeria, all technical colleges graduate many master craftsmen in various trades. Majority of them are unemployed while few are employed in both public and private organisation. Little or no effort is made to look into how these graduates are performing on the job (Moses, Apagu and Ezugu, 2014). With the review of the technical college, curriculum in 2007 and the graduation of many students who have passed through the reviewed curriculum in the North-Eastern states technical colleges, assessing the practical skills for self employment is pertinent and that is the thrust of this paper.

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**Specifically, the study sought to identify:**

1. The general skills required by Technical College graduates for employment in the North Eastern Nigeria
2. The areas of Electronic Appliances that are required for integration into RTVEW Trade for self employment of graduates in North Eastern Nigeria
3. Practical skills required by technical college RTVEW graduates for self-employment in North Eastern Nigeria.

**Research Questions**

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1. What are the general skills required by technical college Radio, Television, and Electronic works (RTVEW) graduates for self-employment in the North Eastern Nigeria?
2. What areas of Electronic Appliances that are required for Integration into RTVIEW trade for self-employment in North Eastern Nigeria?
3. What are the practical skills required by technical college RTVEW graduates for self-employment in North Eastern Nigeria.

**Hypothesis**

There is no significant difference between the mean ratings of supervisors and students on the required practical skill for self-employment by technical college REVIEW graduates in North Eastern Nigeria.

**Methodology**

Descriptive survey research design was adopted in this study in order to collect and analyse data from a sample of the people considered as representative of the entire group. The study was conducted in the North-Eastern geographical zone.The zone comprise of six states which are Taraba, Adamawa, Borno, Gombe, Yobe and Bauchi. The population of the study was 90 made up of 50 workplace based supervisors and 140 RTVEW students. Purposive sampling technique was used. The instrument used for data collection was structured questionnaire items .The questionnaire was developed by the researcher using NABTEB (2007) syllabus for technical colleges in Radio, Television and Electronic works trade and other related literatures. To guide the researcher in the generation of items, the course curriculum was analysed topic by topic as contained in the syllabus. Each item in the questionnaire was assigned five point rating scale of highly required HR=5,moderately required MR=4, slightly required SR=3, not require NR= 2, undecided UD=1.The instrument was face and content validated by experts in the department of Electronic and Telecommunication, Taraba State Polytechnic and two workshops based supervisors- respectively.

The experts were requested to assess the language, relevance and appropriateness of the items and make further suggestions for the improvement of the instrument. A total of 115 were given out for validation, out of which 112 items were finally considered and administered on the 190 respondents. The reliability coefficient of the questionnaire was determined using split-half technique, which yielded reliability coefficient of 0.85. Data were collected by researchers with the help of three assistants. Mean, and Z-test used to analyse data. The decision rule for research questions was based on upper and lower real limit of numbers. A mean of 2.50 or above was accepted as required practical skills for self-employment, while skills rated below 2.50 were considered not required by the RTVEW graduates. The hypothesis was tested at a significant level of 0.05. The null hypothesis was accepted when the t-calculated was greater than the critical value 0.05 and rejected if otherwise.

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**Results and Discussion**

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The result and discussion of the study were based on the research questions answered and hypothesis tested. The result was presented in tables 1-4.

**Research Question 1**

What are the general skills required by Technical Colleges graduate for employment in North Eastern Nigeria.

**Table 1:** Mean Ratings of respondents on the general skills required by technical college graduates for self-employment in North-Eastern Nigeria

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Ability To** |  |  |  |  | **Rmk** |
| **1.** | Read and write effectively. | 4.7 | 0.45 | 3.4 | 1.35 | R |
| **2.** | understand oral and written communication effectively | 4.5 | 0.61 | 3.4 | 1.16 | “ |
| **3.** | Solve problems imaginatively. | 4.5 | 0.82 | 4.3 | 1.17 | “ |
| **4.** | Initiate new ideas (i.e creative thinking). | 4.6 | 0.57 | 3.3 | 1.50 | “ |
| **5.** | Get along with others (interpersonal skill). | 4.2 | 1.18 | 3.9 | 0.83 | “ |
| **6.** | assign responsibility and motivate others | 4.1 | 0.88 | 4.4 | 0.80 | “ |
| **7.** | Know when to get things done. | 4.2 | 0.46 | 4.6 | 0.48 | “ |
| **8.** | Understand one’s intend goal and expectations. | 3.9 | 1.28 | 4.3 | 1.43 | “ |
| **9.** | Familiar with common vocabulary used in sentence structure. | 4.3 | 0.46 | 3.1 | 1.46 | “ |
| **10.** | Gather and organise information from primary to secondary source. | 4.3 | 1.04 | 4.4 | 0.80 | “ |
| **11.** | Listen attentively. | 4.2 | 1.19 | 4.1 | 1.26 | “ |
| **12.** | Consider receivers emotions and motivation. | 4.6 | 0.84 | 4.0 | 1.12 | “ |
| **13.** | Recognise and evaluate idea. | 4.4 | 0.55 | 3.6 | 1.12 | “ |
| **14.** | Consult other views. | 4.2 | 0.73 | 3.9 | 1.00 | “ |
| **15.** | Identify skills needed to attract customers. | 4.2 | 1.19 | 3.3 | 1.51 | “ |
| **16.** | Apply basic mathematical principles in solving problems. | 4.4 | 1.00 | 4.1 | 1.21 | “ |
| **17.** | Honest and free with other workers. | 3.8 | 1.32 | 4.0 | 1.26 | “ |
| **18.** | Desire to learn new things. | 4.3 | 0.93 | 4.1 | 0.98 | “ |
| **19.** | Treat customers with dignity and respect. | 4.6 | 0.66 | 3.8 | 1.22 | “ |
| **20.** | Identify the business skills needed to operate small business efficiently. | 4.5 | 0.82 | 4.2 | 0.88 | “ |
| **21.** | Prepared estimate list of materials. | 4.7 | 0.57 | 4.1 | 1.22 | “ |
| **22.** | identify the risk involved in ownership of business | 4.4 | 0.97 | 4.0 | 1.26 | “ |
| **23.** | Forecast to meet objective. | 4.9 | 0.57 | 4.3 | 1.09 | “ |
| **24.** | Keep record to meet objectives. | 4.0 | 0.30 | 3.5 | 1.42 | “ |
| **25.** | procure and use material effectively | 5.0 | 0.19 | 4.2 | 0.92 | “ |

= Mean rating of graduates of RTVEW, = mean rating of work based supervisors

= standard deviation of graduate, = standard deviation of work based supervisors,

R= required.

The results in Table 1 showed that all the 25 items on the general skills required by technical college graduates for self-employment had their mean values ranged from 3.10 to 5.00 which were above 2.50. This means that all the 25 items use skills required by Technical College graduates of RTVEW for self-employment

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**Research Question 2**

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What areas of Electronic Appliances that is required for integration into RTVEW Trade for self-employment in North-Eastern Nigeria**.** The data answering research question two were presented in table 2.

**Table 2:** Mean Ratings of respondents on the areas Electronic Appliances required for integration into RTVEW Trade for self-employment in North-Eastern Nigeria.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S/N | CONTENTS OF ELECTRONICS APPLIANCES, |  |  |  |  | Rmk |
| 1. | Radio System | 3.6 | 1.28 | 4.2 | 1.25 | R |
| 2. | Colour television system | 3.10 | 1.28 | 4.6 | 0.73 | “ |
| 3. | Plasma TV | 3.7 | 1.44 | 4.4 | 0.70 | “ |
| 4. | Radio tape recorder | 3.6 | 1.22 | 4.5 | 0.70 | “ |
| 5. | Compact disc- video player | 3.2 | 1.13 | 4.5 | 0.57 | “ |
| 6. | Compact disc – audio player | 3.6 | 1.61 | 4.0 | 0.89 | “ |
| 7. | Satellite receiver set | 3.1 | 1.39 | 4.6 | 0.68 | “ |
| 8. | Video home service set (VHS) | 4.4 | 0.91 | 4.3 | 0.90 | “ |
| 9. | Video tape recorder (VTR | 3.2 | 1.45 | 4.8 | 0.36 | “ |
| 10. | Video cassette recorder (VCR) | 4.3 | 0.78 | 3.2 | 1.64 | “ |
| 11. | Car radio | 4.5 | 0.96 | 4.6 | 0.51 | “ |
| 12. | Car cassette player | 4.3 | 0.89 | 4.4 | 0.48 | “ |
| 13. | Car CD player | 3.9 | 1.01 | 4.0 | 0.80 | “ |
| 14. | Hard disk of computer system | 3.6 | 1.49 | 4.1 | 0.84 | “ |

The result presented in Table 2 revealed that all the 14 areas where RTVEW graduates require electronic appliances skills for self-Employments are accepted. This is shown by their mean values which ranged from 3.10 to 4.80 which were above 2.50.

**Research Question 3**

What are the practical Skills required by Technical College RTVEW graduate for self-employment in North-Eastern Nigeria?

**Table 3:** Mean Ratings of respondents on the practical skills required by technical college RTVEW graduate for self-employment in North-Eastern Nigeria.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S/N | 1. Measuring instrument |  |  |  |  | Rmk |
| 1. | Testing of electronic components using electronic equipment. | 3.2 | 1.37 | 4.7 | 0,29 | R |
| 2. | Ability to use voltmeter to demonstrate voltage test both a.c and d.c | 3.3 | 0.91 | 3.7 | 0.28 | “ |
| 3. | Ability to use ohmmeter to demonstrate test of resistance | 3.9 | 0.86 | 3.1 | 1.05 | “ |
| 4. | Test of current using Ammeter | 3.9 | 1.08 | 4.2 | 0.90 | “ |
| 5. | Test of forward and reverse bias of a diode using ohmmeter | 3.9 | 1.10 | 2.7 | 0.85 | “ |
| 6. | Measure capacitors capacitance in different rating | 3.5 | 1.52 | 3.6 | 1.80 | “ |
| 7. | Use ohmmeter to test transistor’s open circuit or short circuit. | 4.6 | 0.98 | 4.2 | 1.28 | “ |
| 8. | Test transformer open and short. | 4.4 | 0.78 | 3.2 | 0.98 | “ |
| 9. | Test inductor continuity. | 3.9 | 1.00 | 3.8 | 1.57 | “ |
| 10. | Skill to use soldering iron to remove components successfully from board. | 3.9 | 0.92 | 3.5 | 1.13 | “ |
| 11. | Skill to solder component correctly into circuits. | 4.0 | 0.96 | 3.4 | 1.11 | “ |
| 12. | Skill to identify correct value or rating of components. | 3.6 | 1.10 | 4.0 | 1.05 | “ |
| 13. | Replacement of transistors and I C successfully | 3.6 | 1.09 | 4.2 | 1.00 | “ |

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(B) T**elevision Set**

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|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S/N | (B) Television |  |  |  |  | Rmk |
| 1. | (i) Turner Section | 3.4 | 0.89 | 4.4 | 0.91 | “ |
| 2. | unscrew the television set with correct tools | 4.5 | 0.72 | 3.2 | 0.98 | “ |
| 3. | identify tuner section of a tv set | 4.5 | 0.62 | 3.5 | 1.38 | “ |
| 4. | trace fault in the tuner section | 4.0 | 1.13 | 2.3 | 1.42 | “ |
| 5. | clear radio frequency fault | 4.4 | 0.91 | 4.1 | 1.34 | “ |
| 6. | clear intermediate frequency fault | 4.2 | 0.95 | 3.1 | 0.30 | “ |
| 7. | clear video detector fault | 4.3 | 0.94 | 4.7 | 0.64 | “ |
| 8. | (ii) TV set audio Amplifier stage. | 4.1 | 0.92 | 4.3 | 1.18 | “ |
| 9. | clear fault in the audio IF stage | 4.4 | 0.77 | 3.9 | 0.83 | “ |
| 10. | clear audio detector fault | 4.3 | 1.07 | 4.5 | 0.50 | “ |
| 11. | Clear fault in the pre-amplifier circuit. | 3.9 | 1.03 | 3.7 | 0.42 | “ |
| 12. | unscrew the television set with correct tools | 4.6 | 0.61 | 4.7 | 0.64 | “ |
| 13. | Clear fault of audio output of power amplifier. | 4.5 | 0.72 | 3.2 | 0.98 | “ |
| 14. | (iii) TV Video section | 4.5 | 0.62 | 3.5 | 1.38 | “ |
| 15. | Clear vertical sweep fault in the video circuit | 4.0 | 1.13 | 2.3 | 1.42 | “ |
| 16. | Clear vertical synchronizing fault in the video circuit | 4.4 | 0.91 | 4.1 | 1.34 | “ |
| 17. | Clear output amplifier fault of the video section. | 4.1 | 0.89 | 3.9 | 1.43 | “ |
| 18. | Clear the horizontal oscillating fault. | 4.2 | 0.95 | 3.1 | 0.30 | “ |
| 19. | Clear the horizontal output fault in the amplifier stage. | 4.3 | 0.94 | 4.7 | 0.64 | “ |
| 20. | Clear the horizontal scanning fault. | 4.1 | 0.92 | 4.7 | 1.18 | “ |
| 21. | Clear the horizontal synchronizing fault. | 4.4 | 0.77 | 3.9 | 0.83 | “ |
| 22. | Clear the rectifying circuit fault of a power amplifier. | 4.3 | 1.07 | 4.5 | 0.50 | “ |

**(C) Radio Servicing and Repair**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S/N | (C ) Radio Servicing and Repair |  |  |  |  | Rmk |
| 1. | Unscrew radio tape recorder with correct tools. | 3.5 | 0.92 | 4.3 | 0.96 | “ |
| 2. | Identify various section of a radio set. | 3.6 | 1.26 | 4.7 | 0.64 | “ |
| 3. | Clear fault in the various section of a radio set. | 4.0 | 1.30 | 4.0 | 1.57 | “ |
| 4. | Skill to replace the driving motor of tape recorder. | 3.5 | 0.90 | 4.4 | 0.48 | “ |
| 5. | Skill to replace the driving belt. | 3.8 | 1.30 | 4.4 | 0.79 | “ |
| 6. | Skill to replace the pick-up heads. | 4.2 | 0.95 | 3.1 | 0.30 | “ |
| 7. | Skill to clean the pick-up heads. | 4.3 | 0.94 | 4.7 | 0.64 | “ |
| 8. | Fix a radio antenna. | 4.1 | 0.92 | 4.7 | 1.18 | “ |
| 9. | Replace the radio turning gang. | 4.4 | 0.77 | 3.9 | 0.83 | “ |
| 10. | Clear fault in the audio amplifier section. | 4.3 | 1.07 | 4.5 | 0.50 | “ |

**(D) Radio and Maintenance of Satelites Receiver Set.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S/N | (D) Radio and Maintenance of Satelites Receiver Set. |  |  |  |  | Rmk |
| 1. | Repair and maintenance of satellite receiver set. | 3.0 | 0.90 | 4.4 | 0.49 | “ |
| 2. | ability to unscrew receiver set with correct tools. | 4.7 | 0.70 | 4.5 | 0.80 | “ |
| 3. | replacement of power output transistor in receiver set. | 3.4 | 0.90 | 4.9 | 0.57 | “ |
| 4. | Replacement of power regulator. | 3.1 | 1.67 | 4.6 | 1.04 | “ |
| 5. | Replacement of filter capacitor. | 3.5 | 1.40 | 4.6 | 0.78 | “ |
| 6. | Ability to clear fault on the tuner section. | 3.8 | 1.51 | 4.3 | 0.89 | “ |
| 7. | Clear fault on the video section. | 2.8 | 1.56 | 4.6 | 0.23 | “ |
| 8. | Clear signal faults. | 4.3 | 1.17 | 4.8 | 0.35 | “ |

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**(E) VHS , VTR AND VCR Machines.**

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|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S/N | VHS , VTR AND VCR Machines |  |  |  |  | Rmk |
| 1. | VHS, VTR, and VCR Machines. | 2.7 | 1.50 | 4.8 | 0.40 | “ |
| 2. | Unscrew VHS, VTR and VCR with correct tools. | 3.5 | 0.90 | 3.9 | 1.07 | “ |
| 3. | Couple VHS,VTR and VCR machines correctly with ease. | 3.9 | 1.50 | 4.7 | 0.43 | “ |
| 4. | Clear poor picture output in VHS, VTR,VCR machine. | 3.8 | 1.51 | 4.3 | 0.89 | “ |
| 5. | Clear fault of loading and ejecting of video cassettes. | 2.8 | 1.56 | 4.6 | 0.23 | “ |
| 6. | Clear loss of sound problems. | 4.3 | 1.17 | 4.8 | 0.35 | “ |
| 7. | Clear power problems by replacing burnt transistors. | 4.0 | 1.29 | 4.5 | 1.04 | “ |
| 8. | Replacing of filter capacitors. | 4.3 | 1.08 | 4.6 | 0.43 | “ |
| 9. | Clear sound problems in all the machines. | 4.5 | 1.11 | 3.9 | 1.15 | “ |
| 10. | Clear video output faults. | 3.9 | 1.50 | 4.7 | 0.43 | “ |

(F)  **Installation, Repairs and Maintenance of Car**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S/N | Installation, Repairs and Maintenance of Car |  |  |  |  | Rmk |
| 1. | Installation, Repairs and maintenance of car radio, cassettes player and CD player. | 4.0 | 0.91 | 3.7 | 1.82 | “ |
| 2. | Radio, Cassettes player and CD player | 4.0 | 0.91 | 3.7 | 1.82 | “ |
| 3. | Skill to connect the radio set to the power. | 4.5 | 0.62 | 4.4 | 0.50 | “ |
| 4. | Supply and output to the speakers. | 4.6 | 0.48 | 4.5 | 0.67 | “ |
| 5. | Clear power failure problems. | 4.4 | 0.30 | 3.61 | 1.48 | “ |
| 6. | Replacement of burnt fuses. | 4.7 | 1.55 | 3.0 | 1.36 | “ |
| 7. | Reconnection of power conductors when burnt. | 4.2 | 1.14 | 3.9 | 1.12 | “ |
| 8. | Replacement of power transistors and ICs. | 3.9 | 1.43 | 3.5 | 1.20 | “ |
| 9. | Clear fault on loading and ejecting of CD trays. | 4.2 | 1.38 | 3.9 | 0.30 | “ |
| 10. | Ability to replace lenses. | 4.5 | 0.79 | 4.0 | 0.98 | “ |
| 11. | Replacement of spinning motors. | 4.3 | 0.98 | 4.6 | 0.68 | “ |
| 12. | Replace faulty flexible cable to the lens. | 4.6 | 0.69 | 4.10 | 0.10 | “ |
| 13. | Replacement of ICs In output amplifier. | 4.2 | 0.76 | 4.7 | 0.72 | “ |
| 14. | Installation of speakers. | 4.7 | 0.61 | 4.4 | 0.85 | “ |
| 15. | Clear faults in the loud speakers. | 4.2 | 0.98 | 4.2 | 0.94 |  |
| 16. | Replace faulty flexible cable to the lens. | 4.0 | 0.99 | 4.3 | 0.97 |  |

**(G) Compact Disc Machine**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S/N | Installation, Repairs and Maintenance of Car |  |  |  |  | Rmk |
| 1. | Compact disc machine. | 4.7 | 1.55 | 3.0 | 1.36 | 4.7 |
| 2. | Unscrew compact disc machine with correct tools. | 4.2 | 1.14 | 3.9 | 1.12 | 4.2 |
| 3. | Trace fault in the machine. | 3.9 | 1.43 | 3.5 | 1.20 | 3.9 |
| 4. | Rectify faults on the machine. | 4.2 | 1.38 | 3.9 | 0.30 | 4.2 |
| 5. | Couple the machine with ease. | 4.5 | 0.79 | 4.0 | 0.98 | 4.5 |

The result in Table 3 showed that all the items on the practical skills required by technical college RTVEW graduates for self-employment in North-Eastern Nigeria had their mean values ranged from 2.90 to 5.00 which were 2.50

**Hypothesis**: There is no significant difference between the mean ratings of students and supervisors on the practical Skills required by Technical College RTVEW graduates for self-employment in North-Eastern Nigeria.The result is presented as shown in table 4.

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**Table 4:** Z-Test analysis of the ratings of students and supervisors on the practical Skills required by Technical College RTVEW graduates in North-Eastern Nigeria

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|  |
| --- |
| Respondents N SE Remark |
| STUDENTS 4.7 0.99 140 0.13  6.1357 ±1.96 S  WBS 3.9 0.72 50 0.11 |

Data Table 4 showed that the Z-cal (6.1357) was greater than 0.05 Z cri (±1.96). Hence the null hypothesis of no significant difference was not accepted indicating that there was no significant difference between the mean ratings of students and the supervisors on the practical Skills required by graduates for self-employment of graduates.

**Discussion of Findings**

The results presented in Table 1 to answer research question 1 revealed that there are 25 general skills required by graduates of technical college RTVEW trade to be self-employed. This finding is in line with the finding of Anyakoha (2002) in a study on the need for vocational skills for technological impact in developing nations. The author found out that technical college graduates need seven basic general skills to be successfully employed and make impact in the developing nations. Among these skills that need to be acquired by graduates are oral communication skills, problem solving skills, creative thinking among others. Therefore graduates of technical college are expected to understand their customer’s feelings and also attain to them with integrity and respect to enhance their employability.

From the finding of research question (two) 2, 14 areas of electronic appliances are required for integration into RTVEW trade for graduates to be self-employed .This is in conformity with the study of Ogbuanya and Bakari (2014) that there are emerging sensitive and sophisticated electronic appliances that people use in their house for accomplishing some domestic functions that need careful handling. Such appliances according to the finding of their study include: Hard disk in computer system, compact disc/video or audio players automatic camera among others. These new emerging devices require proper handling when using and repairing or maintaining. Some of these devices were not captured in the RTVEW curriculum which was developed about 13 years ago. According to the study of Yakubu as cited by Bakari and Ogbuanya (2014) who conducted a study on safety practical skills needed by woodwork students of technical college in Kaduna, found out that students of woodwork in technical colleges needed sixteen safety practical skills in using hand tools, twenty practice skills in operating portable power tools; thirty safety practice skills in operating machines. These studies confirm that technical college graduates still need skills in certain areas to be self-employed in the contemporary Nigeria. The finding of research question 3 revealed all the electronic appliances practical skills required by RTVEW graduates for self-employments. This finding is in agreement with the study of Moses, Apagu and Ezugu (2014) who found out that Technical College (EIM) trade exhibited low and moderate job performance in working drawing clusters and conduct wiring cluster. This means, there are graduates who could graduate from technical college without being properly trained to be self-employed .The finding of the study were also in conformity with the findings of Amos (2007) that many teachers teaching in Technical Colleges do not possessed the needed competencies to teach practical skills. In most cases the teacher lay more emphasis on theory rather than practical

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**Conclusion**

Based on the result of the study, there are both general skills and job-base skills which RTVEW graduates required to be self-employed. In Nigeria, industrial and technological advancement is increasing in many areas of science and technology. The curriculum of institutions is expected to match the emerging technology so that graduates of technical colleges and other higher technological institutions will train graduates who will match the need of the society.

**Recommendations**

The following recommendations were given based on the finding of the study.

1. There should be a strong emphasis on the teaching of general skills to the students of technical colleges.
2. There should be enough practical activities for students of RTVEW trade in all the Technical colleges.
3. Teachers should always attend conferences and seminar to acquaint themselves with the emerging technologies in Nigeria
4. The technical college syllabus should be review from time to time to incorporate new skills required for self-employment.

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**TECHNICAL VOCATIONAL EDUCATION AND TRAINING SKILL NEED ANTICIPATION FOR FUTURE JOB CREATION**

**BY**

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***Abstract***

*This study was carried out to indentify the future skill needs for job creation. Three research questions were formulated to guide the study. A structured questionnaire of forty-one item (41) items was used to elicit response from forty (40) respondents comprising of TVET lecturers from Kogi State College of Education Ankpa and Kogi State College of Education Technical Kabba. The data collected were analyzed using mean to answer the research questions. The findings of the study revealed the future skill need, required for future job creation include social skill such as team working skill,* *management skills such as; Strategic and visionary skills, Coaching and team building skills*, *among others . Based on the findings, it was recommended that demand driven TVET be encouraged and practiced by training institutions to prevent skill mismatches, skill surpluses and skill shortages. The researcher as well recommended that the concept of workplace training should be part of government policies and practiced by the employers of labour to build capacities of employee in case of workplace skill changes.*

**Introduction**

Technical Vocation Education and Training (TVET) is that type of education that equipped individual with relevant knowledge, skills and attitude for the world of work. TVET according to United Nations Educational Scientific and Cultural Organization (UNESCO) in European Training Fund (ETF) (2013) comprises formal, non – formal and informal learning for the world of work. The international centre for technical vocational education and trainings (UNEVOC) in ETF (2013) uses the UNESCO- UNEVOC definition; the acquisition of knowledge and skills for the world of work to increase opportunities for productive work, sustainable livelihoods, personal empowerment and socio – economic development for both women and men in both urban and rural communities. The Federal Government of Nigeria (2004) looked at Technical and Vocational Education as a comprehensive term referring to those aspects of the education process involving in addition to general education, the study of technology and related science and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic life. Technical and vocational education is concerned with producing the man power that apply scientific skill towards the solution of problem of the mankind. According to Olaitan in Agwu (2015), technical and vocational education is for: skill and knowledge required in the society, economic development, for work and economic activity, self respect, social contact and participation. This definition points to the fact that vocational education leads to job creation.

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Job creation is the process of providing or making available paid job to the unemployed. Job creation according to Foundation for Job Creation (2009), is the process of providing new jobs especially for people who are unemployed. Foundation for Job Creation (2009) opined that job creation can occur when the unemployed become ambitious and start their own business in easy entry industries and market. This is usually accomplished when an unemployed person turns into an entrepreneur and goes into business to compete in the industry where they were familiar with for many years. These new business create job simply by innovating and implementing the ideas that were ignored when they were employed.

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Technological changes offer the potential for higher productivity and new industries, and have created new jobs with new skills, but have also resulted in job losses and changing skills requirements. More so, trade policy offer new opportunities and the potential for participating in global value chains, but also pose transition challenges for domestic industries. Consequently, climate change is likely to alter patterns of energy use, impacting on how industry conducts its operation and raising demand for new skills across a broad range of agricultural, transportation, manufacturing and construction industries. Drivers of change and the growing corporation of agricultural activities and crisis create similar tensions between displacement of existing jobs and new employment opportunities. What is necessary or important is for TVET to prepare its recipient with future skills which will enable them effectively address these challenges as part of a broader productive and responsive strategy.

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Future skills these are proficiencies and abilities required across different jobs and work settings. It is the proficiency at thinking and coming up with solutions and responses beyond that which is rote or rule-based. This skill involves situational adaptability that is, the ability to respond to unique unexpected circumstances of the moment (Anna, Devin & Marina 2011). To be successful in the next decade, individualswill need to demonstrate foresight in navigating a rapidly shifting landscape of organizational forms and skill requirements. They will increasingly be called upon to continually reassess the skills they need, and quickly put together the right resources to develop and update these. Workers in the future will need to be adaptable lifelong learners otherwise skill change in work setting will rule them out of the job as a result of obsolete skills.

Skills according to Lassnigg in ETF (2012), are key elements in matching persons to jobs. However, the meaning of skills embraces many aspects and the concept is used in many different ways. Often the term is used as a general expression of the (economic) capabilities of people at and for work, but often its meaning is not separated from qualifications. Skills denote a specific technical aspect of capabilities as distinguished from knowledge (declarative) and competence (social personal) skills represent mainly the technical and / or operational tasks. Skills are required in the performance of jobs. Today, a lot of skill shortages, surpluses and mismatch exist due to technical change and economic restructuring. Newly created jobs typically require different types of skills from those that have been destroyed. The process of restructuring and the expansion of demand for new skills has often taken place more rapidly than the education and training system has been able to adapt leading to skills shortages (ETF 2011). At the same time skills produced by the education system are often no longer demanded in the labor market leading to skills surpluses. To address the problem arising from skills surpluses, mismatches and shortages, there is need for TVET to embrace demand driven approach to skill through skills anticipation to meet futures needs.

Skill anticipation according to ETF (2012), is a term that denote all procedures that try to capture aspects of future relationships between supply and demand as regards education/training, with a particular emphasis on upcoming requirements concerning qualifications and knowledge, skills and competencies in a country, sector or region. It is concerned with processes involved in determining and identification of future skills. Anticipation denotes procedures in place that are aimed at understanding future requirements. It include a variety of methods and instrument for the acquisition of information and knowledge ranging from formal, quantitative forecasting to more informal projects based on the exchange of information and knowledge between various players in the system (ETF, 2012).These information and knowledge from the various TVET players form the basis for skill anticipation. Skills anticipation according to International Labor Organization (ILO) (2015), is a strategic and systematic process through which labor market actors indentify and prepare to meet future skill needs thus helping to avoid potential gaps between skills demanded and supply. Skill anticipation enable training providers, young people, policy makers, employers and worker to make better educational and training choices, and through institutional mechanisms and information resources leads to improved use of skills and human capital development (ILO, 2015)

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In modern economies, continuous economic restructuring innovation and globalization have led to major transformations in labor markets, given rise to pervasive skills mismatches. The rapid developments of new technologies make old skills obsolete at shorter intervals. The outcome has been that the concept of a job for life is increasingly being replaced by a series of labor market transitions which require that an individual may need to retrain more than once during a work life, and this may further involve occupational mobility between different sectors of the economy (Mayer, 2002). The effectiveness of choices made both in the transitions from school to work and in adult education training and retraining depends upon the provision of reliable market information, of which skill anticipation is an important element.

Furthermore, globalization, urbanization, technological change and market restructuring brings about considerable job challenges. These changes bring about job creation and job destruction. The old jobs which are destroyed have skills which are obsolete and cannot cope with the emerging jobs. The emerging jobs/created jobs, demanded new skills and competences which require that TVET should prepare its recipient with the ability to adapt and adjust to the skill required to meet the newly created jobs. To achieve this, there is need to identify the future skills required for entrance into emerging jobs, so that easy transition from one job to another could be made possible. To this end the research aimed at technical vocational education and training skill anticipation for future job creation.

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**Purpose of the Study**

The purpose of the study was to determine Technical, Vocational Education and Training skill anticipation for job creation. Specifically, the study sought to:

1. Determine types of future skill needs for job creation.
2. Determine TVET response choice to future skill needs.
3. Determine global drivers for skill change.

**Research Questions**

The following research questions were formulated to guide the study.

1. What types of future skill needs are required for job creation?
2. What are the TVET response choices to future skill needs?
3. What global drivers are responsible for skill change

**Methodology**

The study adopted a descriptive survey research design. Descriptive survey design according to Ali (2006), is a study that makes use of a population or sample to document, describe and explain what is in existence on the present status of a phenomenon being investigated. The design was considered appropriate because the study obtained information from the respondents through the use of questionnaires since they are in position to offer adequate information on the required future skills needed for job creation.

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The study was conducted in Kogi State. Kogi State comprised of twenty – one (21) Local Government Area which is divided into three (3) Senatorial District: Kogi East, West and Central Senatorial Districts. Kogi State is marked with high population of unemployed youth who needed to be equipped with relevant future skills for job creation.

The populations for the study is forty lecturers, made up of all the TVET Lecturers in the two College of Education in Kogi State. No sample was taken due to the fact that the population is relatively small and therefore manageable.

Data was collected by using a structured questionnaire titled ‘Technical Vocational Education and Training Skill Need Anticipation for Future Job Creation’ consisting of forth – one (41) items. The questionnaire was structured on 4-points response options of highly required, required, not required and highly not required. The instrument was face validated by the three experts, the three of the validates came from the Department of Vocational Technical Education, Kogi State University, Anyigba. The reliability of the instrument was established using Crombach Alpha statistical tool which yielded the reliability co-efficient of 0.76, indicating that the instrument is reliable.

Mean was used to analyze the research questions. Values were assigned to different scaling items of the questionnaire and corresponding mean scores were interpreted using real limit of numbers based on the grand mean. Any item statement that had a mean score of 4.59-3.50 was regarded as Highly Required, 3. 49-2.50 Required, 2.49-1.50 as Not Required, and 1.49- 0.50 Highly Not Required.

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**Results**

Research Question 1: What types of future skill needs are required for job creation?

Table 1

Mean response of lecturers on the types of future skill needs for job creation

|  |  |  |  |
| --- | --- | --- | --- |
| S/N | **Items Statement** | X | Remark |
|  | **Social Skills** | |  |
| 1. | Team working skills | 3.50 | Highly Required |
| 2. | Social perceptiveness skills | 3.45 | Required |
| 3. | Communication skills | 3.20 | Required |
| 4. | Networking skills | 3.55 | Highly Required |
| 5. | Language skills | 3.57 | Highly Required |
|  | **Management Skills** | |  |
| 6. | Strategic and visionary skills | 3.55 | Highly Required |
| 7. | Coaching and team building skills | 3.40 | Required |
| 8. | Collegial management style | 3.50 | Highly Required |
| 9. | Change management skills | 3.57 | Highly Required |
| 10. | Project management skills | 3.55 | Highly Required |
| 11. | Process optimizing skills | 3.57 | Highly Required |
| 12. | Quality management skills | 3.57 | Highly Required |
| 13. | Strategic and visionary skills | 3.55 | Highly Required |
|  | **Problems solving skills** | |  |
| 14. | Analytical skills | 3.55 | Highly Required |
| 15. | Interdisciplinary skills | 3.45 | Required |
| 16. | Initiative skills | 3.40 | Required |
| 17. | Multi – skilling | 3.55 | Highly Required |
| 18. | Creativity | 3.40 | Required |
|  | **Self Management Skills** | |  |
| 19. | Planning skills | 3.40 | Required |
| 20. | Stress and times management skills | 3.57 | Highly Required |
| 21. | Flexibility skills | 3.45 | Required |
| 22. | Multi – tasking skills | 3.45 | Required |
|  | **Entrepreneurship Skills** | |  |
| 23. | Understanding suppliers-customers skills | 3.45 | Required |
| 24. | Business development skills | 3.45 | Required |
| 25. | Marketing skills | 3.45 | Required |
| 26. | Transecting / spotting skills. | 3.45 | Required |

The data presented in table 1 above revealed that (12) items had their mean scores ranging from 3.50 to 3.57 indicating that those items were strongly agreed upon, (13) items had their mean scores ranging from 3.20-3.45 indicating that those items were agreed upon. This result shows that the respondents agreed that all the (25) items are the future skill TVET needs to provide its recipient for future job creation.

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**Research Question 2**

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What are the TVET respond choices to future skill need?

**Table 2**

Mean response of 40 respondents on the TVET Response Choice to Future Skill Needs

|  |  |  |  |
| --- | --- | --- | --- |
| S/N | **Items Statement** | X | Remark |
|  | **Skills Demand Response** | |  |
| 1. | Better skills utilization, | 3.50 | Strongly Agree, |
| 2. | Adopt measures to improve retention | 3.70 | Strongly Agree, |
| 3. | Improving working conditions | 3.40 , | Agree, |
| 4. | Business strategies based on capabilities  and human capital investment, | 2.90, | Agree, |
| 5. | National / Sectoral policies and regulations | 3.40 | Agree, |
|  | **Skill supply responses** | |  |
| 6. | National / sectoral education and training  policies and regulation | 3.35 | Agree |
| 7. | Lifelong and workplace learning | 3.35 | Agree  -92- |
| 8. | Activation measures | 3.60 | Strongly Agree |
| 9. | Skills migration and workforce mobility | 3.35 | Agree |
| 10. | Skills matching and retraining through  employment services | 3.50 | Strongly Agree |

The data presented in Table 2 revealed that (4) items had mean scores of 3.50-3.70; while (7) items had mean scores of 2.90-3.40. This shows that all the 10 items are agreed upon as the TVET response choices to future skill need. 4 items had their mean ranging from 3.50 to 3.70 indicating that those items are strongly agreed upon by the respondents to be TVET response choice to skill change

**Research Question 3**

What global drivers are responsible for skill change?

Table 3: Mean Responses of TVET Trainers on Global Drivers for Change No. 40

|  |  |  |  |
| --- | --- | --- | --- |
| S/N | **Items Statement** | X | Remark |
|  |  | |  |
| 1. | Globalization and trade liberalization | 3.60 | Strongly Agree |
| 2. | Demographic changes | 3.30 | Agree |
| 3. | Globalization and trade liberalization | 3.60 | Strongly Agree |
| 4. | Changing work organization | 3.55 | Strongly Agree |
| 5. | Technology development and innovation | 3.60 | Strongly Agree |
| 6. | Climate change. | 3.50 | Strongly Agree |

The data presented in Table 3 shows that (4) items had mean score of 3.55-3.60, while (2) items have their mean ranging from 3.30 -3.45. This shows that the respondents agreed that the items are the drivers of change.

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**Discussion of Results**

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The findings on Table 1 revealed that all the 25 skills are needed to be acquired for future job creation. This skills include; Social skills which comprise team working skills, social perceptiveness skill, communication skills, etc ; Management skills such as; strategic and visionary skills, coaching and team building skills, collegial management style, change management skills, process optimizing skills; Problems solving skills such as; analytical skills, interdisciplinary skills, initiative, multi – skilling, creativity; Self management skills which includes; planning skills, stress and times management skills, flexibility skills, multi – tasking skills; Entrepreneurship skills like; understanding supplier’s customers, business development skill, marketing skills, transecting / spotting skills. This was in line with European Centre for Development of Vocational Training (CEDEFOP) (2011) and ETF (2012) that outline set of skills development required for future job creation to include; Social skills which comprise team working skills, social perceptiveness skill, communication skills, networking skills, language skills; Management skills such as; strategic and visionary skills, coaching and team building skills, collegial management style, change management skills, project management skills, process optimizing skills, quality management skills; Problems solving skills such as analytical skills, interdisciplinary skills, initiative, multi – skilling, creativity; Self management skills which includes planning skills, stress and times management skills, flexibility skills, multi – tasking skills; Entrepreneurship skills like understanding suppliers/customers, business development skill, marketing skills, Transecting / spotting skills.

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The findings also revealed that the respondents accepted the ten (10) TVET response choice to future skill change. This response choice includes; Skills demand response such as; better skills utilization, adopt measures to improve retention, improving working conditions, business strategies based on capabilities and human capital investment, national / sectoral policies and regulations; Skill supply responses choice include; national / sectoral education and training policies and regulation, lifelong and workplace learning, activation measures, skills migration and workforce mobility, skills matching and retraining through employment services . This was supported by International Labour Office (ILO) (2015) and European Commission (EU) 2013 who stated that the response choice to future skill change include; Skills demand response such as; better skills utilization, adopt measures to improve retention, improving working conditions, business strategies based on capabilities and human capital investment; Skill supply responses choice include; national/sectoral education and training policies and regulation, lifelong and workplace learning, activation measures, skills migration and workforce mobility, skills matching and retraining through employment services among others .

From the study it was also discovered that the respondent accepted the six (6) global drivers for skill change to include; globalization and trade liberalization, demographic changes, level of educational attainment, changing work organization, technology development and innovation, climate change among others. This was in line with ILO (2015) and EU (2013) who outlined global drivers for skill changes to include; globalization and trade liberalization, demographic changes, Level of educational attainment, changing work organization, technology development and innovation, climate change among others.

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**Conclusion and Recommendation**

Future skill anticipation is important in this recent time because countries around the world are now experiencing a persistent gap between the skills demanded and those available. Global drivers of change such as globalization and trade liberalization, demographic changes, level of educational attainment, changing work organization, technology development and innovation and climate change have resulted in job creation and job destruction such that the emerging job require new set of skills thereby making old skills for old jobs obsolete. Thus, to be relevant in the emerging or created jobs TVET needs to prepare its recipients with relevant skills needed for easy transition.

It was therefore recommended that:

1. The concept of skill anticipation be integrated into TVET curriculum to prepare the learners with the future skill challenges
2. Demand driven TVET be encouraged and practice to prevent skill mismatches, skill surpluses and skill shortages
3. The concept of workplace training should be part of government policies and practiced by the employers of labour.

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**REVITALIZING TECHNICAL VOCATIONAL EDUCATION AND TRAINING FOR JOB CREATION AND NATIONAL DEVELOPMENT THROUGH AGRICULTURAL EDUCATION PROGRAMMES IN TERTIARY INSTITUTIONS IN NIGERIA.**

**BY**

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***Abstract***

*The study was designed to examine how Technical Vocational Education and Training (TVET) could be revitalized for job creation and national development through Agricultural Education programme in Tertiary institutions in Nigeria. Three research questions and two null hypothesis tested at 0.05level of significance guided the study. A total of 124 respondents consisting 19 lecturers and 105 students were studied. Questionnaire consisting of 50 items was used to elicit information from the respondents. The questionnaire was validated by three experts from the department of Agricultural and bio resources Education, University of Nigeria, Nsukka. Cronbach alpha was used to determine the reliability of the instrument which yielded 0.76 coefficients. The data collected were analysed using mean while t-test statistic was used to test null hypotheses. The paper identified thirty skills that should be acquired through agricultural education programmes in tertiary institutions. Factors inhibiting development of skills were also identified and measures for revitalizing TVET for job creation and national development were also stated. Recommendations were made on the basis of the findings.*

**Introduction**

The quality of graduates from Nigerian Institutions of learning has been a subject of concern to many industries, manufacturing, servicing, business, commerce, trade, engineering and production industries. Little or no trust is exercised on the quality of graduates, perhaps this may be due to inadequate skill acquisition by the graduates. The problem of inadequate skill acquisition can by the graduates can be ameliorated through Technical Vocational Education and Training (TVET). TVET is meant to prepare the learners with the right skills and values needed to be employable in the world of work (Federal Republic of Nigeria (FRN), 2013). According to Egbiri and Chukwuedo (2013), this aspect of education stands closest to the cross roads of classroom and the real world, and hence is able to combine technical knowledge and business acumen, creativity and innovations for effective job performance. This is necessary because there is a gap between what is obtainable in the classroom and what is needed in the world of work. Due to the global importance of TVET, it is now implemented in schools as Technical and Vocational Education Programmes.

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Technical and Vocational Education is a form of Education designed to equip the learners for gainful employment. According to Dawodu (2000), Technical and Vocational Education are the most reliable vehicles for self-sustenance, economic prosperity and political supremacy of a nation over others. Federal Government of Nigeria (2013) stated that Technical and Vocational Education is a comprehensive term referring to those aspects of the educational process involving in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic life. Technical and Vocational Education is particularly relevant in solving the present economic problems in the country because there is advancement in technology, occupational mobility, high rate of unemployment and increasing number of women in workforce. Vocational and Education has so many branches that individuals can specialize in. such as Agricultural Education, Business Education, Computer Education, Home economics education and Industrial Technical Education. This study is focused on Agricultural education. Agriculture can be defined as the production of crops and rearing of animals for man’s use as well as the processing and marketing of agricultural produce. According to Osinem (2005), agriculture is the activity most essential for human survival as it feeds people, produces basic commodities for society and provides basic provides gainful employment for the majority. Agriculture is the main way of making a living either as pure subsistence farmers, with a little semi-commercial farming or as agricultural teachers. Biakpara (2004) reveals that agriculture contributes about 41% to GDP and remains the leading sector for providing income and employment for the rural poor people. According to him, it employs 90% of the rural poor, nearly 70% of the total labour force and provides 90% of non-oil export revenue. The rearing of animals and cultivation of soil in order to produce food for the nation and provide raw materials for industries are taught in institutions as agricultural education

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Agricultural education is the transmission or communication of ideas, principles and beliefs about agriculture to a group of people either formally or informally. According to Osinem (2008), Agricultural education is a process of imparting knowledge, skills and attitudes in agriculture to the learner at any level of the educational ladder. Different forms of agricultural education are prevalent. They are formal and informal forms of agricultural education. In the informal type, the instructors are the parents and members of the society while in the formal type the, instructor is the professionally trained agricultural education lecturer. Agricultural education programme is tied with the national philosophy on agriculture for self-reliance. Therefore a functional agricultural education through a well-designed vocational programme remains one of the major keys to creating jobs and reducing poverty thereby leading to national development.

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National development can only be achieved through education. Education in whatever form is aimed at modelling a child or the individual into a better person relevant to his immediate environment. National development is a process where an economy undergoes social and economic transformation leading to a rise in the standard of living, access to basic amenities for all through knowledge. It is in recognition of the concept of national development that technical and vocational education and training for job creation is expected to be given utmost priority by government, having in mind the future consequence and task ahead for national development. The future prospect and success of the TVET depends on the continuation and expansion of the existing training programmes and strengthening the existing cooperation both with national and international bodies. The success of TVET also depends on starting non-formal training programmes for the unemployed and the community at large as part of the government poverty alleviation efforts toward sustaining welfare of the people thereby leading to national development. TVET Programmes are carried out in tertiary level with emphasis on education for self-sustenance and national development.

Tertiary institutions broadly refer to all post-secondary education, including universities, polytechnics, colleges of education and monotechnics. Tertiary institutions according to the Federal Republic of Nigeria (2013) is education given after secondary school in universities, colleges of education, polytechnics, monotechnics including those institutions with correspondence courses. Agricultural Education at tertiary level aims at; contributing to national development through higher level relevant man power training, capacity building, developing the intellectual capacity of individuals to understand and appreciate their local and external environment, acquiring physical and intellectual skills which will enable individuals to be self-reliant and useful members of the society as well as promoting and encouraging scholarship and community service (Osuala, 2004).

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Even with all the roles played by Agricultural Education in creating jobs thereby leading to National Development, it is still evident that unemployment rate is still high in Nigeria. The report of the National Bureau of Statistics (NBS) for the second quarter of 2016 shows that unemployment rate is now 13.3% which equates to 26.06 million people. High unemployment has been leading to increasing poverty and serious social problems in Nigeria; coincidentally there has been a decline in TVET enrolments (EFA, 2000 as cited by Ibrahim, 2008). Also, a lot of our graduates are unemployed because of the emphasis on theory in our universities at the expense of skills (Agbaegbu, 2011). Agbaegbu further opined that the issue of unemployment has led to a lot of graduates roaming the street looking for what to do. Many have ended up in prostitution, arm robbery and other societal vices. TVET can go a long way in creating jobs but it has to be revitalized through various agricultural education programmes.

Revitalizing means restoring something to life, giving it a new life or adding newness and vigour to that particular thing. Revitalizing TVET through agricultural education programmes means adding new strengths and vigour to TVET programmes as well as making it more attractive to individuals and organizations which will lead to creation of jobs as well as National development. In the process of revitalizing TVET through agricultural education programmes, various skills in agriculture can be inculcated by lecturers of agricultural education in students. These includes skills in crop production, animal production, Agric extension programmes, Agricultural mechanization, Agricultural marketing and Agricultural mechanics. According to Adeyemo (2014), various countries have improved employment rate by revitalizing TVET through agricultural programmes. Consequently, improved employment in countries has led to national development. For instance, Adeyemo noted that through TVET programmes especially agricultural education programmes, China created 2.7 million jobs between 2012 and 2013. This is proof that an effectively revitalized TVET through agricultural education programme can lead to job creation and national development.

However, in Nigeria TVET has not been really embraced as a tool for job creation and national development. Although agricultural education programmes are being taught in various tertiary institutions, unemployment is still a major problem in Nigeria due to the way TVET programmes are being taught. Hence the need to revitalize TVET through agricultural education programmes especially in the area of agricultural skill acquisition.

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Therefore, the study is geared towards Revitalizing TVET for job creation and national development through Agricultural Education Programmes in Tertiary Institutions in Nigeria.

**Purpose of the Study**

The general purpose of the study is to identify ways of Revitalizing Technical Vocational Education and Training for job creation and National Development through Agricultural Education Programmes in Tertiary institutions.

Specifically, the study seeks to;

1. Find out the TVET skills that are acquired through Agricultural Education programmes in tertiary institutions.
2. Examine the factors that inhibit revitalization of TVET through Agricultural Education programmes in tertiary institutions

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1. Find out the ways in which TVET can be revitalized through Agricultural education programmes in Tertiary institutions.

**Research Questions**

1. What are the TVET skills that can be acquired through agricultural Education programmes in tertiary institutions?
2. What are the factors that inhibit revitalization of TVET through agricultural education programmes in tertiary institutions?
3. In what ways can TVET be revitalized through Agricultural education programmes in Tertiary institutions?

**Hypotheses**

Ho1: Significant difference does not exist in the mean responses of lecturers and students on the TVET skills that can be acquired through agricultural Education programmes in tertiary institutions

Ho2: There is no significant difference in the mean responses of lecturers and students on the factors that inhibit the revitalization of TVET through agricultural education programme in tertiary institutions.

**Methodology**

Three research questions were developed and answered by the study while two null hypotheses were formulated and tested 0.05 level of significant. Descriptive survey research design was adopted for the study. Nworgu (2015) described a descriptive survey research as “those studies which aim at collecting data and describing in a systematic manner the characteristics, features or facts about a given population”. The design was adopted because the study involves the use of structured questionnaires to elicit responses. It was conducted in Enugu State, Nigeria. The population for the study was 251 comprising 22 lecturers and 229 students in Agricultural Education programme in the four tertiary institutions in the study area that offer agricultural education. The institutions include University of Nigeria, Nsukka (7 lecturers and 28 students), Enugu State University of Science and Technology (2 Lecturers and 46 students), Federal College of Education, Ehamufu (9 lecturers and 56 students) and Enugu State College of Education, Technical (4 lecturers and 99 students). Proportionate sampling technique was used to sample 50 percent of the students in the four institutions which yielded 115 students while the entire 22 lecturers were studied yielding a sample size of 137. 50 questionnaire items developed from literature reviewed was used to obtain data for the study. The scale for the questionnaire was Strongly Agree (SA)-4, Agree (A)-3, Disagree (D)-2 and Strongly Disagree (SD)-1.

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The questionnaire was face validated by three experts from the Department of Agricultural and Bio-resources Education, University of Nigeria, Nsukka. Cronbach alpha was used to determine internal consistency of the questionnaire which yielded 0.76 coefficient. The questionnaire was administered on 137 respondents and there was 90% return rate which equates to 124 respondents (19 lecturers and 105 students). Mean statistics was used to answer the research questions while t-test statistics was used to test the hypothesis at 0.05 level of probability. Table of real limit of numbers was applied in decision making for the research questions thus; 0.50-1.49 –Strongly Disagree, 1.50-2.49 –Disagree, 2.50-3.49 –Agree and 3.50-4.00- Strongly Agree. For the null hypothesis, they were upheld if the calculated level of significance is greater than 0.05 and rejected if otherwise.

**Results**

**Research Question 1:** What are the TVET skills that can be acquired through agricultural Education programmes in tertiary institutions?

**Ho1**: Significant difference does not exist in the mean responses of lecturers and students on the TVET skills that can be acquired through agricultural Education programmes in tertiary institutions.

Table 1: Mean ratings and t-test analysis of two groups of respondents on TVET skills that can be acquired through agricultural education programmes in tertiary institutions

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|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ITEMS | GX | Students 105 | | Lectures 19 | | t-cal | Sig | Decision |
|  |  | X1 | SD1 | X2 | SD2 |  |  |  |
| **Crop production** |  |  |  |  |  |  |  |  |
| **Skills in:** |  |  |  |  |  |  |  |  |
| Floriculture production | 3.59 | 3.51 | 0.66 | 3.84 | 0.37 | -2.072 | 0.041 | S \* |
| Bambara bean Production. | 3.22 | 3.12 | 0.74 | 3.57 | 0.50 | -2.538 | 0.013 | S \* |
| Commercial bitter leaf Production | 3.18 | 3.16 | 0.75 | 3.26 | 0.65 | -0.538 | 0.592 | NS \* |
| Cultivation of cucumber | 3.43 | 3.41 | 0.78 | 3.26 | 0.65 | -0.327 | 0.744 | NS \* |
| Hybrid tomato production | 3.54 | 3.51 | 0.70 | 3.63 | 0.50 | -0.679 | 0.499 | NS \* |
| **Animal Production**  **Skills in:** |  |  |  |  |  |  |  |  |
| Bee production | 3.32 | 3.29 | 0.73 | 3.42 | 0.61 | -0.690 | 0.492 | NS \* |
| Snail production | 3.16 | 3.13 | 0.60 | 3.26 | 0.45 | -0.886 | 0.378 | NS \* |
| Seafood production**(**Shrimps, crabs and periwinkles) | 3.26 | 3.19 | 0.81 | 3.53 | 0.51 | -1.697 | 0.093 | NS \* |
| Alligator production | 2.28 | 2.07 | 0.97 | 3.00 | 0.88 | -3.760 | 0.000 | S |
| Grass cutter production | 2.97 | 2.88 | 1.02 | 3.26 | 0.65 | -1.525 | 0.131 | NS \* |
| **Agric extension programmes**  **Skills in:** |  |  |  |  |  |  |  |  |
| Providing Agricultural Consultancy services | 3.57 | 3.57 | 0.63 | 3.58 | 0.51 | -0.034 | 0.973 | NS \* |
| Planning and executing agric programmes | 3.60 | 3.50 | 0.56 | 3.94 | 0.23 | -3.393 | 0.01 | S \* |
| Organizing and supervising farmers’ groups | 3.63 | 3.57 | 0.58 | 3.84 | 0.37 | -1.902 | 0.61 | NS \* |
| Conducting and organizing Training for farmers | 3.91 | 3.94 | 3.61 | 3.79 | 0.41 | 0.182 | 0.856 | NS \* |
| Evaluating extension programmes | 3.26 | 3.22 | 0.67 | 3.42 | 0.51 | -1.216 | 0.227 | NS \* |
| **Agricultural mechanization**  **Skills in:** |  |  |  |  |  |  |  |  |
| Using tractor coupled implements | 3.59 | 3.59 | 0.60 | 3.58 | 0.61 | 0.59 | 0.953 | NS \* |
| Using shellers | 3.45 | 3.45 | 0.61 | 3.42 | 0.51 | 0.228 | 0.820 | NS \* |
| Using a milking machine | 3.45 | 3.53 | 0.61 | 3.12 | 0.60 | 2.353 | 0.21 | NS \* |
| Using tree pullers | 3.27 | 3.26 | 0.77 | 3.26 | 0.56 | 0.008 | 0.993 | NS \* |
| Using harvesters | 3.55 | 3.52 | 0.70 | 3.63 | 0.50 | -0.594 | 0.554 | NS \* |
| **Agricultural marketing**  **Skills in:** |  |  |  |  |  |  |  |  |
| Farm level processing | 3.44 | 3.40 | 0.65 | 3.58 | 0.51 | -1.126 | 0.263 | NS \* |
| Grading/sorting | 3.33 | 3.35 | 0.62 | 3.27 | 0.45 | 0.590 | 0.557 | NS \* |
| Packaging | 3.49 | 3.43 | 0.58 | 3.73 | 0.45 | -2.150 | 0.034 | S \* |
| Storage and warehousing | 3.55 | 3.56 | 0.66 | 3.52 | 0.51 | 0.200 | 0.842 | NS \* |
| Advertisement | 3.29 | 3.22 | 0.77 | 3.53 | 0.51 | -1.630 | 0.107 | NS \* |
| **Agricultural mechanics**  **Skills in** |  |  |  |  |  |  |  |  |
| Skills in Agricultural electrification | 3.41 | 3.38 | 0.73 | 3.52 | 0.61 | -0.782 | 0.436 | NS \* |
| Skills in Agricultural mechanics Shop Operations | 3.37 | 3.37 | 0.62 | 3.37 | 0.68 | -0.005 | 0.996 | NS \* |
| Skills in soil and water management | 3.60 | 3.57 | 1.14 | 3.68 | 0.48 | -0.413 | 0.681 | NS \* |
| Skills in locating and diagnosing Machinery Problems | 3.32 | 3.28 | 0.75 | 3.47 | 0.51 | -1.060 | 0.292 | NS \* |
| Skills in welding cracked pipe fittings in machines | 3.23 | 3.14 | 0.83 | 3.52 | 0.18 | -1.882 | 0.63 | NS \* |

Note: G = Grand means 1 mean 1, 2 = Mean 2, SD1 = standard Deviation 1, SD2 = standard deviation 2, no of lecturers =19, students = 105, S = Significant, NS= Not significant, \*= Strongly Agree/Agree.

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Table 1 showed that 30 items had their mean values range from 2.28 to 3.60. Items 1,5, 11, 12, 13, 14, 16, 20, 24, and 28 fall in the category of Strongly Agree while items 2, 3, 4, 6, 7, 8, 10, 15, 17,18,19,21, 22, 23, 25, 26, 27, 29 and 30 fall in the category of Agree. This shows that all the 29 items are skills that needs to be acquired through agric education programmes in tertiary institutions. However, one of the items (no 9) had a mean value 2.28 which indicates disagreement by the respondents. Also, the result from the hypothesis showed that no significant differences exist between the mean ratings of 25 of the items. However, significant differences exist in items 1, 2,9,12 and 23. Therefore, the hypothesis of no significance was accepted for the 25 items but rejected for some items (1, 2, 9, 12 and 23)

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**Research Question 2**: What are the factors that inhibit revitalization of TVET through agricultural education programmes in tertiary institutions?

**Ho2**: There is no significant difference in the mean responses of lecturers and students on the factors that inhibit revitalization of TVET through agricultural education programmes in tertiary institutions.

Table 2: Mean ratings and t-test analysis of the respondents on the factors that revitalization of TVET through agricultural education programmes in tertiary institutions

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ITEMS** | **GX** | **Students 105** | | **Lecturers 19** | | **t-cal** | **Sig** | **Decision** |
|  |  | X1 | SD1 | X2 | SD2 |  |  |  |
| More emphasis on theory rather than practical Agriculture | 3.26 | 3.08 | 1.09 | 3.89 | 0.32 | -3.179 | 0.002 | S \* |
| Inadequate finance to carry out practical Agriculture | 3.29 | 3.14 | 0.91 | 3.84 | 0.37 | -3.213 | 0.002 | S \* |
| Poor attitude of students towards practical Agriculture. | 3.24 | 3.10 | 0.92 | 3.74 | 0.45 | -2.908 | 0.005 | S \* |
| Insufficient personnel to guide the students in practical Agriculture | 3.26 | 3.15 | 0.78 | 3.68 | 0.58 | -2.795 | 0.006 | S \* |
| Practical Agriculture is not usually evaluated by teachers | 3.10 | 3.03 | 0.88 | 3.37 | 0.76 | -1.525 | 0.131 | NS \* |
| Practical Agriculture is time consuming | 2.80 | 2.67 | 1.01 | 3.26 | 0.81 | -2.322 | 0.023 | S \* |
| Gender bias in practical Agriculture | 2.73 | 2.62 | 1.09 | 3.16 | 0.60 | -2.063 | 0.042 | S \* |
| Inadequate incentive measures to encourage students that perform well in practical Agriculture | 3.03 | 2.99 | 0.86 | 3.25 | 0.54 | -1.088 | 0.280 | NS \* |
| Lukewarm attitude of the Government towards Agriculture | 3.32 | 3.25 | 0.89 | 3.58 | 0.61 | -1.517 | 0.133 | NS \* |
| School farm is far from where students attend lectures and live. | 2.87 | 2.74 | 1.09 | 3.37 | 0.60 | -2.430 | 0.017 | S \* |

 = mean, SD = standard Deviation, SA= Strongly Agree, A=Agree

In table 3, the mean ratings of the respondents ranges between 3.11-3.89 which is in the category of Strongly Agree and Agree. Items 1, 2, 4, 7, 8 and 10 are in the category of strongly Agree while items 3, 5, 6 and 9 are in the category of Agree. It shows that the respondents agree that the items listed above are the ways in which TVET can be revitalized.

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**Discussion of Findings**

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The findings of the study on TVET skills that can be acquired through Agricultural education showed that various skills in crop production, animal production, agricultural mechanization, agricultural mechanics, agricultural marketing as well as agricultural extension programmes can be acquired through agricultural education. The findings are in line with Oluwayi (2014) in a study titled “Agriculture as a means of job creation” found out that agricultural programmes should also include skills in agricultural mechanization and extension programmes. The findings are also supported by Akaeze (2011) when he found out that agricultural marketing is a skilled area that emphasis should be laid on in tertiary institutions.

The findings on factors that inhibit revitalization of TVET through agricultural education programmes in tertiary institutions shows that placing more emphasis on theory rather than practical Agriculture, inadequate finance to carry out practical Agriculture, poor attitude of students towards practical Agriculture, insufficient personnel to guide the students in practical Agriculture, practical agriculture is not usually evaluated by teachers, poor image of agriculture are factors that inhibit revitalization of TVET through agricultural education programmes in tertiary institutions. This is backed up by Adeyemo (2014) when he stated that individuals do not acquire skills in agriculture because practical agriculture is not usually evaluated by teachers. The findings are also in cognisance with that of Baruah (2013) thus, inadequate personnel to guide the students in practical agriculture is a major factor that inhibits skill development in students.

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The findings on measures for revitalizing TVET for job creation and national development through agricultural education revealed that more emphasis should be laid on practical agriculture rather than theory in evaluation, marks allocated for practical Agriculture should be more than those allocated for theory, Proximity of school farm to lecture halls and where students live, Government must encourage practical agriculture by financing it, improving the image of practical Agriculture to enable the society to embrace it, Providing incentives to students who perform very well in practical agriculture and so on. This findings are supported by Dawodu(2000) who stated that since the government has seen the importance of revitalizing TVET for job creation and national development, it must support Agricultural education especially financially to enable it achieve its goals.

**Conclusion**

Based on the findings of this study, it was concluded that that TVET can create jobs thereby leading to national development. However, TVET has to be revitalized by emphasizing skills development. The skills to be acquired are very many but some are more essential. Some factors that the study identified however inhibit skill development in tertiary institutions. Finally, the study identified measures for revitalizing TVET for job creation and national development through agricultural education programme in tertiary institutions

**Recommendations**

1. More emphasis more be laid on practical skill development in Agriculture rather than theory in tertiary institutions.
2. Government must encourage practical agriculture by financing it.

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1. Public awareness should be created on the programme to ensure that the image of TVET is improved.

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**EMPLOYMENT OPPORTUNITIES IN PIG PRODUCTION FOR JOB CREATION AMONG YOUTH IN BENUE STATE FOR NATIONAL DEVELOPMENT**

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***Abstract***

*This study examined the employment opportunities in pig production for job creation in agriculture among youth in Benue State for national development. Three research questions and three hypotheses guided the study. Survey research design was used for the study. The entire population of 175 respondents was studied. A 40-item structured questionnaire named Employment Opportunities in Pig Production Questionnaire (EOPPQ) was used for data collection. The instrument was validated by three experts. Cronbach Alpha reliability method was used to determine the internal consistency of the instrument and a coefficient of 0.81 was obtained. A total of 175 copies of the questionnaire were administered but only 172 copies were retrieved and analyzed using mean, standard deviation and t – test. It was found out that 11 employment opportunities exist in pig production, youths encounter 17 challenges on employment in pig production and 12 strategies for improving youth’s employment in pig production were identified. It was therefore recommended that Job skills required for employment in the identified areas of employment in pig production should be utilized by extension agents and skills acquisition centres for capacity building of youths in Benue State. Government should empower youth with grants and materials to go into self employed ventures in pig production, and the findings of this study should be made public and available to unemployed youths by the government through the state agricultural extension services and media to create awareness to youth on employment opportunities in pig production for job creation.*

***Keywords:*** *Employment, Pig Production, Job Creation, National Development.*

**Introduction**

Pig is among the many livestocks reared by farmers in Benue State. Pig belongs to the genus *Sus*, within the Suida family of even-toed ungulates. Pigs include the domestic pig, its ancestor the wild boar, and several other wild relatives. The domestic pig (*Sus scrofa domesticus*) is usually given the scientific name *Sus scrofa,* although some authors call it *S. domesticus,* reserving *S. scrofa* for the wild boar. Their coats are coarse and brittle. Their head and body length ranges from 0.9 to 1.8 m and they can weigh between 50 and 350 kg (Honeyman, Harmon, Kliebenstein, and Richard, 2001).

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A typical pig has a large head with a long snout which is strengthened by a special prenasal bone and by a disk of cartilage. The length of the snout depends on the specie and is used to dig into the soil to find food and is a very acute sense organ. There are four hoofed toes on each foot, with the two larger central toes bearing most of the weight, but the outer two also being used in soft ground. Pigs are Omnivores which means that they consume both plants and animals. In the wild, they are foraging animals, primarily eating leaves, grasses, roots, fruits and flowers. In confinement pigs are fed mostly concentrate diets which consist of different feed ingredients combined to provide rations (Van de Weerd, Docking, Day and Edwards, 2005).

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Pigs have some major potential advantages which make them suitable for use in providing quick and cheap supply of animal protein. They produce meat without contributing to the deterioration of the natural grazing lands and are less affected by seasonal changes. Pigs convert concentrate feeds to meat twice as efficiently as ruminants. They have high fecundity and prolificacy and short gestation period. Their output in terms of yield of meat per tonne of live weight of breeding female per year is in the region of six times that of cattle. They have a quicker turnover rate on investment as they are fast growing. Their relatively small size, when compared with cattle, provides for more flexibility in marketing and consumption (Barnett, Hemsworth, Cronin, Jongman,Hutson, 2001). Pig is reared for its meat, bones, bristles, manure and hides. It is also produced as pets, for export and other commercial and industrial purposes (Montsho and Moreki, 2012). Pig is used for marriage ceremony in most parts of Benue State. These advantages are believed to have been responsible for high pig production in Benue State.

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Production, as submitted by Umar (2011) is transformation of raw materials into finished product through an organized and controlled use of resources. Production is a process of combining various material inputs and immaterial inputs (plans, know-how) in order to make something for consumption (the output). It is the act of creating [output](https://en.wikipedia.org/wiki/Output_%28economics%29), a [good or service](https://en.wikipedia.org/wiki/Goods_and_services) which has [value](https://en.wikipedia.org/wiki/Value_%28economics%29) and contributes to the [utility](https://en.wikipedia.org/wiki/Utility_%28economics%29) of individuals. The author stressed that, economic well-being is created in a production process, meaning all economic activities that aim directly or indirectly to satisfy human needs. Pig production therefore is the process of combining material and immaterial resources to rear pig for human consumption. In this study, it is the act of raising pig for either its products such as meat, fats, piglets among others. Any willing and competent person can engage in pig production for self or paid employment.

Employment in the opinion of Neumark (2011) is any service performed for payment or compensation. The author further explained that employment can either be in the form of paid employment where one perform some work for wage or salary, in cash or in kind; or persons who, perform some work for profit or family gain, in cash or in kind. With increasing population, worsened by the present state of the economy, there seem to be extreme paucity of employment opportunities in government and the organized private sector. Yet every year, graduates (youths) are churned out from higher institutions into the labour market. Few youth who have ability and competence to work are employed while most of them are neither employed by self nor paid.

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Youth according to Ezeji and Oviawe (2010) is best described as a period of transition from the dependence of child to adulthood’s independence. Agbulu, Asogwa and Ekele (2013) submitted that, youth is a period of life between child hood and maturity that is, the first 35 years of life which is characterized by a lot of freshness and vitality for work. This explains why, as a category, youth is more fluid than other fixed age-groups. Yet, age is the easiest way to define this group, particularly in relation to education and employment, because ‘youth’ is often referred to a person between the ages of leaving compulsory education, and finding their first job (that is 15-30 yrs). In the statement of Olaitan, Okeme and Alaribe (2010) most Nigerian youths are graduates from secondary schools and higher institutions where they were exposed to agriculture, yet they could not get employed in it. This might be because of limited skills or startup capital to enter, establish and create more jobs in the economy.

Job creation in the submission of Amsden, (2001) refers to the provision of opportunities for individuals to express their skills and understanding in specified areas for payment either in kind or cash. Hornby, (2006) described Job creation as a process of providing opportunities for paid work especially for those who are currently unemployed. It is a deliberate arrangement by the government, cooperate firms or individuals to employ the services of an individual for work to earn a living.

The demand for pig and pig production in Benue State is high and is expected to rise because of increase in population and the people’s way of life which seems to favour it. Most people prefer its meat to beef. In fact, among the Tiv people, pork is regarded as the second best meat without stating which one is the best, implying that any one that come first pork follows as the second best. Pig is demanded as part of bride price among many cultures. Yet in Benue State, most people (especially youths) do not engage in pig production. This is insinuated to be associated with ignorance of the opportunities that exist in pig production which they can be employed to add value to themselves and contribute to national development. In agricultural production, employment opportunities are mostly created by already existing farmers or those who are just entering the business of farming.

A farmer according to Asogwa and Nongugwa (2014) is a person who owns, works on or operates an agricultural enterprise, either commercially or to sustain himself and his family. Adaa (2010), also view a farmer as an individual whose primary job and function involve livestock and/or crop production. A farmer is a person engaged in agriculture, raising living organisms for food or raw materials. In this context, a farmer is someone who is currently in the business of animal production especially pig. These farmers because they are in the practice, are aware of production practices as well as existing opportunities for employment in pig production just like lecturers who teach animal production in higher institution.

Lecture as suggested by Bligh, (2000) is a method of teaching by which the instructor gives an oral presentation of facts or principles to learners and the class usually being responsible for note taking, usually implies little or no class participation by such means as questioning or discussion during the class period. In the same vein, Silberman, (1995) submitted that lecture occurs whenever a teacher is talking and students are listening and taking notes. A lecturer therefore is a person who has acquired training in teaching methodology and/or technical aspects of a programme in a university and gives an oral presentation of facts or principles in pig production to learners in higher institutions.

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Many opportunities exist in pig production that are waiting to be tapped. Many people in Benue state especially youths are jobless. These youths are energetic, have vigour for work and the capacity needed for agricultural production yet, they have not engaged in pig production. This is believed to be associated with their ignorance of employment opportunities in pig production, or could it be that they lack interest and skills in pig production? Ezeji and Oviawe (2010) lamented that unemployment among youths has become a severe threat to the Nigerian economy with its attendant social challenges such as armed robbery, youth restiveness, kidnapping, prostitution and child trafficking. It was on this note that the researchers were moved to identify employment opportunities in pig production for job creation in agriculture among youth in Benue State for national development. Specifically the study sought to:

1. Identify employment opportunities in pig production
2. Ascertain challenges of youth employment in pig production
3. Determine strategies for improving youth employment in pig production

**Research Questions**

1. What are the employment opportunities in pig production?

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1. What are the challenges of youth employment in pig production?
2. What are the strategies for improving youth employment in pig production?

**Hypothesis**

1. There is no significant difference in the mean ratings of responses of farmers and lecturers on the employment opportunities in pig production
2. There is no significant difference in the mean ratings of responses of farmers and lecturers on the challenges of youth employment in pig production
3. There is no significant difference in the mean ratings of responses of farmers and lecturers on the strategies for improving youth employment in pig production

**Methodology**

Three research questions were developed and answered by the study. Survey research design was adopted for this study and it was conducted in Benue State of Nigeria. The population for the study was 175 made up of 115 registered pig farmers with Ministry of Agriculture, Makudi in Benue State and 65 lecturers of animal production: 44 from University of Agriculture Makurdi and 21 from Akperan Orshi college of Agriculture, Yandev. The entire population was involved in the study due to its manageable size, hence there was no sampling. An instrument tilted: Employment Opportunities in Pig Production Questionnaire (EOPPQ) developed from the literature review and experience of the researchers was used for data collection. Each questionnaire item had four response options of Strongly Agreed (SA), Agreed (A), Disagreed (SA) and Strongly Disagreed (SA) with corresponding values of 4, 3, 2 and 1 respectively. Three experts validated the questionnaire items; two from the Department of Agricultural Education, College of Education, Katsina-Ala and one from the Department of Animal Production, Michel Okpara University of Agriculture, Umudike, Abia State. The corrections and suggestions of the experts were used to produce the final copy of the questionnaire. Cronbach Alpha reliability method was used to determine the internal consistency of the items and a coefficient of 0.81 was obtained. The data were collected by the researchers from the respondents with the help of three assistants who are familiar with the area of the study. A total of 175 copies of the questionnaire were administered but only 172 copies were retrieved within 5 days. Data collected for the study were analyzed using mean to answer the research questions.

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Any item with mean of 2.50 or above was regarded as agree while any item with a mean less than 2.50 was regarded as not agree. t-test analysis was used to test the null hypothesis at ≤ 0.05 level of significance and at 170 degree of freedom.

**Results**

The results of this study are based on questions answered and hypotheses tested and presented in table 1 to 3.

**Research question 1** What are the employment opportunities in pig production?

**Hypothesis 1**: There is no significant difference in the mean ratings of responses of farmers and lecturers on the employment opportunities in pig production

Data for answering research question one and testing the corresponding hypothesis are presented in table 1.

**Table 1:** Mean rating and t-test analysis of responses of farmers and lecturers on the employment opportunities in pig production

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SN** | **Employment opportunities** | **X** | **SD** | **t-test** | **Remark** |
| 1 | Rearing of piglets to maturity | 3.51 | 1.44 | 0.53 | NS |
| 2 | Selling piglets | 3.98 | 1.40 | 0.39 | NS |
| 3 | Butchering and selling fresh carcasses | 3.91 | 1.25 | 1.04 | NS |
| 4 | Frying or cooking pork for sale | 3.96 | 1.57 | 0.31 | NS |
| 5 | Selling frozen pork | 3.13 | 1.89 | 0.82 | NS |
| 6 | Extracting pork fats for sale | 3.00 | 1.60 | 0.15 | NS |
| 7 | Preparing pork bones for bone meal production | 2.81 | 1.85 | 0.70 | NS |
| 8 | Preserving pig blood for blood meal | 2.57 | 1.34 | 1.03 | NS |
| 9 | Selling bristle | 2.53 | 1.20 | 0.45 | NS |
| 10 | Preparing dung for manure | 2.60 | 0.99 | 0.27 | NS |
| 11 | Dressing skin for sale | 2.59 | 1.46 | 0.53 | NS |

X = mean, t-cal = t- calculated, t- table = 1.96, df =170, NS = Not significant.

Data in Table 1 revealed that all the 11 items had their mean values ranged from 2.53 to 3.98 which were above the cut off mark of 2.50. The table also revealed that the standard deviations (SD) of the items ranged from 0.99 to 1.89 which indicated that the respondents were not very far from the mean and one another in their responses. This showed that all the 11 items were employment opportunities in pig production. The hypothesis tested revealed further that all the 11 items had their t-calculated values less than the t-table values. This indicated that there was no significant difference in the mean rating of the two groups of respondents on employment opportunities in pig production. Therefore, the null hypothesis of no significant difference was accepted for all the items.

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**Research question 2** What are the challenges of youth employment in pig production?

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**Hypothesis 2**. There is no significant difference in the mean ratings of responses of farmers and lecturers on the challenges of youth employment in pig production

**Table 2:** Mean rating and t-test analysis of responses of farmers and lecturers on the challenges of youth employment in pig production

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SN** | **Challenges** | **X** | **SD** | **t-test** | **Remark** |
| 1 | Inadequate start-up capital | 3.27 | 0.07 | 0.63 | NS |
| 2 | Preference of white collar jobs by youths | 3.91 | 0.52 | 0.90 | NS |
| 3 | Inadequate land for production | 2.74 | 0.48 | 0.98 | NS |
| 4 | High cost of concentrate feedstuffs | 2.92 | 0.72 | 0.46 | NS |
| 5 | Inadequate knowledge in pig production | 2.72 | 0.30 | 0.69 | NS |
| 6 | inadequate agricultural extension education | 3.32 | 0.62 | 0.78 | NS |
| 7 | Lack of basic amenities such as roads, water that support pig production | 2.85 | 0.41 | 0.30 | NS |
| 8 | Insecurity of the farm (theft of pig products and production materials). | 2.82 | 0.41 | 0.54 | NS |
| 10 | unwillingness to take risk in pig production by youths | 3.23 | 0.50 | 0.63 | NS |
| 11 | High cost of construction and maintenance of pig pens | 2.64 | 0.67 | 0.51 | NS |
| 12 | Phobia of uncertainty such as disease outbreak after start-up | 2.71 | 0.90 | 0.72 | NS |
| 13 | Government imposition of high tax on production farms | 3.34 | 0.19 | 0.81 | NS |
| 14 | Rivalry of alternative sources to pig products | 3.80 | 0.24 | 0.19 | NS |
| 15 | Lack of good marketing channels/facilities | 3.81 | 0.33 | 1.60 | NS |
| 16 | Inadequate public awareness | 2.54 | 0.72 | 0.40 | NS |
| 17 | Poor customer relationship | 3.72 | 0.48 | 0.31 | NS |

X = mean, t-cal = t- calculated, t- table = 1.96, df =170, NS = Not significant.

Data in Table 2 revealed that all the 17 items had their mean values ranged from 2.54 to 3.91 which were above the cut off mark of 2.50. The table also revealed that the standard deviations (SD) of the items ranged from 0.07 to 0.90 which indicated that the respondents were not very far from the mean and one another in their responses. This showed that all the 17 items were challenges of youth’s employment in pig production. The hypothesis tested revealed further that all the 17 items had their t-calculated values less than the t-table values. This indicated that there was no significant difference in the mean rating of the two groups of respondents on challenges of youth employment in pig production. Therefore, the null hypothesis of no significant difference was accepted for all the items.

**Research question 3.** What are the strategies for improving youth employment in pig production?

**Hypothesis 3**. There is no significant difference in the mean ratings of responses of farmers and lecturers on the strategies for improving youth employment in pig production

**Table 3:** Mean rating and t-test analysis of responses of farmers and lecturers on the strategies for improving youth employment in pig production

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SN** | **Improvement strategies** | **X** | **SD** | **t-test** | **Remark** |
| 1 | training of youths by extension agents for competence for entry in pig production  **-116 -** | 2. 74 | 0.25 | 0.70 | NS |
| 2  ***Shimave, A.G., Nongugwa, D.T & Kesiki, W.B*** | Provision of credit facilities loan | 3.43 | 0.82 | 0.14 | NS |
| 3 | Subsidizing farm inputs | 3. 94 | 0. 92 | 0.60 | NS |
| 4 | Provision of basic amenities | 2. 84 | 0.74 | 0.92 | NS |
| 5 | Intensified public enlightenment campaigns | 3.00 | 0.94 | 0.45 | NS |
| 6 | Continuous supply of improved breeds of pig to maintain customers for sustainability | 3.62 | 0.30 | 0.64 | NS |
| 7 | Favorable policies by government | 2.74 | 0.18 | 0.09 | NS |
| 8 | Provision of adequate security | 2. 87 | 0.31 | 1.52 | NS |
| 9 | Appropriate taxation | 3.30 | 0.91 | 1.43 | NS |
| 10 | In-service training for youths for capacity building for regular improvement | 3.68 | 0.00 | 0.62 | NS |
| 11 | Proper maintenance of pig pens and production facilities to avoid disease out break | 3.14 | 0.58 | 0.19 | NS |
| 12 | Proper implementation of land use act to make land available for youths | 2.83 | 0.07 | 0.48 | NS |

X = mean, t-cal = t- calculated, t- table = 1.96, df =170, NS = Not significant.

Data in Table 3 revealed that all the 12 items had their mean values ranged from 2.74 to 3.94 which were above the cut off mark of 2.50. The table also revealed that the standard deviations (SD) of the items ranged from 0.00 to 0.94 which indicated that the respondents were not very far from the mean and one another in their responses. This showed that all the 12 items were strategies for improving youth’s employment in pig production. The hypothesis tested revealed further that all the 12 items had their t-calculated values less than the t-table values. This indicated that there was no significant difference in the mean rating of the two groups of respondents on strategies for improving youth’s employment in pig production. Therefore, the null hypothesis of no significant difference was accepted for all the items.

**Discussion of the findings**

The study in table 1 identified 11 employment opportunities in pig production which were Sale carcasses fresh, sale of piglets, rearing of piglets to maturity among others with sales of carcasses fresh, fry pork for sale and sale of piglets with highest employment opportunities for youths in Benue State. On the hypotheses tested, the study found out that there was no significant difference in the mean ratings of the responses of the farmers and lecturers on 11 employment opportunities in pig production for youths. The findings are in agreement with the submission of Agbulu, Asogwa and Ekele (2013) in a study on entrepreneurship opportunities in crop production for capacity building of youths for employment in agriculture in Benue State that 6 cereal crops, 6 leguminous crops, 9 roots and tuber crops have employment opportunities for capacity building of youths for employment in agriculture. The study differs from the present study in that it identified crops where entrepreneurship opportunities exist while the present study identified specific areas in pig production where entrepreneurship opportunities exist for employment of youths.

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The findings of the study in table 2 revealed 17 challenges of youth employment in pig production in Benue state. The challenges include incompetence of the graduates, high cost of construction and maintenance of pig pens, phobia of uncertainty such as disease outbreak after start-up among others. On the hypotheses tested, the study found out that there was no significant difference in the mean ratings of the responses of the farmers and lecturers on 17 challenges of youth employment in pig production. The findings were in line with the opinion of Edu and Effiong (2013) that the inability of the Nigerian educational system to provide youth with the demand of industry and ability to be self employed has led to the turning out of restless and disconnected generation of youths, high cost of construction, equipments maintenance and the provision of training materials were challenges for education in Nigeria. The findings also conformed to the submission of Ndem (2014) that neglect of supervisor’s report, inadequate funding, lack of adequate follow up visit among others were challenges of supervision of vocational agricultural education in the schools.

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The findings of the study in table 3 showed 12 strategies for improving youth’s employment in pig production in Benue State. The strategies include retraining of youths by extension agents for competence, provision of loan and subsidy to youths, provision of adequate security among others. On the hypotheses tested, the study found out that there was no significant difference in the mean ratings of the responses of the farmers and lecturers on 12 strategies for improving youth employment in pig production. The findings were in consonance with the assertion of Nwachukwu & Ifejika (2013) that introducing and making vocational education programme compulsory from junior secondary level would ensure early acquisition of vocational and technical skills by youths is a strategy for transformation of the nation’s economy through VTE. The findings also agrees with the results of Akamobi (2014) in the study on enhancing food security and national development through effective agricultural extension service delivery that, provision of agricultural loans to the farmers at low interest rates, provision of subsidies to farmers among others will improve agricultural extension service delivery.

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The implication of this finding is that the professional experience of the respondents did not influence their responses on the employment opportunities in pig production. The findings of the authors cited above help to add validity to the result of this study.

Therefore, the researchers added employment opportunities to the existing body of knowledge in pig production.

**Conclusion**

In Benue State, many youths are unemployed whereas many employment opportunities abound in pig production. This is attributed to the ignorance of these employment opportunities. Meanwhile, there is high patronage for pig in Benue making pig production very lucrative due to some major potential advantages. They produce meat without contributing to the deterioration of the natural grazing lands and are less affected by seasonal changes. Pigs convert concentrate feeds to meat twice as efficiently as ruminants. They also have high fecundity and prolificacy and short generation interval. Pig production has various areas of employment opportunities in which the youths could venture in and create more jobs for national development. Therefore, there was a need to identify the employment opportunities in pig production, challenges and strategies for improving youth employment in pig production.

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The study identified 8 opportunities for youth employment in pig production, 19 challenges of youth employment in pig production and 11 strategies for improving youth employment in pig production. Based on the findings, the following recommendations were made:

1. Job skills required for employment in the identified areas of employment in pig production should be identified by extension agents and skills acquisition centres for capacity building of youths in Benue State.
2. Government should empower youths with grants and materials to go into self employed ventures in pig production.
3. The findings of this study should be made public and available to unemployed youths by the government through the state agricultural extension services and media to create awareness to youth on employment opportunities in pig production for job creation.

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***Bonjoru, F.H. & Idris, A.***

**EMPOWERING THE YOUTH THROUGH TECHNICAL VOCATIONAL EDUCATION AND TRAINING (TVET) FOR NATIONAL DEVELOPMENT IN NIGERIA**

**BY**

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***Abstract***

*This paper takes a critical look at the high rate of unemployment in our communities as a result of the growing number of unskilled graduates in the society. The focus is on the role technical and vocational educational training (TVET) would play in enhancing youth empowerment for national development. TVET is a veritable tool for job creation. It is on this background therefore that this paper examines ways in which national development could be achieved using TVET as a channel. Toward this, some crucial vocational and technical skills needed by students of TEVT in Colleges of Education (Technical), Polytechnics and Universities to meet the trends in a global economy are reviewed. Some recommendations on the ways in which development could be enhanced in Nigeria through re-orientation of attitudes as an individuals and the nation towards TVET for youth empowerment and national development were made.*

***Key words:-****Technical, vocational, training, empowerment and development.*

**Introduction**

The concept of technical and vocational education was seen as a type of practical training meant to prepare handicapped people for specific occupational tasks. It was never seen as that type of education given only to those individuals who need it, want it and are able to profit by it (Fafunwa, 2002).Technology and vocational education is that form of education which emphasizes the development of occupational skills needed as preparation for work. It is a form of education which promotes dignity of labour by entrenching work as the goal of education. Federal Government of Nigeria (FGN, 2013) defined technology and vocational education as that form of education which equips individual with appropriate skills, abilities and competences to live in and contribute to the development of the society. It prepares one for the world of work with which the individual become reliant and can make contributions to the development of the society.

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Jimoh, Dawoda and Komolafe (2005) sees Technical and Vocation Educational Training (TVET) as a skill based programme designed to provide an individual with practical skills, attitude, understanding and knowledge necessary for acquiring vocational expertise and with capabilities for employment in a chosen occupation. According to Abdullahi (1994) technology education is that aspect of education that involves the acquisition of techniques and applications of the knowledge of science for the improvement of man’s surrounding. This includes dealing with manpower training in professional areas such as engineering, agriculture, business, home economics, etc. These skills involve practical works and applications that lead to particular occupation. Vocational education according to Daramola (2008), is an education that fits one into intricate experiences of real world, through the acquisition of relevant knowledge and skills. It is a job-oriented training designed to develop the appropriate knowledge, skills, attitude and understanding in all citizens. It involves strategies, innovations, initiations that bring changes, creativity, problem solving and decision making, actively seeking out alternatives and opportunities, reformulating goals and priorities, redeploying resources, negotiating, resolving conflicts through dynamic or active leadership.

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Development according to Encarta dictionary (2009), is the process of changing and becoming larger, stronger or more impressive, successful or advanced or causing somebody or something to change in this way. Development therefore brings about changes or innovations. Developing technical and vocational education, is also developing Nigeria. All what is needed is re-orientation and attitudinal change towards vocational and technical education. Enahoro (2008) opined that development is the reduction in the level of poverty, illiteracy, and unemployment and income inequality of a society. However, Efajemue and Otuaga (2010) remarked that national development includes: social, political as well as economic development strategies.Nwogu,(2009) stated that TVET and job training has been an integral part of national development strategies because of its impact on human resource development, productivity and economic growth.

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**Historical Perspectives of Technical and Vocational Education in Nigeria**

The early missionary schools in the 19th century introduced farming, bricklaying and carpentry but were not regarded as parts of western education and later collapsed before the turn of the last century with few exceptions like Blaize Memorial Industrial Institute in Abeokuta and Hope Waddel Institute in Calabar. According to Fafunwa (2002), the period between 1908 and 1935 witnessed the establishment of courses in various departments for instance, railway, marine and public works. This marked the beginning of organized technical education in Nigeria. This was followed by the introduction of higher engineering courses at Yaba College of Technology in 1932. However, only few could benefit from these courses due to their nature and requirements. In 1945, the first technical institute for Nigeria was established at Yaba replacing the Yaba, High College. Seven years after, in 1952, three colleges of arts, science and technology were established in Zaria, Ibadan and Enugu. These colleges recorded poor enrolment figures because of the general belief then that technical education is inferior to other types of education. Out of these three institutes only the one at Ibadan offered courses in the area of agriculture. In 1962, these colleges were closed down and their assets taken over by the first generation universities of Ife, Zaria and Nsukka.

In the northern region, there were only three trade centres located at Kaduna, Bukuru and Kano. In the 1970s more universities, polytechnics, and other colleges of higher learning were established but most of them were not technically oriented. The period 1980-1983, saw the establishment of specialized technical institutions, that is, federal universities of technology which were established to cater for manpower training in science and technology related areas, but these universities were underfunded with inadequate facilities, these led to the merger of these universities with bigger ones in 1984. Although these universities got their status restored in 1988-1991 only little progress was recorded in the area of technology. Also, within the same period two of the universities were renamed universities of agriculture (Makurdi and Abeokuta) and later another one was established at Umudike and Umuahia. From 1990s to date, there was remarkable expansion of various technical institutions in the country in terms of infrastructure, enrollment figures, course content and increase in the number of technical colleges, monotechnics, polytechnics and universities of technology. Also records have shown that there is significant expansion in the various faculties of engineering and technology in other conventional universities. There is also the introduction of information communication technology (ICT) in the school system. Recently three polytechnics namely: Kaduna Polytechnics, the polytechnic of Ibadan and Yaba College of technology have been upgraded to degree awarding institutions. What is required is for the government to fund and equip these institutions in order to meet their set goals and objectives; otherwise Nigeria shall continue to trail behind in this era of technological advancement (Clute Institute, 2014).

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**Skills Needed by TVET Graduates in a Global Economy.**

Skill is defined as present observable competence to perform a learned behavior regarding the relationship between mental activity and bodily movements. Nwabuona (2004) identified entrepreneurial skills to include managerial skills, human relation skills, innovative/enterprising skills, competitive skills, communication skills, conceptual/planning skills, supervisory/guidance skills, recording skills, investigation/problem solving skills. Ohakwe (2003) observed that entrepreneurial skills as banking transactions, internet concepts and skills, internet websites knowledge and skills. An adequate knowledge of these concepts, skills and internet competences certainly is an asset to technology and vocational education graduates in today’s ICT driven world.

According to Azuka, Nwosu, Kanu and Agomuo (2006) that there are various numbers of opportunities for technology and vocational education graduates with entrepreneurship skills in Information Communication Technology (ICT) driven technical and vocational education environment. These opportunities exist in various forms for enhancing entrepreneurship skills. A country that is developing and manufacturing its own goods either from Hi-tech or small/medium scale industries using indigenous skills and exports some of those goods to other countries is usually economically stable. Individuals with technical and vocational skills and good knowledge of ICT are characterized by self-reliance, self-employment and fit properly into today’s technical, entrepreneurial and business world. Nwabuona (2004) also stated that the roles of technology and vocational education in enhancement of entrepreneurship skills is to identify and equip graduates with critical wealth of skills, technical knowledge and a good measure of self-confidence using information and communication technology competence. TVET should therefore train entrepreneurs who possess entrepreneurial and management skills which are necessary for the success of the venture.

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The attainment of an industrialized nation requires to a large extent the training of the youths in various trades and professions which include air conditioning, automotive services, aircraft maintenance, construction and maintenance trades, carpentry, electrical/electronics, fabric maintenance services, industrial atomic energy, maritime occupations, energy, metal works, metallurgy, electric power generating plant maintenance, textile production and fabrication, leather works etc. Higher productivity is a parameter for assessing living condition and national development. Technological progress of any nation depends on the level of resourcefulness of her citizens which in turn is a reflection of the quality of education. The training and skill acquisition provides an efficient workforce in business, agriculture and industrial sectors.

**The Role of TVET in Youth Empowerment and National Development**

**Improved technological development**

Technology education is a key agent to technology development, either as a way of developing human capacity, increasing the shield workforce for modernization, industrialization, environmental development or as a matter of personnel freedom, developing capacity and empowerment. It is increasingly recognized to be central to both the origins of technological development, and challenges to the prospects for successfully dealing with them (Alam, 2009).

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**Improved the chances of economic development**

It is clear that modernization and economic development depends on investment and appreciation of modern trends in technical and vocational education and that investment in technology education and training produces benefits for the individual and for the society as a whole.

**Contributes to individual creativity, improved participation in the economic, social and cultural roles in the society.**

Aliyu & Dabban, (2009) stated that Technical and vocational education is now a driving force of technological change all over the world. It’s role in harnessing resources for industrial growth and development cannot be over emphasized. There is no aspect of human activity today that has no technical orientation and complexity. Even religious worshiping today demands high technology as seen in the modern designs and construction of churches and mosques. The role of technical and vocational education is also seen in producing graduates in design, construction and operation of industries, including oil, agriculture, forestry, petro-chemicals, minerals and water resources, electrical power generation and distribution, textile, iron and steel, automotive and plastics as well as in health technology, environmental designs, armaments and commercial enterprises are evidences of the invaluable roles of technical and vocational education in national industrial development.

**Improved understanding of an individual and their respect for others, thus promoting social cohesion and material understanding.**

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Bulus (2010) noted that Nigeria realized the need for technical education as a key instrument for the development of its industrial potentials, hence the introduction of the 6-3-3-4 system of education in the 1980s, which placed more emphasis on science and technology. Similarly, for individuals to contribute meaningfully to economic development; they have to be trained and retrained for better performance. This form of training is better provided through technical and vocational education and training (TVET) In Nigeria, technology and vocational education was previously not seen as fundamental for national development, or for the economic development, but for the school dropouts, and other social and political development within the nation and for individuals.

**Improved democracy, equality and Socio-cultural change**

Technology education is also linked to human resources development and that this has an impact on more than just economic growth, but also an impact on the wider development of individuals and societies. TVET plays the following roles in national development, Improvement in health, nutrition and Ecological development/quality of life.

Haruna (2008) opined that the benefits of vocational and technical education lie in its job creation role in the economy and youth empowerment. Some of these benefits are:-

1. Technical and vocational education prepares the individual to acquire skills for gainful employment.
2. It enables individuals to be self-reliant through setting up of small and medium scale enterprises.

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1. It is a specialized education model for human resource development which is a pre-requisite for national industrial development.
2. It helps to improve and maintain the standard of managerial and technical performance in industries and other organizations.
3. It acts as a platform for ensuring sustain supply of qualified manpower to meet future needs of organizations at all levels.
4. It propels employees to high standard of proficiency in their vocation overtime.
5. It helps to raise the profitability and productivity of an enterprise through the effective use of highly trained manpower.

**Challenges to Technical and Vocational Education Training (TVET) in Nigeria**

Numerous challenges have been identified as setbacks to the development of technical and vocational education in Nigeria. Paramount among these is lack of fund, power supply and technical personnel among others. The inability of Nigerian government to adequately finance technology and vocational education is a serious impediment to national growth and development. The low level of effectiveness of technical and vocational education in Nigeria are due to lack of co-ordination of the programmes inadequate facilities for learning, programmes are not quite job-oriented, teachers are poorly remunerated or motivated. This resulted in the situation where most of the graduates of TVE institutions are lacking the desired technical skills for employment in industries and other organizations. Though technical colleges have been established by federal and state governments, vocational training centers built by governments, individuals and organizations, polytechnics and similar institutions established in all states, yet there is acute shortage of technical teachers. This is because there are no commensurate incentives to attract and retain technical teachers.

Electricity power supply is critical to the country’s industrial development and the state of power in Nigeria is better imagined than described. As Adebayo (2008) put it that “The country was ranked 158th out of 177 countries on the human development index survey by the united nations development programme on power provision for its citizens”. The economic impact of TVET on national and human development cannot be quantified because it deals with all aspects of human life. Many human survival strategies are dependent on the acquisition of vocational skills. Economic and human development of a nation is anchored by advancement achieved in science and technology as well as technical and vocational education training (Dike, 2007). He also highlighted the following challenges facing TVET in Nigeria:

1. Inadequate entrepreneurship education and poor funding of vocational and technical education programmes
2. Inadequate attention given to the technical aspects of infrustructure, facilities and equipments in Nigeria, despite its contribution to national development.
3. Lack of follow-up and continuity in government policies
4. Inadequate technical training facilities and modern equipment
5. Scarcity of vocational and technical teachers.
6. Poor remuneration of vocational and technical education
7. Inadequate skilled manpower to train participants.

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**Strategies for Nigerian Youth Empowerment through TVET**

To ensure effective and efficient technical and vocational education training in Nigeria, the following strategies can be employed as rightly stated in the Clute institute,(2014).

**The content of technical and vocational education curriculum need to be reviewed to meet the current needs of the society.**

In the 21st century, employability skill is the most required skill besides technical knowledge in an attempt to compete for employment and sustain job at the industrial global market. However, Nigerian TVET graduates are not equipped with the employability skills needed by the industries and as a result, they are not ready to enter into workforce. The government gave less attention to practice based courses that provide skills of the programme than theory based courses and no course in the programme curriculum that directly teaches good attitudes and traits. As a result, there is lack of incorporation of employability skills such as Problem solving and decision making, Lifelong learning and Competencies amongst the graduates.

**Provision of well-equipped workshop and laboratories in all schools at all level to ensure proper teaching and learning of TVET subject which will enhance skill acquisition.**

Technical Vocational Education and Training (TVET) is recognized as that aspect of education which leads to the acquisition of practical and applied skills that will enable its recipients to secure employment in a particular occupation. These skills cannot be acquired in a vacuum but rather in a well- established and functional workshop with the right tools, equipment and machines for effective implementation of the program. And also Provision of properly equipped libraries in schools that can support teaching and learning process. This aspect of the curriculum can only be implemented where workshop facilities, tools, equipment and machines are adequate and relevant. Availability of appropriate workshop facilities enhances student learning by allowing them to be involved in demonstrations, and practice which will help them to continue to build their skills. However, one of the issues of great controversy among TVE educators today is the issue of the poor state of workshop tools and equipment in TVE institutions in Nigeria

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**Proper budgeting and funding should be made by government to the technical and vocational education sub-sector for adequate procurement of teaching and training materials and also provision of infrastructures.**

Government, communities, industries, religious organizations labor unions Non-Governmental Organizations (NGOs), wealthy individuals in the society should be encouraged in the funding of TVET institutions for the smooth running of TVET in terms provision of and workshop facilities such as tools, equipment and machines so that TVET graduates will acquire skills, knowledge and attitude for gainful employment to contribute to the socioeconomic development of the nation .

**Training and retraining of staff should be encouraged in all schools, in form of in-service training. This will improve their capacities for proper teaching and training of the youth for national development.**

Technical vocational education is recognized as that aspect of education which leads to the acquisition of practical and applied skills as well as basic scientific knowledge that will enable an individual to secure employment in a particular occupation for sustainable livelihood. These skills cannot be acquired in a vacuum but rather in a well- established and functional workshop with the right tools, equipment and machines for effective implementation of TVET program. However, the desire to produce competent graduates of TVET programs can be achieved when the facilities in the workshops are relevant and adequate for the programs as demanded by the curriculum of the programs.As such educators need to be trained and re-trained to meet up with the challengies.

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There should be adequate provision and installation of information and communication technology (ICT) facilities to enhance quality education. Improvement in working conditions of TVET staff in terms of remuneration, salaries, wages and other conditions of service to attract and retain TVET teachers, technologist, engineers, instructors and other supportive staff.

**Conclusion**

The roles of technical and vocational education in enhancing skills acquisition is very important in training for self-employment and self-reliance, especially now that government cannot employ every graduate. TVET programmes in tertiary institutions should be directed to focus on enhancing entrepreneurship programmes so as to be functional in today’s world of work and in the global economy. The roles of youth in nation building has suffered a lot of neglect in Nigeria hence there is need for proper strategies for youth empowerment through technical vocational education and training for self-reliance, economic progress and national development.

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**Recommendations**

In order to bring about the needed youth empowerment and national development which are key components for sustainable development through technical and vocational education and training (TVET), the following recommendations are made:-

1. The government should established and fund vocational skill acquisition centers adequately
2. The government should ensure that in order to reduce the high rate of unemployment, technical and vocational education and training is integrated properly into the general education system with provision of the needed infrastructure and personnel.
3. Guidance and counseling services should be provided in all schools so that students will be able to see the value of technical and vocational education as a catalyst to the success of the national development strategies.
4. Qualified technical and vocational teachers who are ICT compliant should be recruited to teach TVET courses nationwide.
5. Teachers of TVET courses should be made to attend training and workshops annually to improve their competencies in the field.
6. The government should increase budgetary allocation to vocational and technical education in Nigeria in order to achieve the stated objectives.
7. Facilities and equipment needed in TVET schools should be made available to avoid theoretical training to such subjects which are practically oriented.

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**CHALLENGES OF TEACHING ENTREPRENEURSHIP EDUCATION IN TERTRIARY INSTITUSIONS IN THE SOUTH-SOUTH ZONE OF NIGERIA AND AMELIORATIION STRATEGIES.**

**BY**

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***Abstract***

*This study identified the challenges that teachers in tertiary institutions face in teaching entrepreneurship education, identifying possible solutions to these challenges and highlighting the role of key stakeholders (the government, teachers and schools) in ameliorating these challenges and also promoting the teaching of entrepreneurship education in schools. The area of study was the south-south geo-political zone of Nigeria and questionnaires were distributed to respondents who are lecturers, for this study. Results showed that lack of appropriate training, non-availability of relevant textbooks, low level of student interest as well as low level of knowledge of subject matter on the part of the teachers were the major factors militating against the effective teaching of entrepreneurship education in tertiary institutions in Nigeria. The study recommended adequate training of teachers and also constant review of the entrepreneurship education curriculum for tertiary institutions.*

**Keywords**: *Entrepreneurship, Education, Youth employment, Creativity, Business Management*

**Introduction**

The high level of youth unemployment in Nigeria has been a major factor bring about the ravaging poverty scenario in the country. This is due to the fact that the sector of the Nigeria population that usually referred to as “youth” make up a major proportion of the total population of the country. According to Nwankwo (2006), 49 percent (49%) of Nigeria’s population between the ages of 15-49 years, and this makes it imperative that solutions be proffered to the problem of youth unemployment. Entrepreneurship is a veritable solution to the problem of youth unemployment and poverty. This issue of youth unemployment was buttressed by Fasasu and Etejere (2009) who opine that entrepreneurship is the best solution to arresting youth unemployment in Nigeria because it engages youths in productive, enterprising and positive activities, reducing social vices on the part of the youths and also enabling them to earn a living. Entrepreneurship has historically led to the birth of big private organization which creates employment, wealth and bring about overall prosperity to society. Entrepreneurship has been defined as the process of creating a new business venture or revitalizing an old or moribund business outfit (Garba, 2010). It ranges in scale from small scale individual projects (which the entrepreneur can be doing in a part-time basis) to big organizations that provide employment for people. Entrepreneurship involves the taking of risks with the possibility of getting financial reward (Dex, 2009). An entrepreneur therefore is any individual who originates, organizes and operates a venture, taking all the risks (financial and non-financial) and getting the accompanying rewards.

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Education has been defined as the process of facilitating learning or the acquisition of skills, knowledge and habits (Ogundele, Akingbade and Akinlabi, 2012). It takes place in formal and informal settings, and its methods of dissemination include teaching, training and discussion. Education usually takes place under the guidance of teachers, and these are saddled with the responsibility of passing across knowledge to students. According to Ubulom (2003), education is vital in order to effectively pass not only knowledge, but ideas and attitudes to students. This makes it vital that prospective entrepreneurs are educated in the subject area in order to make informed decisions as well as have the right mindsets and attitudes for achieving success.

According to studies, effective teaching of entrepreneurship education is vital in order to train students to identify opportunities around them, inspire them to search for, discover and utilize available resources within themselves and their environment and be able to develop marketable skills that will make them relevant in heir society and beyond (Aliu, 2007). Entrepreneurship education has been responsible in bringing about paradigm shift in the mindset of graduates is not only being better business managers but also create a mindset that adapts to changes and effectively utilize opportunities that arise around them (Odunaike, Amodu and Olatoje, 2010). The significant economic growth that was experienced by some South Asian countries in the mid and late 1990s were as a result of creative technology drive, export oriented economic policy and also implementation of sound business management principles. These, according to Sagagi (2007) were achieved with sound Business Education in schools and also entrepreneurship education curriculum designed to bring out the creativity on the student. On the other hand, entrepreneurship indirectly increases revenue earned by governments, because the higher the number of business ventures in the society, the higher the amount of corporate tax revenue accruable to the government.

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**Purpose of the Study**

The general purpose of this study is to explore the challenges faced in teaching entrepreneurship education in tertiary institutions and measures that can be adopted in ameliorating these challenges.

Specifically, the study aims at;

1. Identify the challenges that militate against effective teaching of entrepreneurship education in tertiary institutions.
2. Determine measures which can be put in place to mitigate these challenges
3. Identify various stakeholders in the tertiary institutions and their roles in improving the teaching of entrepreneurship education.

**Hypothesis**

The following hypotheses were tested at 0.05 level of significance:

H0: No significant different in the mean response of respondents on the challenges they face in teaching entrepreneurship education

H1: Significant difference in the mean response of respondents to the challenges they face in teaching entrepreneurship education.

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**Research Questions**

The following research questions guided the study. They are;

1. What are the challenges mitigating against the effective teaching of entrepreneurship education in tertiary institutions?
2. What creative methods can be used in solving these aforementioned problems?
3. What are the roles of different stakeholders in tertiary institutions towards improving the teaching of entrepreneurship education?

**Methodology**

**Design of the Study**

This study adopted a survey research design. Survey research typically employs interview and questionnaire to determine the opinions, preferences, attitudes and perceptions of people about issues (Fantula, 2009). The study therefore adopted this design as it sought the opinions of lecturers in tertiary institutions on the challenges they face in teaching entrepreneurship education and measure that can be taken to ameliorate these challenges.

**Area of the Study**

The area of study was the south-south geo-political zone of Nigeria It is made up of four states namely; Bayelsa, Rivers, Akwa Ibom and Cross Rivers states. There are four higher institutions offering Entrepreneurship Education at the undergraduate level. This geo-political zone was selected for the study because of the comparatively high level of student entrepreneurship vis- a-vis the large potential for small scale enterprises (Akhuemonkhan, Raimi and Sofoluwe, 2013).

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**Population of the Study**

The population of the study comprised of 180 lecturers who teach entrepreneurship education in tertiary institutions. The sample for this study comprised of 80 lecturers who directly and indirectly teach entrepreneurship education were used for the study.

**Instrument for Data Collection**

The instrument for data collection was a structured questionnaire. The questionnaires were developed after review of literature related to the study, based on the purpose of the study. The instrument was divided into four sections; sections A, B, C and D. Section A focuses on the type of tertiary institution of the respondent, section B focuses on the challenges encountered in the teaching of entrepreneurship education while section C focuses on the ways of ameliorating these challenges. The last section, section D focuses on the roles of the different stakeholders in ameliorating the challenges associated with teaching entrepreneurship education. Response to the items was based on a 5-point rating scale as follows:

Strongly Agree (SA) = 5 points

Agree (A) = 4 points

Undecided = 3 points

Disagree (DA) = 2 points

Strongly Disagree (SDA) = 1 point

**Reliability of the Instrument**

A total of eighty (80) copies of the instrument were administered to lecturers selected from Delta, Rivers and Cross River states. The Entrepreneurship Education lecturers were from the Federal College of Education Omoku, Delta State University Abraka and Cross Rivers State University. Data obtained were used to determine the reliability of the instrument.

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**Method of Data Collection**

The administration of the instrument was done through personal contact by the researcher. A total of 80 copies of the questionnaire were distributed to lecturers in these institutions. These were completely filled and returned.

**Method of Data Analysis**

The following data analysis techniques were used:

Mean: The research question one, two and three were analyzed by computing the mean scores for each of the items. The scaling points for the upper and lower limit in mean is shown below.

Scaling Points

Description 4.50 – 5.00

Strongly Agree 3.50 – 4.49

Agree 2.50 – 3.49

Undecided 1.50 – 2.49

Disagree 1.00 – 1.49

Strongly Disagree

A mean of 3.50 was used as threshold for decision making for each item. Based on the values, any item with a mean of 3.50 and above was considered as an accepted response, while any item with a mean below 3.50 was considered as an unaccepted response.

T-test: This was used to analyze the null hypothesis formulated in this study at 0.05 level of significance. All computations were done using the Statistical Package for Social Science (SPSS) version 17.0.

**Presentation and Analysis of Data**

The data presentation and analysis were based on the research questions and hypotheses formulated for the study.

**Research Question One**

What are the challenges mitigating against the effective teaching of entrepreneurship education in tertiary institutions?

In order to answer the above question, the mean responses the Entrepreneurship Education lecturers on each item were computed and presented in Table 1.

***Table 1***

Mean Responses of Respondents on the challenges that militate against the effective teaching of entrepreneurship education

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **Challenge** | **X** | **SD** | **Decision** |
| 1. | Entrepreneurship Education is not a profession, | 4.50 | 1.15 | Accepted, |
| 2. | Lack of training in Entrepreneurship Education | 3.64 | 0.95 | Accepted |
| 3. | Low level of knowledge of subject content | 3.92 | 1.02 | Accepted |
| 4. | Inability to select appropriate methods of instruction, | 3.73 | 0.89 | Accepted, |
| 5. | Low knowledge level of instructional materials | 4.06 | 1.29 | Accepted |
| 6. | Inability to motivate students in subject area | 3.79 | 1.13 | Accepted |
| 7. | No knowledge of practical exercises in subject area | 3.95 | 0.81 | Accepted |
| 8. | Inability to evaluate instruction, | 4.12 | 0 .87 | Accepted |
| 9. | No motivation for teaching Entrepreneurship Education, | 3.91, | 0.72, | Accepted |
| 10. | Inability to facilitate students’ discussion, | 4.17 | 1.03 | Accepted |
| 11. | Have no idea about starting a business | 4.49 | 0.95 | Accepted |
|  | Total Mean Score | 4.03 | 1.09 | Accepted |

Table 1 shows that all the respondents accepted that the 11 challenges were mitigate against the effective teaching of Entrepreneurship Education as revealed by the mean responses which are above 3.50. Specifically, two challenges (items 1 and 11) were more pressing to the respondents, with mean responses of 4.50 and 4.49 respectively

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**Research Question Two**

What creative methods can be used in solving these aforementioned problems?

Summary of data on research question two is presented in Table 2

**Table 2:** Mean Responses of students and teachers on ways of reducing the strategies involved in the teaching and learning of Entrepreneurship Education

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/N | **Ways of Reducing these Challenges,** | **X** | **SD** | **Decision,** |
| 1. | In-service training for teachers , | 4.47, | 1.03 | Accepted, |
| 2. | Provision of facilities | 4.10 | 1.09 | Accepted |
| 3. | Provision of books on entrepreneurship | 3.91 | 1.13 | Accepted |
| 4 | Training on business building and entrepreneurship | 4.52 | 0.87 | Accepted |
|  | Total Mean score | 4.25 | 1.03 | Accepted |

Table 2 shows that all the four ways of reducing these challenges were accepted, with items 1 and 4 standing out as the most appealing with mean responses of 4.47 and 4.52 respectively.

**Research Question Three**

What are the roles of different stakeholders in tertiary institutions towards improving the teaching of entrepreneurship education?

**Table 3.1:** Mean Responses of Role of School in reducing the challenges militating against the effective teaching and learning of entrepreneurship education

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/N | **Roles of Schools,** | **X** | **SD** | **Decision,** |
| 1. | Make entrepreneurship education compulsory subject, | 4.40 | 1.14 | Accepted, |
| 2. | Provide appropriate learning materials | 4.20 | 1.07 | Accepted |
| 3. | Have in its employ qualified teaching staff | 4.31 | 1.12 | Accepted |
| 4 | Create an enbling environment for students to practice their entrepreneurial skills. | 4.56 | 1.14 | Accepted |
|  | Total Mean score | 4.37 | 1.14 | Accepted |

Table 3.1 shows that the four roles of the school as a stakeholder in reducing the challenges of teaching entrepreneurship education were accepted. The high mean scores obtained from them show that all four are considered necessary for effective teaching and learning of Entrepreneurship Education.

**Table 3.2** Mean Responses on the Role of Teachers in reducing challenges militating against the effective teaching of entrepreneurship education.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/N | **Roles of Teachers ,** | **X** | **SD** | **Decision,** |
| 1. | Being updated with current trends in subject area | 3.72 | 1.14 | Accepted, |
| 2. | Effect evaluation of students’ progressing | 3.61 | 1.09 | Accepted |
| 3. | Continued improvement of knowledge of subject | 3.53 | 0.89 | Accepted |
| 4 | Engagement in Entreprenueurial activity experience of subject area. | 3.51 | 0.76 | Accepted |
| 5. | Mean Total Score | 3.60 | 0.92 | Accepted |

The results above show that all the roles of teachers as stakeholders in effective entrepreneurship education are important in facilitating effective teaching in the subject area

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**The Role of Government in Effective Teaching of Entrepreneurship Education**

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/N | **Roles of Government** | **X** | **SD** | **Decision,** |
| 1. | Provide programs that give grants to start-up ventures | 3.88 | 1.17 | Accepted, |
| 2. | Compulsory teaching of entrepreneurship education in school | 3.61 | 1.08 | Accepted |
| 3. | Legislation on microfinance which enables students and fresh graduates to access low-interest business loans. | 3.80 | 1.14 | Accepted |
| 4 | Devote a percentage of government contracts to Indigenous start-up companies | 3.51 | 0.86 | Accepted |
| 5. | Mean Total Score | 3.70 | 0.86 | Accepted |

Table 3.3 above shows that all the roles of government towards reducing the challenges militating against the effective teaching of entrepreneurship education are accepted.

**Hypothesis One**

There is no significant difference in the mean responses of teachers on the challenges they face in teaching entrepreneurship education. The T-test was used and the results are presented in Table 4

**Table 4**

The T-Test Analysis of Response of Entrepreneurship Education Lecturers on the challenges they face in teaching entrepreneurship education.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S/N | Specific Challenges | SD1 | SD2 | t-value | Sig |
| 1. | Entrepreneurship Education is not a profession | 4.62 | 4.48 | 1.510 | 0.132 |
| 2. | Lack of training in subject matter | 4.63 | 4.36 | 2.742 | 0.006\* |
| 3. | Low level of knowledge of subject content | 4.31 | 4.30 | 0.135 | 0.893\* |
| 4. | Inability to select instructional methods | 4.06 | 4.29 | -2.117 | 0.035\* |
| 5. | Low Knowledge level of instructional materials | 4.41 | 4.22 | 1.723 | 0.086 |
| 6. | Inability to motivate students | 4.21 | 4.07 | 1.070 | 0.285 |
| 7. | Cannot evaluate assessment in subject area. | 4.21 | 4.07 | 1.070 | 0.285 |
| 8. | No motivation for teaching Entrepreneurship Education | 4.61 | 4.48 | 1.426 | 0.155 |
| 9. | Inability to facilitate students’ discussion | 4.23 | 4.29 | -0.610 | 0.543 |
| 10. | Have no idea about starting a business | 3.86 | 3.78 | 0.526 | 0.599 |

\*= Significant, P<0.05

Table 4 show that there was significant difference in the mean responses of the lecturers on specific challenges. These are items 2 and 4. These items had significant values below the stipulated .05 level of significance for decision making in this study. Thus, the null hypothesis is of no significant difference was rejected for the two items. However, there was no significant difference in the mean responses of the challenges. These had significant levels above.05. Therefore, the null hypothesis was upheld for these 9 items. This means that there is no significant difference in the mean responses of Entrepreneurship Education lecturers on the 9 challenges of teaching entrepreneurship education.

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**Findings**

The following findings were made in this study.

1. The specific challenges that lecturers face in teaching entrepreneurship education are;
2. Lack of training of teachers in entrepreneurship education.
3. Low level of knowledge of subject content.
4. Inability to select appropriate methods of instruction.
5. Low level of knowledge of appropriate instructional materials
6. Inability to motivate students in entrepreneurship education.

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1. No knowledge of practical exercises in entrepreneurship education
2. Inability to evaluate instruction in Entrepreneurship Education.
3. No motivation for teaching Entrepreneurship Education
4. Inability to facilitate students’ discussion
5. No idea of how to start a business
6. Four ways of reducing these challenges
7. In-service training for teachers
8. Provision of facilities
9. Provision of books on entrepreneurship.
10. Training on business building, entrepreneurship and entrepreneurship education.
11. Four measures that can be taken by the school as a stakeholder in ameliorating the challenges militating against the effective teaching and learning of entrepreneurship education.
12. Making entrepreneurship education a compulsory subject.
13. Provision of appropriate learning material such as textbooks for teachers.
14. Have in its employ qualified staff to teach entrepreneurship education to students.
15. Create an enabling environment for students to practice entrepreneurial skills.
16. Five measures that can be taken by teachers in schools in order to help reduce the challenges militating against the effective teaching of entrepreneurship education.

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1. Continuously keep them updated with current trends in the entrepreneurship education subject area.
2. Continuously fashion out creative means of evaluating students’ progress in learning of subject area.
3. Continuously improve their level of knowledge and understanding of the subject area.
4. Engage in entrepreneurial activity so as to have practical experience of subject area.
5. Educate students on the benefits of entrepreneurship and being a business owner.
6. Four measures that can be taken by the Government in reducing the challenges facing effective teaching of entrepreneurship education.
7. Provision of programs which gives grants to start-up ventures via business plan competitions.
8. Make it mandatory that entrepreneurship education be taught in schools.
9. Create laws on microfinance which will enable students and fresh university graduates access low-interest loans for entrepreneurship ventures.
10. Devote a percentage of government contracts to indigenous start-ups so as to help create jobs and encourage budding entrepreneurs.

**Discussion of Findings**

The findings in table 1 revealed that all the 11 challenges lecturers face in the effective teaching of entrepreneurship education were accepted by the respondents. This is a clear indication that the challenges outlined in this study are considered important in teaching entrepreneurship education to student of tertiary institutions. This finding is in consonance with the findings of Akudolu (2010) in her research titled “A Curriculum Framework for Entrepreneurship Education in Nigeria” where she mentioned that an effective curriculum which clearly outlines learning objectives needs to be developed in order to bring about effective teaching of entrepreneurship education in Nigerian higher institutions. Thus, in order to improve the teaching of entrepreneurship education, the mentioned challenges need to be adequately addressed and measures taken to reduce them.

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Table 4.1 shows that the four roles of the schools as a stakeholder in the entrepreneurship education process were accepted by the respondents, as evidenced with the high mean response scores, all above 3.50. This indicates that these measures are effective in helping the school to contribute its own quota in ameliorating the challenges of teaching entrepreneurship education. These findings are consistent with the views of Ondigi (2012), who posited that schools have the most important roles to play in making for the effective teaching of entrepreneurship education because they are the ones to seek and recruit qualified academic staff and provide avenue for building capacity of their staff via seminars and symposia so as to keep them abreast with trends in the subject area. It is also consistent with the position of Seikkula-Leno, Ruskovaara and Ikavalko (2009) and also with that of Fiet (2000) who all posited that it is determinant on the schools to appoint qualified teachers for the effective teaching of entrepreneurship education. The findings in Table 4.3 shows that the role of the government in promoting the teaching of entrepreneurship education is in consonance with the position of Blanker and Kjeldsen (2006) there they mentioned that government entrepreneurship promotion programs are highly effective in gearing youths towards the pursuit of entrepreneurship careers. Also, these findings are consistent with the view of Ubulom (2003) where he pointed out that direct government participation in entrepreneurship education with measures such as making it mandatory to be taught in schools and also by establishing laws which will give low interest micro-finance loans to students and fresh graduates can be highly effective strategies in brining growth in the teaching and learning of the subject area.

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**Conclusion**

There is a need to give Entrepreneurship Education a decent level of attention and emphasis which it deserves. This is important in order for society to produce competent entrepreneurs, who are well exposed and trained in the rudiments of entrepreneurship. There is a need for continued improvement in the teaching of the subject and also placing emphasis on practical exercises and tasks which enable students have a sound orientation of the subject area and also develop passion towards entrepreneurship as a career. Furthermore, teachers should embody what they teach in order not only to impart theoretical knowledge alone to students, but also based on practical experience.

**Recommendations**

Based on the findings of this study, the following recommendations were made

* Curriculum planners of tertiary institutions should regularly update the course content of entrepreneurship education by including current trends in the subject area in order to make the subject relevant to the ever changing dynamic society.
* Provision of regular in-service training for lecturers of entrepreneurship education in order to keep them abreast of latest trends in the subject area and also for the continued improvement of their teaching skills.

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* Case studies of real and existing business organizations and situations should be used in teaching and evaluating student knowledge of subject area.

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**CUCUMBER (CUCUMIS SATIVA) AN INSTRUMENT FOR ENTREPRENEURSHIP IN FRUIT CROP PRODUCTION, IN EBONYI STATE**

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***Abstract***

*The study is designed to investigate cucumber as an Instrument for Entrepreneurship in Fruit Crop Production in Ebonyi State: Four Research questions were formulated to guide the study. The population for the study was 1,565 cucumber farmers in the state Sample for the study was 156 cucumber fruit crop farmers, stratified random sampling techniques was used in selecting the sample size, by replacement. The Instrument used in data collection was structured questionnaire developed by the researchers, the instrument was validated by three experts one in measurement and Evaluation in Science Education Department and Two in Agric. Education Unit, Department of Technology and Vocational Education, in the same faculty of Education and University. Crownbach Alpha reliability method was used in determining the internal consistency of the instrument which yielded reliability coefficient of 0.76. The Instrument was administered to the respondents, with the help of two Research Assistant, out of 156 administered, 150 was returned, which is 98 percent return. The data collected was analysed using mean and standard deviation. The result revealed that Pre-planting operation in Cucumber Entrepreneur is an Instrument in fruit Crop Production. That planting operation, post planting operations, and post – harvesting operation, was accepted as an instrument in fruit crop production. Among the recommendations made was that cucumber farmers need regular orientation, workshop and research information to improve on the present level of cucumber production in the state.*

***Key words:*** *Cucumber, Instruments, Entrepreneurship, Fruit Crop and Production*.

**Introduction**

Cucumber is a fruit vegetable crop that are eaten raw as food after harvesting from the farm without cooking or roasting them. In the view of Okoye (2014) cucumber is a natural gift fruit crop to human beings and animals. The author stressed that the leaves are used as feed to livestock, while, the fruits are sold to get money, cucumber generate sources of Income to the individual farmers that engage on its production. He maintains that the fruits can be processed into Juice, which serves as concoction for blood supplement and provide employment opportunities to youth and Adult within and outside Ebonyi State in Nigeria. In another Development, Eze, (2015) Maintained that an instrument is a tool that assist, in the production process of a particular products. An instrument in this contest is the potentiality, skills competencies in cucumber which can make an Individuals depend on it and survive on it financially, as well employ others. In another development, Mohamed (2015) who view entrepreneur as the person who organise, manage, co-ordinate, control, and a commercial under taking in any business. Entrepreneur in the contest of this study is the person, who cultivate cucumber as business set up, where he generate his/her sources of income and employs the serves of others. In the view of Ndem (2015) who stress that cucumber entrepreneur are the people or individual, or group of people. Who participate in day to day farming activities in the cultivation, planting, weeding, staking, fertilizer application, spraying insecticides, harvesting, marketing and distribution of the cucumber fruits to the consumers and generate enough Income for him-self and have the opportunity of employing others.

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In the same vein, Igboke, (2015) is of the view that cucumber has different production process which include, land selection, clearing, marking out and cultivation (Harrowing and ploughing) which is pre-planting operations. The author stressed that planting operations include improved seed selection, testing seed viability, planting date, seed rate, planting distances, germinating rate, planting dept, among others. He maintains that post-planting operating include, weeding, or spraying herbicides, staking, fertilizer application, spraying insecticide, among others. He viewed post-harvest operationsas harvesting, processing, grading, packaging, curing, among others. In the view of Ajibola (2014) who maintained that cucumbers success in production, in terms of input output ratio depend on good management practices, adopted by the entrepreneurs, who combines the production factors very effectively and implement them as when due. He maintain that such good management practices include planning, quick decision toward good coordination and control of all the production processes which gears toward the overall development and production of the fruit crop. He outlined them as site selection, skills, soil testing, skills, clearing, tillage operation (harrow and plough) raising ridges, heaps, seed selection, improved seeds, planting date, dept, seed rate, germinating rate plating seeds, watering, staking, weeding, fertilizer application, spraying insecticides, pest and disease control, harvesting, grading, packaging, storage, processing, distributing and utilization.

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In the same vein, Abubaka (2015) maintained that skills and competence are required in cucumber entrepreneur in different operational stage in cucumber, such as, pre-planting operations, planting operations, post-planting operations and post harvesting operation. He maintains that entrepreneur in cucumber production have many challenges, which include sources of good seeds, lack of machines, (Tractors) lack of good sources of finance, labourers, lack of virgin soil, for cultivation. Diseases and pest control, lack of research information and poor management, that lead to low income generation, decreased yield of cucumber fruits, and scarcity of the cucumber to the consumers. Nweke (2015) is of the view that cucumber entrepreneur are very important in human life and for livestock consumption, which need serious attention of all the stake holder in the production process of cucumber fruit crop. He maintains that individuals or group of people who have entrepreneur skills in the fruit crop production has the capability of generating enough income, for himself, his family, his immediate society and stand the chance of employing others.

According to Ekwe (2015) an entrepreneur in cucumber fruit crop are the farmers or people who participate in the day to day activities in the cucumber production, distribution, packaging, marketing and processing. He maintained that they produces cucumber fruit crops, sell, them and consumed them in Ebonyi State, Nigeria. He stress that cucumber entrepreneur are the major stake holders in feeding Nigerian teaming population with cucumber fruit crops and domestic industries that utilize them in producing other products. Adebayo (2014) stress that cucumber production process requires expert attention in certain operations to be carried out, in order to arrive at huge success, which include site selection operation, soil testing, clearing, tillage, seed selection, cultivation ridge monds, heaps, seed test, mulching, watering, weeding, fertilizer application, pest control, disease treatment, and control, harvesting, distributing, packaging, marketing processing and utilization. In the view of Mohamed, (2012), who maintained, that cucumber entrepreneur operations include, pre-planting. He stated that pre-planting are the activities carried out by the farmer before planting the seeds or seedling. Which involves selecting seeds, or seedling, selecting site for planting. Clearing the site, testing the soil, stumping and cultivating the ridges or heap.

He optioned that planting operations are the activities which farmers initiate after cultivating heaps and ridges. He listed them as selecting seeds, testing. Its viability checking the planting Dept, planting date, planting distances, and number of seeds per hole, and planting them in the heaps. He stressed that post planting activities are the operations, which an entrepreneur in cucumber production are carried out after planting the seeds. He listed them as mulching, watering, staking, fertilizer application, weeding, insects hand picking, or insecticide spraying, disease control, harvesting. He maintains that post harvest are the operations, which an entrepreneur in cucumber production are carried out after harvesting cucumber fruit crop. He listed them as washing the fruits, grading them, packaging, marketing processing and utilization. He maintains that each operation requires serious attention for cucumber production. Fayede (2014) is of the view that cucumber entrepreneur face a lot of challenges in the areas of improved seeds and seedling, machines, (tractors), lack of financial assistance, lack of managerial abilities, lack of research information services, lack of market information, poor land preparation low yield, lack of storage facilities and poor disease and pest control. He stress that all these factors lead to poor yield of cucumber, low income generations, decreased quantity and quality of the fruit food crop – shortages and scarcity of cucumber to the consumers. In the view of Tagbayo (2015) who is of the option that effective cucumber entrepreneur requires good managerial skills, good environment (land) labour, capital and other material inputs necessary for massive cucumber production. He maintains that entrepreneurial competencies and skills are the ability to transform the material inputs, capital, labour and management into production process and utilizing ideas, knowledge base, and information into fruit crop production. In another development, Oweyike (2014) stress that cucumber challenges in pest, disease and rodents attack, constitute serious hazards. He maintains that fungal diseases like pyricularia disease, attack cucumber in the field and in store: He maintained that entrepreneurs in cucumber production requires orientation, seminars and workshops on information delivery system to gain more knowledge in cucumber production. Since, it provide sources of income, employment opportunities, food, and nutrition to the health of the consumers and to restore our youth, who have no job. He optioned that retraining of the cucumber entrepreneur in the areas of land selection, (virgin land) type of fertilizer best for its production, the quality that resist disease and pest, skill for large scale production, using good techniques of information dissemination like radio, newspapers, television, extension agents, since they are major stakeholder in cucumber production.

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**Statement of the Problem**

The production of cucumber fruit crop are very low, in the market, in relation to the population of the people demanding the fruit crops. To tackle, this problem, it seems, that cucumber farmers may not have followed the crop production operational stages; or lack managerial competencies, or have the problem of disease and pest attack on the crops, or that the required knowledge, ideas, in highly yielding varieties is not made available to them. Therefore to solve the problem of cucumber fruit crop scarcity to the consumer, it calls for research investigation, since the fruit crop shortage constitute a problem and if such situation are allowed to continue to manifest, it may lead to poor nutritional balance to the consumers. Besides; the benefit of such food crop, that generate, a lot of income to the farmers, employ youth, and adults and solve the problem of mal-nutrition to the consumers and can sustain many people, who wish to depend on it and survive by it. Therefore, the worries of the researcher is to determine cucumber as an instrument for entrepreneurship in fruit crop production in Ebonyi State.

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**The Purpose of the Study**

The purpose of the study is to determine cucumber as an instrument for entrepreneurship in crop production in Ebonyi State. Specifically the study tend to:

1. Determine an entrepreneur pre-planting operations required as instrument in cucumber production.
2. Determine an entrepreneur planting operations required as instrument in cucumber production.
3. Determine as entrepreneur – post planting operations required as an instrument in cucumber production
4. Determine an entrepreneur – post harvest operations required as an instrument in cucumber production.

**Research Questions**

1. What is the Entrepreneur pre-planting operations required, as, an instrument in cucumber fruit crop production in Ebonyi State?
2. What is the Entrepreneur planting operations required as an instrument in cucumber fruit crop production?
3. What are the entrepreneur post-planting operations required, as an instrument in cucumber fruit crop production in Ebonyi State?
4. What are the entrepreneur post-harvest operations required as an instrument in cucumber fruit crop production in Ebonyi State.

**Methodology**

The study adopted descriptive survey research design. The area of the study is the three agricultural zones namely Ebonyi North, Ebonyi Central and Ebonyi South in Ebonyi State. Ebonyi State is one of the states in the South-East Geopolitical Zone in Nigeria. The population for the study is 1,565 cucumber farmers in the state. Sample for the study was 156 cucumber farmers that cultivate and produce cucumber fruit crops in the state. Stratified random sampling techniques were adopted in selecting the sample size by replacement. Instrument for data collection was a structured questionnaire, with four point rating scale of SA, A, D, SD. Titled, cucumber as an Instrument for Entrepreneurship in Fruit Crop Production Questionnaire (IEFCPQ) The instrument was validated by three experts, one from the Department, measurement and evaluation in science Education, Department and two from Agricultural Education Unit in the Department of Technology and Vocational Education in the same faculty of Education in Ebonyi State University. Crown back alpha reliability method was used in determining the internal-consistency of the instrument, which yielded reliability co-efficient of 0.76. The instruments were administered to the respondents by the researchers with the help of two research assistants. One in each Agricultural Zone. The data collected were analysed using mean and standard deviation, mean score from 2.50 and above were regarded as accepted, while below 2.50 was regarded as not accepted.

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**Results**

**Research Question 1:** What are the entrepreneur pre-planting operations required as an instrument in cucumber fruit crop production in Ebonyi State

**Table 1:** Mean Ratings of Respondents on the Cucumber Pre Planting Operation.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **Item Statements** |  | **SD** | **Decision** |
| 1. | Fertile land selection is an instrument in cucumber entrepreneur in fruit crop production | 2.60 | 0.55 | Accepted |
| 2. | Soil test is an instrument in cucumber entrepreneur in fruit crop productions in Ebonyi State. | 2.73 | 0.83 | Accepted |
| 3. | Proper land preparation is an instrument in cucumber entrepreneur in fruit crop production (Harrowing &Ploughing) | 3.31 | 0.74 | Accepted |
| 4. | Selection of improved seeds of cucumber is an instrument in cucumber entrepreneur in fruit crop production | 3.06 | 0.78 | Accepted |
| 5. | Seed test for viability is an instrument in cucumber entrepreneur in fruit crop production | 3.14 | 0.79 | Accepted |
| 6. | Mulching and watering is an instrument in cucumber entrepreneur in fruit crop production | 2.54 | 0.67 | Accepted |

Table I item 1-6 had mean score above 2.50 which implies that item (1-6) statement was accepted by the respondents as an instrument in cucumber entrepreneurs pre-planting operation, required in fruit crop production.

**Research Question 2:** What are the entrepreneur planting operations required as an instrument in cucumber fruit crop production?

**Table 2:** Mean Ratings of Respondents on the Cucumber Planting Operation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **E** | **Item Statements** |  | **SD** | **Decision** |
| 1. | Planting Date is an Instrument in Cucumber Entrepreneur, in Fruit Crop Production | 3.04 | 0.86 | Accepted |
| 2. | Planting Distance in ridges is an instrument in cucumber entrepreneur in fruit crop production  **-145 -**  ***Ogba, E.I.*** | 3.91 | 0.79 | Accepted |
| 3. | Planting dept and number of seeds per-hole is an instrument in cucumber entrepreneur in fruit crop production | 3.33 | 0.68 | Accepted |
| 4. | Planting seeds with high yield is an instrument in cucumber entrepreneur in fruit crops production | 3.30 | 0.69 | Accepted |
| 5. | Planting seeds with high resisting power in disease and pest is an instrument in cucumber entrepreneur in fruit crop production. | 2.94 | 0.81 | Accepted |

Table 2, all the item statement had mean score of 2.50 and above. This implies that the respondents accepted the whole item statements as appealing to them. Since none of them scored below 2.50.

**Research Question 3:** What are the entrepreneur post-planting operations required as instrument in cucumber fruit crop production?

**Table 3:** Mean Ratings of Respondents on the Post-Planting Operations in Cucumber Production.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **Item Statements** |  | **SD** | **Decision** |
| 1. | Weeding using weeding knives is an instrument in post-planting operations in cucumber fruit crop production | 3.31 | 0.67 | Accepted |
| 2. | (Chemical) herbicides are used in weeding as an instrument in post-planting operations in cucumber fruit crop production | 2.83 | 0.71 | Accepted |
| 3. | Right application of organic and in-organic manure is an instrument in post-planting operation in cucumber fruit crop production | 3.18 | 0.76 | Accepted |
| 4. | Staking to prevent soil bore disease on crop leaves is an instrument in post-planting operation in cucumber fruit crop production | 3.18 | 0.71 | Accepted |
| 5. | Pest control by hand picking and chemical insecticides is an instrument in post-planting operation in cucumber fruit crop production | 2.84 | 0.56 | Accepted |
| 6. | Identifying mature/ripped cucumber fruit for harvesting is an instrument in post-planting operation in cucumber fruit crop production | 3.31 | 0.74 | Accepted |
| 7. | Hand picking in harvesting cucumber fruit is an instrument in cucumber entrepreneur in crop production. | 3.23 | 0.72 | Accepted |

Table 3, all the item statements had mean score of 2.50 and above, which, suggest that all the

respondents accepted all the item statements in post planting operations in cucumber.

**Research Question 4:** What are the entrepreneur post-harvesting operations required as an instrument in cucumber fruit crop production

**Table 4:** Mean Ratings of Respondents on the Post-Harvesting Operations in Cucumber Production

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **Item Statements** |  | **SD** | **Decision** |
| 1. | Washing fruit crops and grading after harvest is an instrument in post-harvesting operations in cucumber fruit crop production. | 3.30 | 0.68 | Accepted |
| 2. | Marketing fruit crops and processing into juices and salads is an instrument in post harvesting operation in cucumber fruit crop production | 3.60 | 0.74 | Accepted |
| 3. | Storing fruit crops in refrigerators and cool room is an instrument in post-harvesting operation in cucumber production | 3.17 | 0.71 | Accepted |
| 4. | Preserving cucumber seeds with chemical for next session planting is an instrument in post-harvesting operation in cucumber | 2.74 | 0.56 | Accepted |
| 5. | Distributing the fruit crops in places of its scarcity is an instrument in post harvesting operation in cucumber | 2.60 | 0.51 | Accepted |

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Table 4 all the item statement 1 – 5 had mean score of 2.50 and above. It implies general acceptance by the respondents, since none of the item statement had bellow 2.50

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**Findings**

1. Good land selection, proper land preparation, (harrow & plough). Improved seed selection, soil test, among others are instrument in cucumber entrepreneur pre-planting operations, required in fruit crop production.
2. Planting date, planting distance, planting dept and number of seeds per hole, planting seed with high yield, seeds-with high resisting power of diseases and pest all are instrument in cucumber entrepreneur planting operation in fruit crop production
3. Weeding using weeding knives, using herbicides chemicals, right method of applying organic and in-organic fertilizer, staking to prevent soil borne diseases on leaves, pest control using hand picking, pesticides/insecticide, harvesting by hand picking and identifying ripped fruits all are instrument in cucumber entrepreneur post-planting operations, required in fruit crop production.
4. Harvesting, Washing fruit crops and grading, marketing and processing fruit crops into juices and salad, storing fruit crops in refrigerator and cold room; distributing harvested fruit crops to scarcity areas, preserving cucumber seeds for next planting session all is an instrument in cucumber entrepreneur, post-harvesting operations, regained in fruit crop production.

**Discussion of Findings**

Based on the data collected and analysed on table I. The result reveals that good land selection, proper land preparation, soil test improved seed selection, seed test for viability watering and mulching during dry session is an instrument in pre-planting cucumber, entrepreneur in fruits crop production. This study is in line with the study of Abubakar (2015) who explained the different operational stages necessary for cucumber fruit crop production for profit oriented project. Table 2 revealed that planting operation like planting date, planting distance, dept, and seed rate per hole, planting high yield seeds and resistant varieties is an instrument in planting operation in cucumber entrepreneur fruit crop production for nutritional benefit to the consumers. The study is in line with the study of Mohamed (2012) who maintained that failure to meet up this planting operation can lead to poor yield of the cucumber fruit crops which can lead to nutritional in balance to the consumers. Table 3 reveals that post-planting operation like staking weeding, fertilizer application, insect and pest control is an instrument in post planting operations in cucumber entrepreneur fruit crop production. Since, farmers who are the major stake holders in cucumber production accepted all the item statement as an instrument that can create scarcity of the fruits. This study is in line with study of Fayede, (2014) who maintains that post-planting operation are the bases which take care of the fruit crops and prevent the challenges of pest and disease, while, staking prevent soil borne diseases, fertilizer application improves soil fertility for crop performance, weeding reduces mineral competition among others. Table 4, reveals that post-harvest operation is an instrument in cucumber entrepreneur like, harvesting processing into juice and salads, marketing to consumers, packaging, grading among others, still remain the ways of generating sources of income. This study is in line with the study of Fagbaye (2015) who maintains that post harvesting operation is a good management technique, which ensures proper utilization of the fruit crop to the consumers. This study is in line with the study of Oweyike (2014) who stress that harvesting, grading, packaging, marketing, reduces the challenges of fungal disease, which attack the fruits in the field and in storage and reduces income generation waste, to the farmers.

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**Conclusion**

Effective production of cucumber fruit crops as a business for farmers must follow its production process, the result of the research has shown that farmers, who responded to the instruments accepted that cucumber production operations are the major instrument in cucumber fruit crop production the productions operations like pre-planting, planting, post-planting and post harvesting where seriously advocated by the respondents. This operational stages skill like pre-planting, planting, post planting and post harvesting are needed by cucumber farmers, so that more production will be achieved, to solve the nutritive need of consumers and money generation among others.

**Recommendations**

1. From the findings of the study it recommends that cucumber farmers need to attend seminar and workshop to reduce challenges of diseases and pest.
2. Required orientations should be given to the cucumber farmers for higher achievement in terms of inputs output ratio.

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**CAPACITY BUILDING APPROACHES FOR ENHANCING QUALITY ASSURANCE OF TEACHERS OF TVET PROGRAMMES FOR JOB CREATION AND NATIONAL DEVELOPMENT**

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***Abstract***

*This study identified capacity building approaches for enhancing quality assurance of teachers of TVET programmes for job creation and national development. Three objectives guided the study. Survey research design was used for this study. The population of the study was 203 consisting of lecturers in the universities and Colleges of Education registered with Nigerian Vocational Association (NVA, 2014). NVA is a body of professional vocational educators in Nigerian tertiary institutions. There was no sampling in the study. Data were collected using a structured questionnaire titled “TVET Teachers Capacity Building Questionnaire (TCBQ)” developed by the researchers. The instrument was content and face validated by three experts while Cronbach’s Alpha reliability method was used to determine the internal consistency of the TCBQ items. The reliability coefficient obtained was 0.85. The researchers administered the questionnaire to the respondents through their e-mail contact. Mean was used to answer the research questions, while the t-test was used to test the hypothesis. It was found that 7 approaches could be adopted by teacher, 11 approaches by school administration and 12 approaches by the government for capacity building of teacher for quality assurance in TVET for job Creation and National Development. It is therefore recommended among others that teachers of TVET programmes should adopt the approaches identified in this study to enhance their quality assurance for job Creation and National Development.*

***Keywords:*** *capacity building approaches, quality assurance, TVET programmes, job creation, national development*

**Introduction**

In Nigeria, it has been the interest and effort of every government reign to influence national development but the extent to which this target is achieved in relation to job creation is still equivocal. This might be why most academic stakeholders and associations such as Nigeria Vocational Association (NVA) is concern with the issues of job creation and national development in its national conference of 2016, probably to look at important issues like quality assurance of teachers, which influence its efficacy in the country presently. Development, in the submission of Chrisman in Lawal and Oluwatoyin (2011) is a process of societal advancement, while improvement is the well being of people is generated through strong partnerships between all sectors, corporate bodies and other groups in the society. It is reasonable to know that development is not only an economic exercise, but also involves both socio-economic and political issues and pervades all aspects of societal life. Naomi (1995) explained that development is usually taken to involve not only economic growth, but also some notion of equitable distribution, provision of health care, education, housing and other essential services all with a view to improving the individual and collective quality of life. Gboyega (2003) believed that development is an idea that embodies all attempts to improve the conditions of human existence in all ramifications. It implies improvement in material well being of all citizens, not the most powerful and rich alone, in a sustainable way such that today’s consumption does not imperil the future, it also demands that poverty and inequality of access to the good things of life be removed or drastically reduced. The author continued that development seeks to improve personal physical security and livelihoods and expansion of life chances. Sachs (2004) expressed development as a process where an economy undergoes social andeconomic transformation leading to a rise in the standard of living, access to basicamenities for all through knowledge. Rostow inSoares and Quintella (2008) described development as a process of evolutional succession in stages, where human societies leave a rudimentary model until they arrive at a western industrialized civilization consumption model, which is considered unique and universal. National development, according to Lawal and Oluwatoyin (2011) means the overall development or a collective socio-economic, political as well as religious advancement of a country or nation. Therefore, national development in this context is the improvement in most basic need of human beings such as food sufficiency, health care, security, education, housing politics, religion and other essential services for quality of life in an entire country. Globally, there is no nation that can boast of development without job creation to engage the citizens for provision of their basic needs. Suffice to say that one of the criteria for assessing national development is the amount of jobs created and sustained in the nation.

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Job creation is the act of making more jobs available especially for the unemployed. Macmillan (2013) stated that job creation is the process of providing opportunities for paid work especially for those who are currently unemployed. In the explanation of Wikipedia (2016), job creation is a process by which the number of jobs in an economy increases. It often refers to government policies intended to reduce unemployment. Job creation may take a variety of forms such a policy formulation, hiring of workers. For example, a government may lower taxes and reduce regulation to make hiring less expensive, construct more roads to enhance movement of goods among others. Asogwa, Maduka and Olaitan (2013) observed that jobs may be classified as full-time or part-time, permanent or temporary, good or bad, lowly or highly paid, skilled, semi-skilled or unskilled. In any case, the government is always making effort to create jobs for various classes of citizens to enhance national development. One of such efforts is the introduction of Technical and Vocational Education and Training (TVET) into the curriculum of education in the country.Masa'udu (2016) said that the revitalization of technical and vocational education (TVE) is a panacea to solving the problem of unemployment in the Nigeria.

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Technical and Vocational Education as described by Osuala (1981) is a form of education that includes preparation for employment in any industry for specialized education for which there is societal needs and which can most appropriately be acquired in schools. Federal Government of Nigeria (2004) described technical and vocational education as a comprehensive term referring to those aspects of the educational process involving in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understandings, and knowledge relating to occupations in various sectors of economic life. The goals of technical and vocational education as contained in the National Policy on Education of the Federal Republic of Nigeria (2004) are to:

1. Provide trained manpower in the applied sciences, technology and business particularly at craft, advanced craft and technical levels;
2. Provide the technical knowledge and vocational skills necessary for agricultural, commercial and economic development; and
3. Give training and impact the necessary skills to individual who shall be self reliant economically.

In Universities and Colleges of Education, TVET programmes include Agricultural Education, Home Economics Education, Industrial Technical and Technology Education and Business Education. Among these programmes, Olaitan (1990) posited that technical and vocational education is for acquisition of skill and impartation of knowledge required by individuals and the society for economic development, work and economic activity, job creation, self- respect and social contact. Dawodu (2006) noted that the most reliable vehicles for self sustenance, economic prosperity and political supremacy are through establishment of vocational and technical education programmes. Alhasan and Abdullahi (2013) emphasized that technical and vocational education is particularly relevant in solving the present economic problems in the country due to the advancement in technology, occupational mobility, high rate of unemployment and increasing number of women in workforce. TVET is concerned with producing the manpower who will apply scientific skill towards the improvement and solution of the environmental problems, thus making the environment more conducive and useful for mankind. The author noted that TVET has been accorded the master key for unlocking the required potential and productive workforce with the right scientific and technological competence to transform the economy.

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It is obviously clear that TVET is a skill development programme which is highly required for the country's target to become one of the 21st Century economic nations of the world by the year 2020. Despite the entire claim on the efficacy of TVET to national development, the challenge of unemployment is still increasing in the country. However, Singer (2012) reported that the quality and functionality of vocational education programme have been marred by several school related factors; notably among them include inadequate teaching/learning facilities; paucity of qualified vocational education teachers; poor evaluation process and lack of counseling services schools.Ayonmike, Okwelle and Okeke (2015) found that some of the challenges facing TVET in Nigeria are poor teaching methods employed by teachers, teachers’ lack of interest to teach, poor research attitude of teachers, poor preparation of lesson by teachers and so on. Also, Masa'udu (2016) listed funding as a major challenge facing the TVE sector, stressing that funding was necessary for the procurement of up-to-date training equipment and consumables as well as training and retraining of technology teachers and instructors. All theses citations boils down to teacher factors, confirming that their quality assurance are in highly doubt due to lack of funding for their capacity building in line with technological advancement. The implication is that there is need for capacity buiding of teachers of TVET to enhance their effectivesness. Meanwhile, the best approaches to apply by the teachers themselves, the school administration and the governement are not yet established.

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Capacity building, in the view of Fazekas and Burns (2011), is the process of helping local actors to acquire and use information relevant to successful policy implementation. Fullan (2010b) suggested that capacity building concerns competencies, resources and motivation. Individuals and groups are high in capacity if they possess and continue to develop the knowledge and skills, if they are committed to putting the energy to get important things done collectively and continuously. OECD (2012) stated that capacity building strives to find better and more efficient ways for different actors to access and use knowledge in local educational contexts in order to achieve desired outcomes. United Nation’s Economic and Social Council (2006) report classified that target groups for capacity building can be divided into individual, institutional and societal levels, all of which are strongly interrelated. In the case individual, capacity building is finding ways to support individuals (parents, teachers, headmasters and local policy makers) as they face the demands of new developments in the local context by building on existing knowledge (human resources and knowledge management). Carlson and Gadio (2002), while stating that teachers are the key to whether technology is used appropriately and effectively, maintained that capacity building of teachers as well as administrators and managers can play a major role in catalyzing paradigmatic shift from teacher-centered pedagogy to a more effective learner-centered pedagogy that enhances achievement in education. In this study, capacity building is the process of assisting teachers of TVET to acquire more competencies, resources and motivation for better implementation of TVET curriculum in schools. Essentially, this capacity building implies that teachers will take the opportunity to learn new knowledge and skills, generate more relevant practices and deliver TVET curriculum differently effectively. It is a highly complex, dynamic and knowledge-building process intending to increase student achievement in every school. It is certain that the capacity building of teachers of TVET will improve the contribution of TVET towards job creation and national development but the approaches for the capacity building of the teachers is stills a mirage. To achieve that goal, consideration must be given to the approaches to avoid waste of fund, energy and time of the human resources that will be involved.

Approaches here refer to various ways in which the capacity of the teachers can be improved to enhance their service delivery in TVET for job creation and national development. The approaches in this study were categorized into teacher’s approach, school administration approach and government approach. It is the believe of the researchers that if the capacity building approaches are found in these categories, all hands will be on deck so as to implement their part to complement the other since a tree cannot make a forest.

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**Statement of problem**

Some of the objectives of technical and vocational education, according to National Policy on Education of the Federal Republic of Nigeria (2004) are to provide the technical knowledge and vocational skills necessary for agricultural, commercial and economic development and give training and impact the necessary skills to individual who shall be self reliant economically. The TVET programmes have been implemented in schools at all levels of education over a decade now, yet the amount and rate of unemployment in the country is on the increase every day.

In any case, the researchers do know that many factors such as teachers competence, availability of facilities, administration, environment, policy could be responsible for this failure of TVET to produce graduates who would not only create jobs for themselves but also for others. Afred and Kayoma (2012) and Okoye and Okwelle (2013) lamented that over the years, Nigerian TVET programmes are bedeviled with numerous challenges which have been affecting the quality of TVET programmes both in output and input. Such challenges, according to the authors, include inadequate funding of TVET; inadequate infrastructures; poor power supply; shortage of qualified TVET teachers/instructors; poor supervision of TVET programmes; inadequate curriculum planning and implementation.

This indicates that the quality assurance of the teachers is low to achieve the objectives of TVET programme in Nigeria since no nation can grow greater than their teachers. Having certified that the teachers output is poor, implies that they need capacity building to meet up with the objectives of the programme. Besides, Ogwo and Oranu (2006) remarked that teachers must be continuously trained to upgrade their competence for effective performance in their profession. But the question now is: which approaches could be adopted for the capacity building of the teachers to avoid financial, time and energy wastage from the teachers, school administration and government? It was in a bid to identify relevant approaches for the capacity building of the teachers of TVET that this study was conducted.

**Purpose of the Study**

The purpose of the study was to identify the capacity building approaches for enhancing quality assurance of teachers of TVET for job creation and national development. Specifically, the study sought to identify:

1. capacity building approaches that could be adopted by teacher to enhance quality assurance in TVET for job Creation and National Development;
2. approaches that could be adopted by school administration for capacity building of teacher to enhance quality assurance in TVET for job Creation and National Development; and
3. Approaches that could be adopted by government for capacity building of teacher to enhance quality assurance in TVET for job Creation and National Development.

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**Research Questions**

1. What are the capacity building approaches that could be adopted by teacher for quality assurance in TVET for job Creation and National Development?
2. What are the approaches that could be adopted by school administration for capacity building of teacher for quality assurance in TVET for job Creation and National Development?
3. What are the approaches that could be adopted by government for capacity building of teacher for quality assurance in TVET for job Creation and National Development?

**Hypotheses**

1. There is no significance difference in the mean rating of the responses of lecturers in universities and Colleges of Education on capacity building approaches that could be adopted by teacher for quality assurance in TVET programmes.
2. There is no significance difference in the mean rating of the responses of lecturers in universities and Colleges of Education on approaches that could be adopted by school administration for capacity building of teacher for quality assurance in TVET.
3. There is no significance difference in the mean rating of the responses of lecturers in universities and Colleges of Education on approaches that could be adopted by government for capacity building of teacher for quality assurance in TVET.

**Methodology**

Survey research design was used in this study. This design was considered appropriate since no variable was manipulated but questionnaire was used for data collection from a sample of respondents and the finding was generalized upon the entire population. The study was conducted in Nigeria. The population of the study was 203 consisting of lecturers in the universities and Colleges of Education registered with Nigerian Vocational Association (NVA, 2014). NVA is a body of professional vocational educators in Nigerian tertiary institutions. There was no sampling, rather all the 203 registered members of NVA were involved in the study since the population size was considered manageable and was effectively handled. Data were collected using a 30-item questionnaire titled “TVET Teachers Capacity Building Questionnaire (TCBQ)” developed by the researchers from literature review. The TCBQ divided into two parts. The first part sought information on personal data of the respondents.

The second part had sections A, B and C consisting of 30 items relevant for answering research questions developed for the study. The response format of TCBQ sections were based on a four-point response pattern of Strongly Agree (SA=4), Agree (A=3), Disagree (D=2) and Strongly Disagree (SD=1). The instrument was face validated by three experts in the Department of Agricultural/Home Economics Education, and one from Department of Industrial Technical Education, Micheal Okpara University of Agriculture, Umudike, Abia State. The comments and observations of the experts were used to restructure some of the items to produce the final version of the instrument. To determine the reliability of the instrument, twenty (22) copies of the questionnaire were administered to TVET teachers who were not part of the sample of the study area. Cronbach’s Alpha reliability method was used to determine the internal consistency of the TCBQ items. The reliability coefficient obtained was0.85 which means that it was higher above the recommended value of 0.76 for good reliability (Nunnally, 1978). Hence, TCBQ was regarded as reliable enough and used for data collection for the study. The researchers administered the questionnaire to the respondents through their email contact. Those who could not respond to the mail within two weeks were given mail reminder to enable them understanding the importance of their opinion in the study. At last, at total of 192 were retrieved and used for analysis. Mean was used to answer the research questions, while the t-test was used to test the hypothesis at 0.05 level of significance. Any item with a mean value of 2.50 or above was regarded as agreed while any item with a mean value below 2.50 was regarded as disagreed. The hypothesis was not rejected where the p-value was greater than alpha value of 0.05 but rejected where the p-value was less than the alpha value of 0.05. All statistical analyses were performed with Statistical Package for Social Sciences (SPSS) software

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**Result**

The results for the study were presented in Tables 1 to 3.

**Table 1:** Mean Rating and t-test analysis of Respondents on capacity building approaches of teacher for quality assurance in TVET

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/N** | **Teachers’ approaches** | **Mean** | **SD** | **p-value** | **Remarks** |
| 1 | Self evaluation to understand areas of weakness or low competence | 3.81 | .39 | .41 | Agreed, NS |
| 2 | Developing inter and intra school exchange of instructional ideas and materials like textbooks | 3.38 | .55 | .57 | Agreed, NS |
| 3 | Attending capacity building training such as seminar, conference, workshop or short courses | 3.58 | .62 | .74 | Agreed, NS |
| 4 | Regular consultation of TVET current textbooks | 3.50 | .69 | 1.16 | Agreed, NS |
| 5 | Conducting research in areas of specialization | 3.84 | .36 | .49 | Agreed, NS |
| 6 | Seeking sponsorship from governmental and non-governmental agencies for in-service training | 3.60 | .49 | .73 | Agreed, NS |
| 7 | Visitation to industries related to field of specialization to acquire practical skills | 3.46 | .65 | .79 | Agreed, NS |

SD = Standard Deviation, alpha value = 0.05, NS =Not significant

Data in Table 1 revealed that all the 7 items had their mean values ranged from 3.46 to 3.84 and were above the cut off mark of 2.50. This indicates that the respondents agreed that all 7 items were capacity building approaches that could be adopted by teacher for quality assurance in TVET for job Creation and National Development. The table showed that the standard deviation of the 7 items ranged from 0.36 to 0.69 which means that the respondents were not too far from the mean and opinion of one another in the responses.

The data on hypothesis tested in Table 1 also revealed that all the 7 items had their p-values ranged from 0.41 to 1.16 which were greater than the alpha value of 0.05. This implied that there was no significant difference in the mean ratings of the responses of TVET teachers in Universities and Colleges of Education on capacity building approaches that could be adopted by teachers for quality assurance in TVET for job Creation and National Development. Therefore, the hypothesis of no significant difference was not rejected for the 7 capacity building approaches that could be adopted by teacher for quality assurance in TVET for job Creation and National Development.

**Table 2:** Mean Rating and t-test analysis of Respondents on approaches that could be adopted by school administration for capacity building of teacher for quality assurance in TVET

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/N** | **School administrative approaches** | **Mean** | **SD** | **p-value** | **Remarks** |
| 1 | Regular supervision to give latest TVET knowledge to teachers | 3.04 | .84 | .87 | Agreed, NS |
| 2 | Direct TVET teachers to more information on new instructional practices | 3.05 | .89 | .59 | Agreed, NS |
| 3 | Reinforcement to motivate teachers for personal development | 3.64 | .48 | .31 | Agreed, NS |
| 4 | Organizing capacity building seminar, conference, workshop or short courses for teachers regularly | 3.18 | .74 | .57 | Agreed, NS |
| 5 | Sponsoring teachers’ capacity building in-service training to boast their competence | 3.88 | .32 | .74 | Agreed, NS |
| 6 | Maintenance of TVET recommended teachers-students ration in schools | 3.96 | .19 | .73 | Agreed, NS |
| 7 | Recruitment of TVET teachers based on area of specialization for easy improvement. | 3.76 | .42 | .42 | Agreed, NS |
| 8 | Hiring teacher facilitators on special assignment in each school to work one-on-one with TVET teachers on the curriculum implementation | 3.20 | .62 | .17 | Agreed, NS |
| 9 | Keeping appropriate record of teachers’ achievement in schools for reward | 3.65 | .54 | .51 | Agreed, NS |
| 10 | Formation of partnership with graduates consumer industries for skill acquisition of teachers | 3.07 | .54 | .97 | Agreed, NS |
| 11 | Funding TVET teachers’ research in the their areas of specialization | 3.38 | .56 | .64 | Agreed, NS |

SD = Standard Deviation, alpha value = 0.05, NS =Not significant

Data in Table 2 revealed that all the 11 items had their mean values ranged from 3.04 to 3.96 and were above the cut off mark of 2.50. This indicates that the respondents agreed that all 11 items were approaches that could be adopted by school administration for capacity building of teacher for quality assurance in TVET for job Creation and National Development. The table showed that the standard deviation of the 11 items ranged from 0.19 to 0.89 which means that the respondents were not too far from the mean and opinion of one another in the responses.

The data on hypothesis tested in Table 2 revealed that all the 11 items had their p-values ranged from 0.17 to 0.97 which were greater than the alpha value of 0.05. This implied that there was no significant difference in the mean ratings of the responses of TVET teachers in Universities and Colleges of Education on approaches that could be adopted by school administration for capacity building of teacher for quality assurance in TVET for job Creation and National Development. Therefore, the hypothesis of no significant difference was not rejected for the 11 approaches that could be adopted by institutions for capacity building of teacher for quality assurance in TVET for job Creation and National Development.

**Table 3:** Mean Rating and t-test analysis of Respondents on approaches that could be adopted by government for capacity building of teacher for quality assurance in TVET

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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/N** | **Government approaches** | **Mean** | **SD** | **P-value** | **Remarks** |
| 1 | Employing TVET teachers in schools based on merit rather than politics or tribalism | 3.58 | .56 | .15 | Agreed, NS |
| 2 | Maintaining steady-regular supervision to schools | 3.22 | .74 | .55 | Agreed, NS |
| 3 | Assigning a supervisor full time to one school  to provide continuous, on-site assistance to TVET teachers | 3.76 | .42 | .62 | Agreed, NS |
| 4 | Provision of instructional materials that are stereotype of the graduates consumer industries | 3.20 | .62 | .13 | Agreed, NS |
| 5 | Sponsorship of teachers’ capacity building training to graduates consumer industries for skill acquisition | 3.65 | .54 | .23 | Agreed, NS |
| 6 | Funding TVET teachers’ research in the their areas of specialization | 3.50 | .54 | .11 | Agreed, NS |
| 7 | Designing and implementing motivational packages for TVET teachers’ outstanding achievement | 3.38 | .56 | .66 | Agreed, NS |
| 8 | Implementing a scholarship scheme for TVET teachers | 3.57 | .56 | .45 | Agreed, NS |
| 9 | Provision of advanced instructional facilities to enhance TVET teachers’ job satisfaction | 3.25 | .70 | .83 | Agreed, NS |
| 10 | Involvement teachers in TVET curriculum development and review | 3.68 | .54 | .39 | Agreed, NS |
| 11 | Formulation of policies that encourages TVET teachers for competence improvement | 3.84 | .36 | .53 | Agreed, NS |
| 12 | Appointing TVET teachers to textbook selection committees to set standard for themselves | 3.83 | .30 | .32 | Agreed, NS |

SD = Standard Deviation, alpha value = 0.05, NS =Not significant

Data in Table 3 revealed that all the 12 items had their mean values ranged from 3.20 to 3.84 and were above the cut off mark of 2.50. This indicates that the respondents agreed that all 12 items were approaches that could be adopted by government for capacity building of teacher for quality assurance in TVET for job Creation and National Development. The table showed that the standard deviation of the 12 items ranged from 0.30 to 0.74 which means that the respondents were not too far from the mean and opinion of one another in the responses.

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The data on hypothesis tested in Table 3 revealed that all the 12 items had their p-values ranged from 0.11 to 0.83 which were greater than the alpha value of 0.05. This implied that there was no significant difference in the mean ratings of the responses of TVET teachers in Universities and Colleges of Education on approaches that could be adopted by government for capacity building of teacher for quality assurance in TVET for job Creation and National Development. Therefore, the hypothesis of no significant difference was not rejected for the 12 approaches that could be adopted by government for capacity building of teachers for quality assurance in TVET for job Creation and National Development.

**Results**

The results of the study revealed that there 7 capacity building approaches that could be adopted by teacher for quality assurance in TVET, 11 approaches that could be adopted by school administration for capacity building of teacher for quality assurance in TVET and 12 approaches that could be adopted by government for capacity building of teacher for quality assurance in TVET for job Creation and National Development. It was also found that there was no significant difference in the mean ratings of the responses of TVET teachers in Universities and Colleges of Education on 30 capacity building approaches for quality assurance of teachers in TVET for job Creation and National Development. This conform the belief of the researchers that all stake holders of TVET need to contribute to skill improvement of teachers of TVET programmes at all levels of education for a tree cannot make a forest.

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The result of this study is in line with the findings of Asogwa and Nongugwa (2014), who found that farmers adopt 7 strategies in sourcing water for irrigation Agriculture for Sustainable Livelihood in Benue State. Asogwa, Wombo and Ugwuoke (2014) found that 15 coping strategies were adopted by postgraduate students of agricultural education in thesis writing. The strategies include sourcing materials for thesis with the help of classmates, seek help from other competent lecturers and students others than the supervisor in thesis writing starting from topic selection to the end of my thesis.Ekpiken (2015), in a study on capacity building strategies for teachers and sustainable development in universities in Cross River State of Nigeria, where it was found thatteachers in higher education be exposed to a continuous professional development and training programmes to enable them to be more productive and adapt to the changing world of teaching and research in the highly competitive and globalized economy. The finding of the authors cited helped to add credence to the result of this study.

**Conclusion and Recommendations**

The problem of unemployment in the country has been on the increase for more than three decades now. This situation was one of the major reasons that motivated the government for the introduction of TVET programmes into the educational system of the country to curb the cancer worm. Unfortunately, the condition is worsening despite the effort to the government. Meanwhile, it has been ascertained that several factors hinder the achievement of the designed objectives of TVET in the country, among which include the unavailability and inadequate instructional resources, poor administrative processes and low quality assurance of teachers. It was against this background that the researchers decided to identify the approaches that could utilized by teachers, school administration, and government for capacity building of teacher for quality assurance in TVET for job Creation and National Development. It was 7 approaches could be adopted by teacher, 11 approaches school administration and 12 approaches by the government for capacity building of teacher for quality assurance in TVET for job Creation and National Development. Based on the findings, recommendations were that:

1. teachers of TVET programmes should adopt the approaches identified in this study to enhance their quality assurance for job Creation and National Development;
2. school administrators should utilize the approaches identified in this study to improve on the quality assurance TVET teachers for job Creation and National Development;
3. Government should approve and adopt the findings of this study to enhance quality assurance of TVET teachers for job Creation and National Development; and
4. Government should also provide adequate sponsorship for teachers and institutions to implement the findings of this study as they concern them.

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**COMBATING POVERTY THROUGH TECHNICAL VOCATIONAL EDUCATIONAL AND TRAINING (TVET) IN NIGERIA.**

**BY**

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***Abstract***

*The issue of alleviating poverty is perhaps one of the most difficult challenges facing any country in the developing world. The idea of poverty alleviation is indeed a welcome development especially in countries where majority of the population live below the poverty level. The paper assessed the causes of poverty and established a link between absent of TVET skills and poverty. The policies and programs of Government and non-government organization is combating poverty through TVET education programmes was also assessed and finally, some suggestions towards poverty alleviation through TVET were Offered.*

***Keywords:*** *Poverty, Technical, Vocational Educational and Training.*

**Introduction**

Education is bedrock of any society; and no society can grow beyond its level of educational attainment. Most nations of the world used education as an indicator of their progress in all ramifications (Odekunle, 2014). Attention is being redirected to human capacity building for national development globally as well as in Nigeria (FGN, 2004). The role of education, specifically formal education, and capacity building was first noted by Adam Smith (1756) in his book, The Wealth of Nations before other classical and neo-classical economists such as J.S. Mill and Pigou (1928). The economists explained human capital as that which transports the society from its present position to it ought to be. Human capacity, according to their findings, can be improved, reformed, measured, directed and redirected. Formal school system is best in transferring and transforming human capacity (Babalola, 2003) and (Longe, 2000).

Smart (2015) opined that- education is the most important ingredient for human improvement and advancement is the fundamental means of transforming and advancement in individual to effect vital developmental changes in any society. The meaningful co-existence of human beings in societal advancement depends on adequate access to quality education empowers individuals to acquire knowledge and skills necessary tur harnessing the available natural resources within their environment for self-improvement and actualization in order to overcome the poverty and hunger.

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Poverty is the most devastating problem facing mankind right from time. It has become a matter of global concern to the extent that eradication of extreme poverty and hunger have the highest priority in the list of the Eight Millennium Development Goals adopted at the US Millennium Summit of the World's Heads of States in New York in the year 2002. The Reviewed Interest in the Global Call to Action Against Poverty was heralded in 2005 (UNESCO, 2005).

Poverty is a condition of human existence where resources for meeting basic human needs are extremely limited or inacessible (Mumaw, 1996). According to World Bank (2001), to be poor is to be hungry, to lack shelter and clothing, to be sick and not cared for, to be illiterate and not schooled. It is a multi-dimensional and complex phenomenon that transcends ordinary condition of lack

The level of poverty in Nigeria has coursed many students who have been champions to drop out of school. Some who managed to continue ended up coming out of school with poor results (Ike 2008). Eze (2005) stated that poverty has made many children from Nigeria to suffer from malnutrition and to be given out as house helps which consequently have nipped their education in the bud. Nigeria is basically an agrarian country and predominantly dominated by rural population. Rural people are often caught in the vicious cycle of having no access to services and opportunities that will lift them out of poverty. Such services include education. Adequate nutrition and infrastructure. Poverty affects the quality and quantity of food taken such food has direct effect on the functioning of the brain and consequently academic performance of learners. (Pellion, 2007; Richardson, 2007).

Nigerian governments have made various efforts to ensure good and effective education to Nigerians within and outside Nigeria. Education is formal and informal process through which individuals learn how to live and develop his/her skills and knowledge. With the aim of making his/her life meaningful and comfortable for his/her self and others in the society. Education is an all-round development of an individual in all ramifications socially, physically, emotionally and intellectually. It is through interesting experiences that teachers reposition peoples' life in the society by advancing adequate and self-reliant education through TVET.

TVET is form of education that prepares persons for gainful employment in a chosen occupation or prepares individuals for enrolment in advanced technical education programmes (Okoro, 2010). It provides knowledge, develops skills and also inculcates the attitudes that are necessary for entry and progress in an occupation. Osuala (2015) defined TVET as an education designed to prepare skilled personnel at lower levels of qualification for one or a group of occupations, trades or jobs in conformity with this, one of the aims of National Policy on Education (NPE, 2004) is the acquisition of skills, abilities and competence both mental and physical as equipment for individual to live in and contribute meaningfully to the development of his society

**Causes of Poverty in Nigeria**

According to Obanya (2011) the causes of poverty are dependent on poor management of nation’s economy and education. The author further stated that, the level of production education and development among other variables are determined the.

* Level productivity;

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* population and management;
* education management;
* Level-of skill acquisition and self-reliant;
* resources available;
* Utilization of all available resources

Obanya (2011) opined that, poverty have affected the lives and education of Nigerian Citizenry and derailed the efficiency, health and productivity development. According to the author effect of poverty are:

* Poor health status and disease control.
* hindrance efforts towards resources development
* Exacerbates the problems of class conflict and social discrimination between the poor and the rich. For instance, the poor associates with the poor and the rich associates with the rich.
* Slow capacity utilization and investment outlook
* Inferior country leading to subordinate to poverty free countries.
* Massive street begging
* Social vices such as robbery, prostitution, pilfering, stealing fraud, and examination mal-practice among others to be prevalent in the society.
* High rate and index of corruption, for instance, Nigeria is adjudged the most corrupt country in the world as a result of economic and status of its citizens.

Policies and Programmes for Combating Poverty Alleviation in Nigeria. In response to international initiatives, governments in Nigeria, past and present, have embarked on poverty alleviation projects with the cardinal objective of improving the welfare of the citizenry. The poverty alleviation programmes in Nigeria from 1 972 to date are as shown in Table 1.

**Table 1; Poverty Alleviation Strategies in Nigeria (1972 to date)**

|  |  |  |
| --- | --- | --- |
| **Year** | **Head of state/president** | **Strategies** |
| 1972 | General Yakubu Gowon | * National accelerated food production programme (NAFPP) * Nigerian agricultural co-operative Bank (NACB) |
| 1976 | General Olusegun Obansanjo | Operation feed the nation (OFN) |
| 1979 | Alhaji Shehu Shagari | * Green Gerneral revolution |
| 1986 | General Mohammadu Buhari | * Go Back-To-Land Programme, School-to-Land * War Against Indiscipline and Corruption (WAI). |
| 1986 | General Ibrahim Babangida | * Directorate for foods, roads and rural infrastructure (DFRRI) * Peoples bank * Community bank of Nigeria. * National directorate of employment (NDE) * Structural adjustment programme. * Women empowerment programme. |
| 1993 | General Sani Abacha | * Family Support Programe (FSP) * Family economic Advancement Programme (FEAP). * National Economic Reconstruction Funds (NERFUND). * National Agricultural Land Development Agency (NALDA) * Petroleum trust Fund (PTY). * Oil Mineral producing Areas Development Commission (OMPADEC). * Mass Moblization for Service and Economic Reconstruction (MAMSIR). |
| 2004 | Chief Olusegun Obasanjo | * National Economic Empowerment Strategies (NEEDS) * Micro-Credit Loan Scheme * National Directorate for Employment (NDE) * The Widow’s Mite Association * Millennium Village Project * The National Health Insurance Scheme (NHIS) |

Source: Jonah, N. (2007). Alleviating Poverty in Nigeria. Retrieved on May 17, 2008 from:

http://povertynewsblog.blogspot.com/2007/11/alleviatingpoverty-in-nigeria-cdd.html

**Educational Strategy at Alleviating Poverty**

The provision of education coupled with greater access to education and training go a long way reducing the poverty level of a nation. Oni, Akerelele, Abimbola, Odekunle and Opatola (2003). The authors further stated that the provision of technical and vocational education is a solution to existing poverty in the urban and rural areas of Nigeria. Additionally, Babalola, Oni, Atanda, and O) ejolaOshodi (2009) captured the framework by which poverty can be stressed, that the overall solution is to equip the poor with skills that will make them generate income.

They suggested four major approaches for tackling the problem of poverty. The fundamental approach to poverty alleviation is through an increase in per capita income of a country. This is generally referred to as the income approach in which a country or an individual is expected to experience a sustainable growth in national or widely recognized as an effective in labour productivity. While this approach has been widely recognized as an effective one, there is the global hat a wealthy country or an individual may still be poor if the growth in income is not widely distributed and for search of other non-economy wide strategies such as the job creation, distribution hinges on the provision of basic needs of the poor (especially food, clothing and shelter) to alleviate the suffering associated with poverty. However, these basic needs could only provide a short-term succor for poverty, the permanent solution is creation of jobs to generate income and consequently acquire all other basic needs of life. Education and training have been proved to be good in equipping individual with right skills, attitudes and knowledge that are required to break the vicious cycle of poverty.

**Technical and Vocational Educational Training and Alleviating of Poverty**

Technical and Vocational education has been adjudged as a tool that can help in alleviating poverty, and so there is the need to equip the poor with such technical and vocational educational skills which will at the end, help to alleviate their poverty. To this end, the technical and vocational skills that will be supplied is expected to emphasis the era of practical to make the recipient self-reliant, employable and useful in the society.

TVET requires adequate provision of fund for the development of both the human and material resources. Therefore, students undergoing technical and vocational courses requires support to motivating factors to-yet to be enrolled students. The technical and vocational schools are to be equipped with enough human power resources to train the potential recipients in the requisite skills.

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There is need for sensitization of the public by the government (central/federal, state and local) on the role(s) the acquisition of technical and vocational education plays in alleviating poverty in the land. This sensitization will go to a long way to make individuals become aware of the importance of being equipped with technical and vocational skills and subsequently embrace such. If technical and vocational education is to serve as a tool of alleviating poverty, the beneficiaries (firms, companies, organisations, etc.) of such skills must participate in the preparing the contents of the curriculum to be taught.

**Summary**

This paper examined the term Technical and Vocational Educational Training. It also brought in to the fore on how TVET can be used to alleviate poverty in Nigeria causes of poverty as well as educational strategy at alleviate poverty. It is now certain that any nation without the full implementation of TVET programme is not likely to have a breakthrough in economic and technological development, which may promote the level poverty in such an environment.

**Recommendation**

The federal and state governments should make frantic efforts to promote functional technical and vocational workshop in the various vocational trade; federal and state government should carry out sensitization programme on the importance technical and vocational education so that parents and students will be interested in TVET courses in order to be employable after graduation from school, needed classroom facilities school be provided by government for effective teaching, learning of technical educational courses.

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**IMPROVING ELECTRICAL/ELECTRONICS SKILLS ACQUISITION THROUGH PARTNERSHIP BETWEEN INDUSTRY AND TECHNICAL VOCATIONAL TRAINING INSTITUTIONS FOR INCREASED EMPLOYMENT OPPORTUNITIES IN NIGERIA**

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***Abstract***

*Technical and vocational education as a skill-oriented enterprise has been recognized world over as a potent tool for empowering people; youths in particular through job creation for sustainable economic development and livelihood of participants. Technical and vocational education is capital intensive because of the machines, tools and materials required for execution of this type of education. In Nigeria, technical and vocational education has experienced a transparent set-back due to lack of enough finance. The government alone cannot effectively finance technology and vocational education, hence the need for private participants in running and financing of vocational education. The paper identified the significant roles played by private partners in financing technology and vocational education especially helping to train youths in skills acquisition in electrical electronics and other skill areas in technical and vocational education. The closer ties between the government and private institutions would give credence to provision of enough funds to execute effective skills acquisition in technical and vocational education enterprise.*

**Introduction**

The importance of saleable skills acquisition especially among the youth in the contemporary society cannot be over-emphasized. Government at various levels and private industries are deeply concerned in youths acquiring skills that would make them employable in order to boost their economic relevance and reduce insurgencies. Thus the skill needs of youths today is enormous and cannot be tackled by the skill based institutions without help from patriotic private establishments. It is extremely difficult for the government to bear the burden of funding technical and vocational education.

From the foregoing, some educators had advocated for private participation in vocational education. Aina (2005) suggested that other sources of funding vocational and technical education should be sought and thus develop appropriate partnership with organized private sector and mobilize local communities in funding education. This idea was supported by Okoro (2007) who posited that non-governmental organizations should be accorded full support by governments and industry to assume increasing responsibility in adult and continuing professional education of youths. This government needs to institute a liaison between training institutions and public private partners to finance technical and vocational education to enable the teeming youths gain marketable skills to increase their employment opportunities in self employment in employment in recognized institutions.

This paper discussed the concepts of technical vocational education, skills acquisition and industries, skills acquisition and employment opportunities, challenges facing TVET, and the benefits of private public partnership in TVET, summary and conclusion.

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**TVET and Employment Opportunities**

Technical and vocational education is basically a utilitarian educational system tailored towards the training of youths for skills acquisition that would subsequently enable them secure employment or become self employed in the society. With the ever increasing scientific and technological improvement and development, technical and vocational education has become paramount and basic in training youths for skills acquisition. Technical skilled workforce is the bedrock of genuine productivity in all sectors of economy. Technical marketable skills are therefore the engine that propels productive occupations in the contemporary society.

Many nations had devised some means of utilizing vocational education to foster youth employment. Umar (2012) reported that China, Japan and Australia introduced compulsory policy permitting vocational education subjects to be integrated into the normal school system and skilled labour courses per week in technical and vocational education are specially meant to train youths on basic productive skills that will enable them secure employment on graduation. Eze (1999) stated that technical and vocational education training which prepares individuals for job skills and competencies is the major tool that can empower the youths and free them from the shackles of poverty, and as well a potent instrument for reducing incidences of social vices being engaged by the young ones in the society. Poverty reduction could emanate directly from the effects of skills acquisition in technical and vocational education as youths with acquired saleable skills would apply such in productive ventures that would undoubtedly increase their earning capacity. This will involve the participation of private industries as the government alone cannot bear the entire cost of providing vocational education for the entire citizenry.

**Skills Acquisition in Electrical/Electronics for Employment Opportunities**

Electrical and electronics technology education is offered in tertiary institutions and polytechnics in the department of technical education and electrical/electronics engineering respectively. The skills provided to students are meant to enable them work effectively in electrical/electronics related organizations or become self-reliant on graduation by establishing their own electrical or electronics based workshops or institutions.

Skills acquisition is the responsibility of the teacher to the learners. Akudolu (2013) pointed out that the teachers’ preoccupation should not only be to teach skills but to also help them acquire skills involving three factors: imitation, repetition and occupational participation. Okorie (2006) posits that technical and vocational education develops skills in six specialized areas such as: agricultural education which has skills in poultry, fish farming and food production. Business and office education have skills in accounting, secretarial, computer analysis, clerical and management. Home economics education has skills in catering services, home making, clothing and textiles. Trade and industrial education have skills in electrical and electronics, mechanical, automobile and building and wood work.

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Skills in electrical and electronics technology as required for acquisition by learners for effective employment opportunities include the following: conducting of surface and conduit electrical installation, measurement of electrical parameters such as resistors, current, and resistance. Conducting continuity tests in electrical and electronics circuits, wire stripping, construction of various lighting circuits such as ring circuits and final sub-circuits of different loads. Fault tracing in electrical and electronics circuits, repairing and maintenance of electrical and electronics equipment. Soldering and de-soldering in electronics circuits are also skills that could foster employment opportunities. To enable youths be employable in electrical and electronics technology education after graduation, they must possess relevant skills in some of the above stated areas. These skills and competencies would enhance the youth’s employability either in a recognized electrical or electronics institutions or self-reliant employment in the world of work. When electrical or electronics industries partner with the training institutions, students’ skills development would be more meaningful.

**Private Industries Partnership in Technology and Vocational Education**

The overall funding of education by the government has not been efficient. The Federal Republic of Nigeria (2013) pointed out that education is an expensive social service and requires adequate provision of fund from all tiers of government for successful implementation. Since adequate funding of TVET is particularly expensive the combination of efforts from the federal, state and local governments are akin to produce a more efficient financing. Also private sectors need to offer a helping hand for the successful implementation of technology and vocational education. This is because the efforts of government alone have not been enough. This was supported by Olusegu (2005) when he posited that the government has been making tireless efforts to finance technical and vocational education but funding despite all the efforts is grossly inadequate and that attention should be directed towards alternative ways of funding the expensive technical and vocational education.

Technical and vocational education institutions therefore need proper liaison with private industries for effective implementation of its skills acquisition programmes. Raymond (2010) remarked that the federal government master plan of 2001 to 2010 suggested that for technical and vocational education policy design and delivery to be actualized, a new partnership between government, employers, vocational industries, trade unions and the society must be established which will create a coherent frame work to enable the launching of national strategy for change. The robust demand of citizens for skills acquisition in technology and vocational education for employment opportunities is presently beyond the federal government to cope. The government and cooperate organizations should support vocational education to enable youths effectively acquire marketable skills especially in electrical and electronics education.

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**Private Partnership in TVE**

Private sectors have the efficient means of copying with funding of their businesses than the public sectors. Raymond (2010) pointed out that training in the private sector by private employers and private training institutions can be the most efficient way to developing skills of workforce in the contemporary society. The private sector is thus the organization that takes the risks as an enterprise for the purpose of profit maximization. To effectively key into the progress of economy of nations in the contemporary times, the contributions of the private sector in funding technology and vocational education is imperative, Eze (2003). Nigerian economy can thus be sustained if private business executives sincerely contribute to the building up of the skills acquisition institutions to help them train worthwhile youths that will in consequence contribute to the development of the economy of Nigeria through their contribution of productive skills.

It is thus evident that government alone cannot effectively bear the burdens of sponsoring technical and vocational education. The private institutions should contribute in advancing skills acquisition of youth in the following dimensions.

* **Establishment of private technical and vocational schools:** Private and rich individuals could be encouraged by the government to establish and fund technical and vocational institutions. This will ease the burden of the government in funding all forms of education alone.
* **Establishment of liaison between training institutions and private industries:** Skill industrial based companies should be encouraged to liaise with industries that could help to train the students in acquiring the requisite skills in their industries. Skills based industries can prove invaluable to student trainees when they are apprenticed` to such industries where they can learn at first hand the processes and operations of production thus learning the skills involved directly in the world of work.
* **Offer of scholarship:** Highly interested and intelligent high achieving students in technical and vocational educational institutions should be encouraged by granting them scholarships to source and train in advance skills training schools. This will serve as an incentive to other youths and would spur them to aim higher in their skills acquisition especially in electrical electronics.
* I**ncentive to teachers:** It has often been said that no educational institution can be better than the teachers who implement the teaching activities. When the teachers are offered incentives like sponsoring them in retraining programmes conferences and excursions, they would be motivated to put in their efforts in training the students.
* **Student’s industrial work experience scheme (SIWES):** The impetus of industrial work experience scheme is to bring closer, the world of work and the world of school. The SIWES affords the student the chance to get exposed to innovations in the profession in the training institution. Every school now is expected to send their technical and vocational education students at tertiary institutions to the industry for the purpose of acquiring modern knowledge and skills in their trades.

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**Conclusions**

The present global economic trends give credence to more emphasis on effective skills acquisition by the myriads of youths in the country. Nigeria cannot make much progress towards satisfying all the skills needs of the youths without harnessing the contribution of the private sector. The government can play a catalystic role in attracting private investors to support technical and vocational education and thus build a more robust foundation for more youths to receive skills training through the aids of these private investors. When stronger and continual ties among schools, research institutions, private sectors and governmental agencies are established, industries could be helped to produce more employable youths, thus reducing the present predicament of unemployment. When students properly trained in electrical and electronics based industries, marketable skills can be effectively acquired. The students after graduation can prove invaluable in rendering such services in such related industries thus living a worthy life of contributing to the economic advancement of the nation while achieving self-reliance. Technical and vocational subjects are basically imbued with marketable skills that the youths can get advantage of when enough funds are provided to execute the required training. The government cannot do all these alone and the contributions of the private sectors are inevitable for successful implementation of technology and vocational education programmes of youths for subsequent reduction of unemployment rate in the contemporary Nigeria.

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**THE ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN JOB CREATION THROUGH TECHNICAL VOCATIONAL EDUCATION AND TRAINING** **(TVET) AMONG COMPUTER EDUCATION GRADUATES IN NIGERIAN UNIVERSITIES**

**BY**

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***Abstract***

*This study focused on the role of Information and Communication Technology (ICT) in job creation through Technical Vocational Education and Training (TVET) among Computer Education graduates in Nigerian Universities. One research question and one hypothesis were formulated to guide the study. The target population for this study was 121 respondents comprising 72 Computer Education Lecturers and 49 Technical Instructors. There was no sampling due to the manageable size of the population. A structured questionnaire was used to elicit the needed information from the Lecturers and Technical Instructors. The data collected were analyzed using mean and standard deviation to answer the research questions and independent t-test statistic to test the null hypothesis at 0.05 level of significance using SPSS version 20. From the analyses, it was found that ICT played significant role in job creation especially in the area of engagement of computer education students, development of skilled ICT professionals, establishment of ICT human infrastructures, increased knowledge of computer, acceleration of capacity building, and strengthening vocational technical education and training in Nigerian Universities among others. Based on these findings, it was recommended among others that the government as a matter of priority should provide the necessary ICTs infrastructure, trained manpower, adequate budgetary allocation, and uninterrupted power supply to enhance sustainable beneficial role derivable from ICT application for job creation through Technical Vocational Education and Training in Nigerian Universities.*

***Key words:*** *Information and Communication Technology, Technical Vocational Education and Training, Job creation*

**Introduction**

Information and Communication Technology (ICT) has become a major tool for gaining competitive advantage in the corporate world and as such has been integrated into the operations of most high performing organizations in every economy. A recent policy note released by the World Bank (2013) says that ICTs are transforming the world of work, creating new job opportunities and making labour markets more innovative, inclusive and global. ICTs are influencing employment both as an industry that creates jobs and as a tool that empowers workers to access new forms of work, in new and more flexible ways (Samuelson, 2008).

Information and Communication Technologies (ICTs) may be viewed in different ways. Rodriguez and Wilson, (2000:10) defines ICTs as “the set of activities/materials which is facilitated by electronic means for the processing, transmission and display of information”. In the same view; (ESCAP (2000:9) “refers ICTs to technologies people use to share, distribute, and gather information and to communicate through computers and computer networks”. In the view of Akuyili (2006), ICT is the ability to use electronic means to capture, process, and store and communicate information. In this context, ICT is the use of technologies in job creation through different ways.

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The emerging ICT-enabled employment opportunities matter because countries around the world are looking to create more good jobs, which have positive economic and social implications for workers and for society. Information and Communication Technologies include technologies in which the computer plays a central role, such as Computer Assisted Language Learning (CALL), the internet, and a variety of generic computer applications. Brakel and Chisenga (2003) maintained that ICTs have a significant impact on all areas of human activity, particularly the technological development of any country and Job creation (be it advanced or developing).

Job creation is the notion that jobs are created in response to some sort of event or situation. Conceptually, it is the proactive opposite of unemployment. In the recent years, Information and Communication Technology (ICT) has been recognized across the globe as a veritable tool for massive job creation. This is possible through the appropriate use of various technologies embedded in ICT. Boritz (2002) claimed that no nation can grow economically if poverty, unemployment and under unemployment are still persisting. However, employment success, job attractiveness and salary level appear to be greater for individuals that possessed good knowledge and skills in ICT. Recently, a number of communication service providers such as MTN, Zain, Mtel, Glo, Airtel, among others sprang up and created thousands of jobs for some Nigerians who were unemployed. Besides, many homes, offices, business centres such as cyber café, telephone booth along every street in major cities, towns and villages are parts of the winds of growth and developments brought to Nigeria economy through ICT. Reducing the rate of unemployment in Nigeria could be achieved in Job creation through acquiring ICT skills in TVET.

Technical Vocational Education and Training is an action based programme of study with the ultimate goal of preparing individual for employment through practical skills acquisition. Olaitan in Keshinro and Ogunbote (2007) described TVET as education designed to encompass knowledge, understanding, attitudes, work habit and information needed by a worker to enter and make progress in employment in a useful productive basis. TVET is regarded as one of the main factors that provide countries all over the world with proficient and competent human resources through skill acquisition, which facilitate socio-economic transformation. TVET has also provided many countries with their own brand of technology. This reason underscore why TVET is given different definitions and attention by various countries.

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Federal government of Nigeria, for instance adopted the definition and understanding of TVET by United Nation Educational Scientific and Cultural Organisation (UNESCO) in her National Policy on Education (2013) to mean: comprehensive term referring to those aspects of educational process involving in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupation in various sectors of economic and social life. Ghana Education Service in Boateng (2012) described TVET as two separate but interrelated subjects leading to skill acquisition for national development. In Ghana’s mainstream educational system, technical include trades such as industrial, engineering while vocational courses are visual arts and home economic subjects. In Zambia, technical and vocational education and entrepreneurship training are integrated into a broader concept (Konayamu, 2011).

The monitoring and regulation for TVET are made by various countries to ensure that the purpose of TVET is accomplished. The purpose of TVET has been the provision of occupational skills for employment. The demographic, social, technological, economic and political forces however have expanded and varied expectations of TVET (Akyeampong, 2002). The UNESCO’s recommendation concerning TVET identified three broad dimensions which include: TVET as an integral aspect of general education; TVE as a preparation for an occupational field, and TVET as an aspect of continuing education. As an integral aspect of general education, TVET is expected to contribute to society’s goals for greater democratization, social and economic development. Regarding preparation for an occupational field, TVET is designed to offer educational options corresponding to the needs of the youth which include employment training and preparation for higher education at tertiary level.

TVET encompasses on the job- training, apprenticeships, Vocational Enterprise Institutions (VEIs), National Vocational Qualification Framework (NVQF), and Technical Colleges Training (FGN, 2013). Rogers and Boyer (2006) established that TVET graduates with job-specific skills have a potential of being more productive and more equipped to execute tasks for which they have been trained. In other to fully achieve this, TVET institutions in Nigeria need adequate information about the values and interests of their graduates. The plurality of needs and goals is reflected also by the plurality of graduates (Westerhuis, 2007). In view of this, the TVET institutions become a ground where conflicting interests come to bare and as such, they must define their modus operandi in order to accommodate the variety of computer graduates and their job creation in universities.

A university is an institution of higher education that offers programmes beyond the high school level (Gutek, 2009 in Onah 2014). In the view of Sharma (2005), universities are institutions of higher learning that are well structured into colleges or faculties with various academic disciplines typically made for undergraduate and postgraduate students to develop on a career. University education provides necessary training for individuals wishing to enter professional careers. University education also strives to develop creativity, insight and analytical skills in students and graduates. A student, according to Pearson (2007), is someone who is studying in school such as college and university. A student in the context of this study is an individual admitted into university to study computer science/education related disciplines after meeting the minimum entry requirements laid down by the National University Commission (NUC). Gutek (2009) noted that by acquainting students with complex ideas in an intellectually stimulating environment, universities provide unique opportunities for personal enrichment while also preparing students for future careers in such diverse professions as engineering, teaching, law, medicine and information science, which can be enhanced through TVET to reduce unemployment.

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Unemployment has called for a greater concern in the Nigerian economy. It has continued to be the major macroeconomic objectives of the government. Unemployment constitutes a series of serious developmental problems and is increasingly more serious all over Nigeria. The major policy of the government and the international agencies is targeted at reducing the rate of unemployment.

**Statement of the Problem**

In a rapidly changing world, university education is essential for an individual to be able to access and apply information as well as to develop specific skills for work. Upon this background, it is pertinent to investigate into the viability of ICTs in job creation through TVET and awareness in universities. According to Nigerian Communications Commission, one million “indirect jobs” have been created by the mobile telephony sector in the past five years (Ramey, 2008). This figure indicates that ICTs (mobile telephony) through TVET could boost job creation and poverty alleviation if the conditions that would stimulate its spin-offs are introduced and nurtured in a consistent manner. This study particularly dwells on the role of ICT in job creation through TVET among computer education graduates in Nigerian universities.

**Purpose of the study**

The purpose of this study was to determine the role of ICT in job creation through TVET among computer education graduates in Nigerian universities.

**Research question**

What are the roles of ICT in job creation through TVET among computer education graduates in Nigerian Universities?

**Hypothesis**

Ho1: There is no significant difference between the mean ratings of Lecturers and Instructors on the roles of ICT in job creation through TVET among computer education graduates in Nigerian Universities

**Methodology**

The study adopted a descriptive survey research design. According to Osuala (2005), survey research helps the researcher to identify present conditions, present needs as well as information on which to base sound decisions. The authors further stated that survey research focuses on people, the vital facts of people, and their beliefs, opinions, attitudes, motivation and behavior. Survey design is therefore considered most appropriate for this study because it sought opinions of respondents on the role of ICT in job creation through TVET among computer education graduates in Nigerian universities.

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This study was carried out in Nigerian universities which are among the developing countries which comprised of six geo-political zones, namely: South East, South South, South West, North East, North West and North Central. The choice of this area was based on the fact that the people are hard working but it was observed that many university graduates are unemployed. The universities have almost the same characteristics and present the same problems. The population for this study consists of 121 respondents which comprised of 72 Computer Education Lecturers and 49 Technical Instructors. The computer lecturers and Instructors were also chosen because they are the one that will impact ICT knowledge to the university students. No sample was taken as the determined number was considered manageable. A structured questionnaire on the role of ICT in job creation through TVET among computer education graduates in Nigerian universities was used. The questionnaire was subjected to face validation by three experts.

The reliability of the instrument was established using Cronbach Alpha Formula. The internal consistency of the items was established by a single administration of the instrument to University of Lagos, Lagos State. The reliability coefficient of the sections all together was 0.91. Copies of the questionnaire were administered on the respondents with the help of eleven trained research assistants. The research assistants collected copies of completed questionnaire from the respondents after two week. A total of 109 copies (90%) out of 121 copies of the questionnaire items were returned. The data collected from the respondents were analyzed using mean, standard deviation and t-test statistics. The mean and standard deviation were used to answer the research questions. Any item with a mean rating of 2.50 and above was regarded as agreed while any item with a mean rating less than 2.50 was regarded as disagreed. The correlated t-test statistic was used to test the null hypothesis at 0.05 level of significance. Any hypothesis whose significance levels was less than or equal to 0.05 level of significance was rejected while a hypothesis with significance level greater than 0.05 level was not rejected

**Results**

**Research Question 1:** What are the roles of ICT in job creation?

**Table 1:** Mean, standard deviation and test of hypothesis of respondents (Lecturers and Technical Instructors) responses on the roles of ICT in job creation

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Items** | **XL** | **XT** | **XG** | **SD** | **P-Value** | **Remarks** | |
|  |  |  |  |  |  |  | **RQ** | **HO** |
| 1 | Motivation of Computer education students in TVET programme | 3.29 | 3.62 | 3.45 | 0.56 | 0.54 | Agree | **NS** |
| 2 | Engagement of computer education students in TVET | 3.90 | 3.96 | 3.93 | 0.24 | 0.02 | Agree | **S** |
| 3 | Establishment of ICT-based human infrastructure | 3.58 | 3.40 | 3.49 | 0.50 | 0.82 | Agree | **NS** |
| 4 | Acceleration of capacity building | 3.34 | 3.35 | 3.34 | 0.77 | 0.11 | Agree | **NS** |
| 5 | Deepening of TVET Skills for computer education students | 3.65 | 3.66 | 3.66 | 0.47 | 0.79 | Agree | **NS** |
| 6 | Acquisition of ICT skills for computer education students. | 3.78 | 3.77 | 3.77 | 0.41 | 0.92 | Agree | **NS** |
| 7 | Increased knowledge of computer students | 3.74 | 3.88 | 3.81 | 0.38 | 0.00 | Agree | **S** |
| 8 | Relating school experience to work practices | 3.43 | 3.61 | 3.52 | 0.66 | 0.07 | Agree | **NS** |
| 9 | Creating of economic viability for tomorrow’s workers | 3.90 | 3.72 | 3.81 | 0.38 | 0.00 | Agree | **S** |
| 10 | Strengthening of TVET in Nigerian Universities | 3.85 | 3.72 | 3.78 | 0.40 | 0.01 | Agree | **S** |
| 11 | Enrichment of skills in record keeping | 3.85 | 3.66 | 3.76 | 0.42 | 0.06 | Agree | **NS** |
| 12 | Competency in Vocational administrative work | 3.03 | 3.68 | 3.35 | 0.60 | 0.07 | Agree | **NS** |
| 13 | Acquisition of database management skills | 3.72 | 3.74 | 3.73 | 0.44 | 0.75 | Agree | **NS** |
| 14 | Development of skilled ICT professionals | 3.83 | 3.77 | 3.80 | 0.39 | 0.12 | Agree | **NS** |
| 15 | Establishment of ICT-based TVET facilities | 3.83 | 3.77 | 3.80 | 0.39 | 0.12 | Agree | **NS** |
| 16 | Facilitation of acquisition of TVET competencies | 3.80 | 3.77 | 3.78 | 0.40 | 0.57 | Agree | **NS** |
| 17 | Improvement of Nigeria’s TVET system | 3.94 | 3.75 | 3.85 | 0.35 | 0.00 | Agree | **S** |
| 18 | Giving Computer education students a better education through TVET | 3.85 | 3.79 | 3.82 | 0.38 | 0.11 | Agree | **NS** |
| 19 | Building of strong value for technologically-advanced workforce | 3.83 | 3.87 | 3.85 | 0.35 | 0.32 | Agree | **NS** |
| 20 | Facilitation of clerical skills | 3.94 | 3.87 | 3.90 | 0.29 | 0.00 | Agree | **S** |

***Key: XG=*** *Grand**Mean,* ***SD*** *=Standard deviation,* ***S*** *= Significant at 0.05, NS = Not Significant at 0.05, XL = Mean of Lecturers and XT = Mean of Technical Instructors*

Data presented in Table showed that the mean ratings of the responses of the respondents on the 20 identified items relating to the roles of ICT in job creation through TVET among computer education graduates in Nigerian Universities had mean values ranging from 3.34 to 3.93 which are all greater than the cut-off point of 2.50 on a 4-point rating scale. The data in the table indicated that the respondents agreed that all the 20 items could be the roles of ICT in job creation through TVET among computer education graduates in Nigerian Universities. The standard deviation values for the 20 items ranged from 0.24 to 0.77 which showed that the respondents were not far from one another in their responses and that their responses were not far from the mean. The table also showed that the p-values of the items 1,3,4,5,6,8,10,12,13,14,15,16,18 and 19, ranged from 0.06 to 0.92 which were greater than 0.05 level of significance. This showed that there was no significant difference (P>0.05) between the mean responses of Lecturers and Technical Instructors with regards to the roles of ICT in job creation through TVET among computer education graduates in Nigerian Universities while the items 2,7,9,10,17 and 20 ranged 0.00 to 0.02 which were less than 0.05 level of significance. This showed that there is significance difference between the mean responses of the respondent on these items.

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**Discussion of the Findings**

A survey on the roles of ICT in job creation through TVET among computer education graduates in Nigerian Universities, with the aid of an observational checklist shows that the following are the roles of ICT in job creation through TVET among computer education graduates; motivation of computer education students in TVET, engagement of computer

education students in TVET, establishment of ICT-based human infrastructure, acceleration of capacity building, deepening of TVET skills for computer education students, acquisition of ICT skills for computer education students by TVET, Increased knowledge of computer students, relating school experience to work practices, creating of economic viability for tomorrow’s workers, strengthening of TVET in Nigerian Universities, enrichment of skills in record keeping, competency in vocational administrative work, acquisition of database management skills among others. This is in line with Olaitan in Keshinro and Ogunbote (2007) described TVET as education designed to encompass knowledge, understanding, attitudes, work habit and information needed by a worker to enter and make progress in employment in a useful productive basis. In the same vien, Rogers and Boyer (2006) established that TVET graduates with job-specific skills have a potential of being more productive and more equipped to execute tasks for which they have been trained. In other to fully achieve this, TVET institutions in Nigeria need adequate information about the values and interests of their graduates.

**Conclusion**

In conclusion therefore, ICT can aid in job creation through TVET among computer education graduates when some measures are put in place to curtail the prevailing day to day challenges, with the full involvement of all the stakeholders concerned.

**Recommendation**

Although the roles of ICT in job creation through TVET among computer education graduates in Nigerian universities cannot be over emphasized, challenges abound. However, control measures can be put in place so as to ameliorate such challenges. From the findings of this research, therefore, it is recommended that adequate provision of electricity or its alternative for steady utilization of computers and other ICT facilities should be maintained, so as to motivate and engage computer education students in TVET. Increase in the provision of ICT infrastructures like computers, hand-held devices, printers and networking facilities for learning purposes, so as to prepare students for the world of work. Improved capacity building through workshops, conferences and awareness campaigns, and deepening of TVET skills for computer education students through laboratory practical, training and retraining, maintenance of standardized student industrial work experience scheme (SIWES) for acquisition of hands-on ICT skills, so that students can sufficiently relate school experience to work practices among others.

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***Festus Chimezie***

**IDENTIFICATION OF REQUIRED TVET SKILLS FOR SUSTAINABLE ELIMINATION OF ASBESTOS BASE AUTOMOTIVE BRAKE-PAD AND LININGS USAGE IN NIGERIA: MEANS FOR SECURING AUTOMOBILE MECHANIC LIVES**

**BY**

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***Abstract***

*Auto-mechanics are exposed to asbestos brake pad dust particles during brake repair job there-by putting them at higher risk of developing asbestos-induced lung cancer among other related illness. The diseases associated to asbestos brake pad particles manifest if the mechanic inhales the dust from brake pad and lining. Symptoms of these diseases do not show up until many years after exposure. These problems still persist in Nigeria because of less attention in the area of institutionalization of findings from previous researches on asbestos brake pads. Hence, the purpose of this study was to identify required TVET skills for elimination of asbestos base automotive brake-pad usage in Nigeria. In order to attain the objectives of the study, descriptive survey design was adopted. A population of 60 TVET lecturers of Mechanical Technology option was used and was drawn from five Nigerian Universities that offered courses in Industrial Technical Education. There was no sampling because the entire population was studied since it is of manageable size. Six specific purposes and six research questions guided the study. Questionnaire was the instrument used for data collection. The instrument was face validated by two experts (one material scientist and one Industrial technical Educationist). Cronbach Alpha Coefficient method was used to establish the reliability coefficient index of the instrument at 0.87. The six stated research questions were analyzed using mean and standard deviation, and a decision rule of mean rating of 3.50 and above was set as required, while mean rating below 3.50 was regarded as not-required. The results of the findings from the study include: six major TVET skills and fifty-three sub-required technical skills were identified suitable TVET skills. The overall findings indicated that all the identified TVET skills were apt. The recommendation among others was that the identified TVET skills for the manufacture of asbestos-free automotive brake-pad and linings, should be integrated into Vocational and Technical institutions curriculum.*

***Keywords:*** *Automotive Brake-pad and linings, Asbestos, and TVET.*

**Introduction**

Automotive brake pads and linings are friction materials which help control movement of automotive vehicle. Among the components of a braking system are brake pads, or brake shoes which consist of a brake lining bonded to a metal backing (Aigbodion and Akadike, 2010). When the brake is engaged, the pad or shoe is pressed against a metal disc or drum attached to the wheel, causing it to slow gradually or stop automatically. According to Aigbodion, Akadike, Hasan, Asuke, Agunsoye (2010) the action of the braking system is that the forward motion of the wheel is converted into heat, subjecting the brake pads or linings to high temperatures. Because of the high heat resistance property, brake linings or pads are customarily made of asbestos as reported by (Blau, 2001). Brake pads are automotive engineering component with curved thin strip of asbestos composition riveted to a brake shoe to provide it with a renewal surface. Also, a brake pad can be said to be a heat resistant padding, often made of asbestos which is attached to a brake shoe to produce friction. The brake pads are in the past and present manufactured using asbestos as friction material for specific reasons.

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Asbestos is a set of six naturally occurring silicate minerals used commercially for their desirable physical properties. Asbestos is a naturally occurring fibrous material that has been a popular building material since the 1950s. It is used as an insulator (to keep in heat and keep out cold), has good fire protection properties and protects against corrosion as reported by Society for Mining, Metallurgy, and Exploration (2006). According to Jim (2013) six mineral types are defined by the United State Environment Protection Agency as asbestos including those belonging to the serpentine class and those belonging to the amphibole class. All six asbestos mineral types are known to be human carcinogens as reported by (Berman, Wayne, Crump, and Kenny, 2003).

As explained by the Joint Policy Committee of the Societies of Epidemiology (2012), prolonged inhaling of asbestos fibers can cause serious illness, including malignant, lung cancer, mesothelioma, and asbestos (a type of pneumoconiosis). The trade and use of asbestos have been restricted or banned in many jurisdictions according to (Jim, 2013). Housekeeping or custodial employees may be at an increased risk as they may potentially clean up damaged or deteriorated asbestos containing materials without knowing that the material contains asbestos. According to the report of the Agency for Toxic Substances and Disease Registry (ATSDR) (2008) asbestos remediation workers and emergency personnel such as firefighters may also become exposed. For instance the centre for disease control reported that asbestos-related diseases have been diagnosed in asbestos workers’ family members, and in residents who live close to asbestos mines or processing plants.

**Are Auto-Mechanics at Risk of Asbestos Brake-Pad Dust?**

In explaining how people are exposed to asbestos dust Meeker, Lowers, Swayze, VanGosen, Stutley, and Brownfield (2006) said we are all exposed to low levels of asbestos in the air. These “ambient”- or typical – air concentrations of asbestos fibers are 0.00001 or 0.0001 fibers per milliliter (fiber/ml). But much more concentrated levels of exposure are known to cause health effects in human which are contacted from work environments and occupations according to (Meeker, Lowers, Swayze, VanGosen, Stutley and Brownfield, 2006).

However, investigating the work classes that are most vulnerable to the risks of asbestos dust from brake pads and linings Adachi, Kawamura and Takemoto (2001) explained that the automobile mechanics are among other class of workers that are silently affected by this material. This is because they are the one who work directly with the brake linings and pads. They further said that automotive mechanics remove and replace worn brake pads and linings or even resurface pads on daily basis. Also, auto assembly – line workers may install brakes in new vehicles, auto parts manufacturers may assemble new brakes, or reline old brake pads and shoes.

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Automobile mechanics are exposed to asbestos dust in several ways. Dele (2013) explained that in a typical brake repair job, accumulated brake dust must be cleaned away before the old pads or shoes are removed. This is often done with a small brush, or with a blast of compressed air. Either method may cause asbestos particles to become air bone in the opinion of (Hara, Oyama, Inoue, Mibe, & Nakanishi, 2001). If the old brake pads and linings are still thick enough to be effective, the mechanic may use a bench grinder to restore the surface, or deglaze the linings of oil and dirt. When installing new brake pads or shoes, the mechanic may grind the surface to speed up the “breaking in” process. Bevel the edges with a grinding wheel to reduce noise, and drill or punch holes for rivets. Some manufacturers also recommended scoring the center of the pad with a hacksaw. Any of these tasks could release asbestos particles to the environment according to (Bono, and Dekyrger, 1990). After the release of these asbestos dusts, the handlers got in contact with it either by skin touch or breath through the air.

Investigating the manifestation mode of asbestos diseases Jim (2013), explained that if the mechanic inhales the asbestos dust, there may be usually no immediate symptoms, but as they remain for a long time, the risks of chest, abdominal cancers and lung diseases will show. Symptoms of these diseases do not show up until many years after exposure, smokers are at higher risk of developing asbestos-induced lung cancer as expresses by (Hara, Oyama, Inoue, Mibe, and Nakanishi, 2001). Having seen the health hazards associated with the deadly brake pad popularly in use, what can Vocational and Technical Education do to rescue these ugly trends?

**The Role of TVET Skill as a Sustainable Salvage**

With the emergence of formal basic education, the social and economic wellbeing of mankind has been improved and some societal problems resolved most especially with the introduction of specialized skill oriented educational programs like the Vocational and Technical Education (VTE) into the school curriculum in both secondary and tertiary levels. According to Ididapo (2015), Technical and Vocational education are programs designed for job professionalism. They are aimed at developing qualitative technological human resources such as artisans, skilled craftsmen, technicians and technologists in different occupational areas who will be capable of developing alternate ways of resolving technical oriented challenges like the burning issue under consideration (finding alternative means for the manufacture of asbestos-free auto-brake pads). In the view of Hallak (1990) in Ibidapo (2015), Vocational and Technical Education is skill base education aimed at raising human and materials resource for the development of products that are capable of sustaining man’s quest for better living. Akpomie (2009) opinioned that technical education program is use to teach specialized skills to the youth populace to help them tackle emerging problems. Ozoemena (2013) quoted Lawal (2010) that Vocational and Technical Education is that type of education that prepares people who could apply relevant practical skill to make positive changes within their society and afford a self-dependent life.

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Describing the attributes of TVET, Ozoemena (2013) reported that a country cannot be self-reliant without fully engaging its resources in terms of manpower and materials application in the production of necessity products. Abdullahi (1993) reported that developments in TVET are closely associated to innovative patterns and happenings around the globe which is a direct function of technological changes in line with human needs. So investing on TVET means training of individuals who will fill future skill needs gap for unforeseen challenges. TVET has the capacity of providing student learners, artisans’, technologists and other stakeholders’ with relevant TVET and entrepreneurial skills specific for the manufacture of asbestos-free brake pads and lining that will preserve the lives of the local automobile mechanics. Again through the application of TVET philosophy, local raw materials utilization can be enhanced for the purpose of production of friction materials. For instance, a skill based program for the production of brake pads can be developed through locally sourced raw materials like: palm kernel shells, coconut shells, banana peels among others as base materials for the manufacture of asbestos-free brake pad and linings with the help of Technical Vocational Education and Training programs.

So Vocational and Technical Education programs are crucial tools for securing health, economic, political and social crises that seems to threaten the comfort and existence of human nature. That is why the National Policy on Education (NPE) (2004) classified Technical and Vocational Education as a comprehensive term referring to those aspects of the educational process in-conjunction with general education, the study of technology and related science and practical skills, attitudes, understanding and knowledge relating to occupation in various sectors of economic and social life. The NPE (2004) further spelt out the goals and objectives of vocational and technical education among others to:

* Provide trained manpower in the areas of applied science and technology, and business particularly at craft, advanced craft and technical level.
* Provide the technical knowledge and vocational skills necessary fro agriculture, commercial and economic development.
* Give training and impart the necessary skills to individuals who shall be self-reliant economically.

Hence in line with the goals and objectives of the vocational and technical education, the possible advantage of engaging TVET skills in resolving the challenges of the use of the killer asbestos base automobile brake pads will include:

* Employment generation for unemployed skilled and unskilled youths.
* Acquisition of skills and knowledge for industrial manufacture of frictional materials.
* Encouragement of the use of local raw materials.
* Enhancement of improvisation for local technology transfer.

In view of the above anticipated merits associated with the use of TVET skills as an alternative means for the elimination of asbestos brake pads, this study intends to apply stipulated philosophy, goals and objectives of Technical and Vocational Education as contained in NPE (2004) to identify skills that are technically oriented as an option for replacement of asbestos brake pads and lining. With the right skills successfully imparted to our students and local craftsmen and women at different levels of vocational and technical education institutions, the challenges of looking for an alternative friendly materials to replace the deadly asbestos as chief material for the manufacture of auto brake pads and linings will be overcome; and lives of automobile mechanics and other primary and secondary contact persons will be saved from these asbestos related diseases.

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**Statement of the Problem**

The use of asbestos as base material for the manufacture of several engineering products in the areas of electrical and electronics, auto mechanical parts, building amongst others in the world including Nigeria is not new. But recent studies by Jim (2013) and Hara, Oyama, Inoue, Mibe, and Nakanishi (2001) proved that the use of asbestos substance as production material is hazardous, and so possess serious health risks to human existence which many western countries of the world have impose a ban on it and already seeking for an alternative replacement.

But regrettably, the Nigeria context is different. The application of asbestos for brake pad production is still seen as a major manufacturing friction raw material. That is why in a two-day National Stakeholders Training Workshop held in Abuja, Nigeria, organized by the Nigerian Federal Ministry of Environment in collaboration with the World Bank titled: “Environmental Sound Management of Polychlorinated Biphenyls (PCBs)” the United Nations (UN) through Wagner (2015), a senior international environmental expert urges the Federal Government of Nigeria to ban the importation of asbestos into Nigeria to curb toxic threats to human health. Wagner, who is also an Asbestos Management Expert, stated in regrets that asbestos commonly used as roofing sheets and other product manufacture in Nigeria contained PCBs which were detrimental to human health.

Also, Oghogho and Temitayo (2015) reported categorically that environmental laws in Nigeria have no specific regulations at this time on the use and likely effects of asbestos. Oghogho and Temitayo further stressed that there are no specific legislation in Nigeria regulating the use of asbestos. To affirm this, Jim (2013) attested that to the best of his knowledge as an investigative Journalist, there has not been any litigation proceedings brought to the courts as regards cases of the use of asbestos. According to Jim (2013) as the Western governments’ outlawed asbestos use in their countries, companies manufacturing these fibers moved to Africa. Jim (2013) reported that in Nigeria some of these products are manufactured in many centrally located cities like Kano, Lagos and Sapele; and they are promoted as an essential raw material for products manufacture. Unfortunately Dele said all the companies involved in this practice are all foreign owned. He maintained that from further investigations, it was revealed that a closely guarded Belgain asbestos company registered in Brussels, Belgium is operating in Nigeria. Ironically, while the product was banned in Belgium, these people recklessly manufacture and distribute it in Nigeria markets putting countless millions at risk.

The question of how many auto-mechanics have died, as a result of inhaling the fibers from brake pads; and how more people will still die as a result of contacting the disease silently; and dying in ignorance without knowing the causes of their death is still a mirage in the Nigerian context.

The problem of this study was that many Nigerians particularly the automobile mechanics are still ignorant of the prevailing dangers associated with the use of asbestos base friction materials as brake-pad and linings. Hence, this study sought to identify the required TVET skills for manufacturing asbestos-free brake-pad.

**Purpose of the Study**

The purpose of this study was to identify the required Technical and Vocational Education and Training (TVET) skills in elimination of the use of asbestos base automotive brake-pad and linings in Nigeria. Specially, this study sought to identify the required TVET skills for:

1. Mold or pattern formation.
2. Powder manufacturing techniques.
3. Additives application.
4. Powder compaction.
5. Heat treatment process.
6. Powder and Compacts Characterization.

**Research Questions**

1. What are the required TVET skills for mold or pattern formation?
2. What are the required TVET skills for powder manufacturing technique?
3. What are the required TVET skills for additives application?
4. What are the required TVET skills for powder compaction?
5. What are the required TVET skills for heat treatment processes?
6. What are the required TVET skills for power and compacts characterization?

**Significance of the Study**

The results of the study will be beneficial to automobile manufacturing industries, Lecturers and students of Vocational and Technical Education, automobile mechanics, NBTE curriculum planners, Federal Ministry of Education, future research and the general society.

**Scope of the Study**

The scope of this study was to identify the required TVET skills for eliminating the use of asbestos as base material for the production of brake pads and lining. The study identified practical TVET skills required for the manufacture of non-asbestos brake- pad and linings.

**Research Methodology**

This study adopted descriptive survey design. The research was conducted in South-South and South-East geopolitical zone of the Federal Republic of Nigeria. The population for this study comprises of 60 Vocational and Technical Education lecturers of mechanical option from five Nigerian Universities that offered courses in Industrial Technical Education. There was no sampling because the entire population was studied since it is of manageable size. The respondents were the 60 Vocational and Technical Education lectures. The questionnaire was the only data collection instrument used for this study. The instrument was a five point rating scale with response coding options: strongly Required (SR); Required (R); Un-Decided (U); Not Required (NR); Strongly Not Required (SNR) with numerical values: 5, 4, 3, 2 and 1 assigned respectively. The instrument was face validated by two experts (One Material Scientist and One Industrial Technical Educationist). Comments and suggestions from the experts were accepted and finally included into the final design of the instrument. The reliability index of the instrument was established using Cronbach Alpha Coefficient to ascertain the internal consistency at 0.87. 15 copies of the instrument was trial tested at Lagos state in South-West region of Nigeria outside the study area. The instrument for data collection was personally administered to the respondents. Out of the 60 copies of the questionnaire administered, only 58 copies were withdrawn representing 97% return rate and were used for data analyses. The statistical instrument used for analyzing the research questions was the mean. The decision rule holds that any mean rating with 3.50 and above was regarded as required identified skill, while any mean rating below 3.50 was regarded as Not Required identified skills.

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**Data Presentation and Results**

The Results were presented based on the research questions

**Research Question 1**

What are the required TVET skills for mold or pattern formation for the manufacture of asbestos-free automotive brake-pad and linings?

**Table 1:** Mean and Standard Deviation of Respondents on Required TVET skills for Mold or Pattern Formation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item** | **Specific Technical Skills** | **X** | **SD** | **Decision** |
|  | Sheet metal identification | 4.21 | 0.30 | Required |
|  | Dimensioning techniques | 3.74 | 0.41 | Required |
|  | Marking out process | 3.66 | 0.52 | Required |
|  | Cutting/shaping process and devices | 4.33 | 0.60 | Required |
|  | Folding/joining techniques | 3.70 | 0.74 | Required |
|  | Finishing and mold precision | 4.12 | 0.84 | Required |
|  | **Grand Mean and SD** | **3.96** | **0.57** |  |

Table 1 revealed a grand mean score (*X* = 3.96, SD = 0.57) for training on mold or pattern formation).

Among the required technical skills, cutting/shaping process and devices (*X* = 4.33, SD = 0.60) was rated as key skill for pattern formation. This was followed by training on sheet metal identification (*X = 4.21, SD = 0.30). The least was skill on marking out processes (X =* 3.66, SD = 0.52). The findings indicated that all the technical skills identified for training on pattern formation were required and well suited for TVET skills for the manufacture of asbestos-free automotive brake pad and linings.

**Research Question 2**

What are the required TVET skills for powder production for the manufacture of asbestos-free automotive brake pad and linings?

**Table 2:** Mean and Standard Deviation of Respondents on Required TVET skills for Powder manufacturing

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item** | **Specific Technical Skills** | **X** | **SD** | **Decision** |
| 1. | Operation of solid-state reduction equipment | 3.78 | 0.44 | Required |
| 2. | Bulk mineral ore selection and classification | 3.94 | 0.58 | Required |
| 3. | Electrolytic deposition methods | 3.72 | 0.58 | Required |
| 4. | Electrolytic deposition equipment and tools | 4.20 | 0.74 | Required |
| 5. | Carbonyls methods | 3.76 | 0.83 | Required |
| 6. | Metal carbonyls materials and equipment | 4.12 | 0.61 | Required |
| 7. | Mechanical communication methods | 3.65 | 0.65 | Required |
| 8. | Use of comminuting devices | 3.60 | 0.71 | Required |
| 9. | Ball mill operation and equipment | 3.99 | 0.10 | Required |
| 10. | Processes of water and gas atomization | 4.10 | 0.89 | Required |
| 11. | Use of atomization equipment, and tools | 3.77 | 0.99 | Required |
| 12 | Mechanical alloying principles and processes | 3.80 | 0.95 | Required |
| 13. | Mechanical alloying tools and equipment | 3.91 | 0.43 | Required |
|  | **Grand Mean and SD** | **3.87** | **0.65** |  |

Table 2 showed a grand means and standard deviation score (*X* = 3.87, SD = 0.65) for training on powder manufacturing techniques. The findings indicated that skill on electrolytic deposition equipment and tools (*X* = 4.20, SD = 0.74) was strongly rated as the major skill for powder manufacturing techniques. This was followed by processes of water and gas atomization (*X* = 4.10, SD = 0.89), and the least was skill on the use of comminuting devices. (*X* = 3.60, SD = 0.71). The overall result showed that the identified technical skills for training on powder production techniques were required for TVET skills for the manufacture of asbestos-free automotive brake pad and linings to salvage problems and quest for an alternative brake pad manufacture.

**Research Question 3**

What are the required TVET skills for additives (composites) proportionate formulation for the manufacture of asbestos-free automotive brake pad and linings?

**Table 3:** Mean and Standard Deviation of Respondents on Required TVET skills for additives proportionate formulation.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item** | **Specific Technical Skills** | **X̅** | **SD** | **Decision** |
| 1. | Filler additives | 4.60 | 0.37 | Required |
| 2. | Fiber additives | 3.52 | 0.59 | Required |
| 3. | Binders formulation percentage | 3.74 | 0.74 | Required |
| 4. | Frictional materials additives | 4.21 | 0.89 | Required |
| 5. | Wetting agents | 3.86 | 0.87 | Required |
| 6. | Equipment and tools for additive blending | 3.74 | 0.77 | Required |
|  | **Grand Mean and SD** | **3.95** | **0.71** |  |

Table 3 above showed a grand mean and standard deviation score (*X* = 3.95, SD = 0.71) for additives proportionate formulation. Among the required technical skills, skill on filler additives (*X* = 4.60, SD = 0.37) were rated as the most required skill for additives formulation. This was followed by frictional materials additives (*X* = 4.21, SD = 0.89). The least was skill on fiber additives (*X*= 3.52, SD = 0.59). This finding suggested that the skills identified on Table 3 were required and most suited for TVET skills for additives proportionate formulation for the manufacture of asbestos-free automotive brake pad and linings.

**Research Question 4**

What are the required TVET skills for powder compaction for the manufacture of asbestos-free automotive brake pad and linings?

**Table 4** Mean and Standard Deviation of Respondents on Required TVET skills for powder compaction

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item** | **Specific Technical Skills** | **X̅** | **SD** | **Decision** |
| 1. | Powder compaction methods | 3.50 | 0.61 | Required |
| 2. | Powder compaction equipment and tools | 3.88 | 0.49 | Required |
| 3. | Green bodies formation process | 3.60 | 0.66 | Required |
| 4. | Pre-heating PM part after pressing | 3.65 | 0.60 | Required |
| 5. | Solid metal volume and resistance | 3.90 | 0.59 | Required |
| 6. | Relationship b/w density, strength and elastic modules of compacts | 3.77 | 0.75 | Required |
|  | **Grand Mean and SD** | **3.71** | **0.61** |  |

Table 4 indicated a grand mean and standard deviation score (*X* = 3.71, SD = 0.61) for skills training on powder compaction. The finding showed that the respondents strongly indicated that skill on solid metal volume and assistance (*X* = 3.90, SD = 0.59) was the most required skill for powder compaction. This was followed by skill on powder compaction equipment and tools (*X* = 3.88, SD = 0.49), and the least was skill on powder compaction methods (*X* = 3.50, SD = 0.61). The results showed that the identified skills for powder compaction were appropriate and required for TVET skills for powder compaction for the manufacture of automotive brake pad and linings.

**Research Question 5**

What are the required TVET skills training for heat treatment processes for the manufacture of asbestos-free automotive brake pad and linings?

**Table 5:** Mean and Standard Deviation of Respondents on Required TVET Skills for Heat Treatment process

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item** | **Specific Technical Skills** | **X** | **SD** | **Decision** |
| 1. | Principles and phases of sintering mechanism | 4.20 | 0.77 | Required |
| 2. | Uses of sintering equipment and tools | 3.59 | 0.81 | Required |
| 3. | Sintering temperatures and timing | 3.54 | 0.70 | Required |
| 4. | Diffusion mechanisms and bond strength | 3.78 | 0.69 | Required |
| 5. | Modification process of microstructures | 3.91 | 0.90 | Required |
| 6. | Sintering problems | 3.64 | 0.58 | Required |
| 7. | Powder particles oxidation and prevention | 4.50 | 0.59 | Required |
|  | **Grand Mean and SD** | **3.88** | **0.61** |  |

Table 5 showed a grand mean and standard deviation score (*X* 3.88, SD = 0.72) for technical skill training for heat treatment processes. The respondents strongly indicated that skill on powder particles oxidation and prevention (*X* = 4.50, SD = 0.59) was a key skill among others.

This was followed by training on principles and phases of sintering mechanism (*X* = 4.20, SD = 0.77) and the lest was skill on sintering temperatures and timing. (*X* = 3.54, SD = 0.70). The finding showed that the required skills on heat treatment processes for the manufacture of asbestos-free automotive brake pads and linings were appropriate for TVET skills.

**Research Question 6**

What are the required TVET skills for powder and compact characterization for the manufacture of asbestos-free automotive brake pad and linings?

**Table 6** Mean and Standard Deviation of Respond Required TVET skills for Powder and Compacts Characterization

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item** | **Specific Technical Skills** | **X** | **SD** | **Decision** |
| 1. | Stacking screens (mesh sizing) | 3.60 | 0.73 | Required |
| 2. | Sieves vibration procedures | 3.72 | 0.70 | Required |
| 3. | Particle microscopic analysis | 4.12 | 0.80 | Required |
| 4. | Optical means of determining powder particle | 3.77 | 0.50 | Required |
| 5. | Analyzes of chemical composition of powders | 3.54 | 0.44 | Required |
| 6 | Mechanical property testing | 3.69 | 0.65 | Required |
| 7. | Thermal property testing | 3.60 | 0.60 | Required |
| 8. | Wear resistant property testing | 4.54 | 0.68 | Required |
| 9. | Flammability properties of compacts | 3.59 | 0.72 | Required |
| 10. | Friction coefficient testing | 3.71 | 0.89 | Required |
| 11. | Compressive strength testing | 3.70 | 0.99 | Required |
| 12. | Hardness values (HRB) | 3.99 | 0.98 | Required |
| 13. | Density testing | 3.56 | 0.69 | Required |
| 14. | Porosity testing | 3.60 | 0.90 | Required |
| 15 | Use of universal testing m/c | 3.70 | 0.73 | Required |
| 16 | Specific gravity test | 3.55 | 0.32 | Required |
|  | **Grand Mean and SD** | **3.98** | **0.71** |  |

Table 6 showed a grand mean and standard deviation score (*X* =3.98, SD = 0.71) for technical trainings on powder and compacts characterization for brake pads production. From the finding, specific skill on wear resistant property testing (*X* = 4.54, SD = 0.68) was strongly rated as a key skill for powder and compacts characterization for the manufacture of brake pads. This was followed by skill on particle microscopic analysis (*X* = 4.12, SD = 0.80) and the least was skill training on analyzes of chemical composition of powders (*X* = 3.54, SD = 0.44). This result revealed that the skills were required for TVET skills for powder and compact characterization for the manufacture of asbestos-free brake pad and linings.

**Discussion of Findings**

The discussion was based on the analyzed data and the overall findings from the study as follows; from Table 1, a grand mean score (*X*3.96, SD = 0.57) was revealed for the required TVET for mold or Pattern Formation. Skills on cutting/shaping process and devices (*X* = 4.33, SD = 0.60) was rated as key skill for pattern formation. Table 2 showed a grand mean and standard deviation score (*X* = 3.87, SD = 0.65) for training on powder manufacturing techniques. Electrolytic deposition equipment and tools (*X*= 4.20, SD = 0.74) was strongly rated as the major skill for powder manufacturing techniques. Table 3 revealed a grand mean and standard deviation score (*X =* 3.95, SD = 0.71) for additives proportionate formulation. Skills on filler additives (*X* = 4.60, SD = 0.37) were rated as the most required skill for additives formulation. Table 4 indicated a grand mean and standard deviation score (*X*= 3.71, SD = 0.61) for training on powder compaction. From the finding skill on solid metal volume and resistance (*X* = 3.90, SD = 0.59) was the most required skill for powder compaction. Table 5 showed a grand mean and standard deviation score (*X*= 3.88, SD = 0.72) for technical training for heat treatment. Skills on powder particles oxidation and prevention (*X*= 4.50, SD = 0.59) was a key skill among others. Table 6 showed a grand mean and standard deviation score (*X*= 3.98, SD = 0.71) for technical trainings on powder and compacts characterization for brake pads production. Skills on wear resistant property testing (*X*= 4.54, SD = 0.68) was the key skill for powder and compacts characterization for the manufacture of asbestos-free brake pads and linings.

1. On the whole the study identified six major skills and fifty-three sub-required technical skills suited to be developed as TVET skills, in relevant Technical and Vocational institutions for the technologists, technicians and craftsmen for the production of asbestos-free brake pads and linings in line with the National Policy on Education (2004).

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1. The study suggested that all the identified TVET skills and associated sub-technical skills are apt; and when developed into vocational and technical training program, will completely help in terms of knowledge requirement for replacement of the silent killer (asbestos brake pad.

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### Conclusion

The study through the use of TVET philosophy identified six major skills and fifty three sub-required technical skills to be developed in to program or curriculum in subsequent study. The identified skills in program are to be implemented in Technical and Vocational Education institutions to be followed by the teacher to teach students the principles of manufacture of asbestos-free brake pads and linings as a means of securing lives of automobile mechanics. The adoption of the suggested TVET skills /methods into Nigeria VET curriculum, will not only enhance long lives of automobile mechanics, but also will bring about improvement in local technology transfer and resources usage, create job opportunities among school leavers, and reduction on youth restiveness.

**Recommendations**

In the light of the above, it is recommended that:

1. The identified TVET skills for the manufacturing of the asbestos-free automotive brake pad and linings should be integrated in Vocational and Technical institutions curriculum.
2. Various governments at different levels and private sectors should provide technical equipment and facilities to vocational and technical schools for the implementation of the identified TVET skills for the production of asbestos-free brake pad.

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1. Government should provide enabling environment in terms of sponsorships to willing youths and artisans to participate in the TVET program for acquisition f practical know-how for mass production of non-asbestos brake pad.
2. The Federal Government should make available specific percentage of fund for the execution of this training program in the respective institutions as salvage to alternative automotive brake pad manufacture.
3. The government should assist in terms of provision relevant instructional materials to the institutions and training centers for effective teaching/learning of the identified training skill.

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**EMERGING SKILL NEEDS IN MOTOR VEHICLE STEERING AND BRAKING SYSTEMS: IMPLICATION FOR CURRICULUM IMPROVEMENT AND JOB CREATION FOR TECHNICAL COLLEGE GRADUATES IN KANO AND KADUNA STATES**

**BY**

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***Abstract***

*The study examined the Emerging Skill needs in Motor Vehicle Steering and Braking Systems: Implication for Curriculum Improvement and Job Creation for Technical College Graduates in Kano and Kaduna States. It was carried out in Technical Colleges and Automobile manufacturing Companies in Kano and Kaduna States. One hundred and sixty seven respondents made up of 26 Automobile Engineers, 97 Graduates of Technical College Motor Vehicle Mechanics Work Programmes and 44 Technical College Motor Vehicle Mechanics Work Teachers formed the population used for the study. Descriptive survey research design was adopted to carry out the study. Two research questions and one hypothesis were formulated to guide the study. 20 items structured questionnaire was developed based on 5-point rating scale. The instrument was face validated by two specialists from Technology Education Department Modibbo Adama University of Technology, Yola. Hypothesis was tested using statistical tools Analysis of Variance. The hypothesis was tested at 0.05 level of significance and were analyzed using Microsoft Excel. The study revealed that the Emerging Skill needs identified in Motor Vehicle Steering and Braking Systems are required for Job Creation. Specifically, the graduates need to access live data from the sensors of the operative systems of Steering and Braking Systems as well as the data from Electronic Control Unit. Resetting or replacement of factory fitted parts, for example, resetting of steering position sender or steering alignment for use with a new electromechanical power steering. Based on these findings, the researcher recommended that educational curriculum needs to be reviewed to ensure that education received by students is relevant.*

***Keywords:*** *Emerging Skill needs in Motor Vehicle Steering and Braking Systems, Curriculum Improvement, Job Creation, Technical College Motor Vehicle Mechanics Work Programme.*

**Introduction**

Motor vehicle mechanics work programme as one of the programmes offered in technical and vocational education. Accordingly, the National Business and Technical Examination Board (NABTEB) were established to conduct National Technical Examination in the following areas: repair faults and maintenance in petrol and diesel engine parts such as piston and rings, connecting rods, main bearings, big end bearings, crank shaft and cam shafts. Other includes transmission, suspension, steering, brake and electrical/electronic systems. Students exposed to handle repairs using hand tools such as spanners, screw drivers, pliers, chisels, hammers; punches only without diagnosing equipment can hardly handle maintenance and repairs of modern motor vehicles effectively.

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With technological advancement in motor vehicle operative systems (MVOS) Mechatronic devices such as code readers are provided to access stored faults in the memory code of the MVOS through Electronic control unit (ECU) of the motor vehicle. Duffy (2008) stressed that code readers can be used to diagnose faults in electronic control steering systems which uses electromechanical actuators, electronic stability control (ESC) and steering feel emulators in order to improve safety and flexibility of the vehicles. Collapsible SteeringColumn reduces its intrusion in thedriver area in the event of a frontimpact, and the use of telescopicshafts and knuckles allow adjusting the steering wheel in height and depth, and compensating for the distance and angle variations. Some electromechanicallypoweredstirrings have an electrical motor connected to the steering column that provides the necessary assistance in manoeuvres (Hillier and David, 2007).

Most drivers cannot judge the point at which the wheels lock. An additional complication is that the friction coefficient at each wheel could be different and the driver cannot control brake force at each wheel individually. When the wheels skid, the driver has very little control on the directional stability of the vehicle and therefore the probability of an accident is high. The Anti-lock Braking System (ABS) detects if any of the wheels are about to lock and regulates the brake pressure at that wheel to prevent locking up. As a result, maximum braking force can be transmitted and the driver can retain control of the vehicle. It is in line with this Hillier & David (2007) stressed that an anti-lock braking system function can be added to an existing automotive braking system that consist of a standard servo-assisted master cylinder with twin-circuit hydraulic circuit brake system to detects any of the wheels about to lock and prevent it from locking up. It is an important factor that critical, safety-related situations can occur not only when the wheels lock under braking but also when the wheels lose grip under acceleration forces (known as wheel spin). In both situations, the frictional grip at the tyre/road surface interface is lost and hence the driver loses control of the vehicle direction – the vehicle effectively becomes unstable.

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Human error accounts for a large proportion of road accidents. Unforeseen circumstances can cause the driver to over-compensate. The vehicle can reach critical state where the lateral acceleration forces can be greater than any human driver can compensate for. The vehicle then becomes uncontrollable. The Electronic Stability Programme (ESP) system is a fast, closed-loop control system that uses the ABS and TCS component infrastructure and controller to improve vehicle handling and response in critical situations. Kirpal (2006) emphasised that ESP uses the vehicle braking system to assist in steering the vehicle. It can apply the brakes on individual wheels in order to counteract under-steer or over-steer. Using a combination of braking and acceleration, individual wheels’ ESP can held the driver to maintain control of the vehicle and reduce the risk of overturning the vehicle and/or an accident occurring.

Skills for diagnosing faults in motor vehicle steering and brake systems required by the graduates of technical college for job creation include: faults tracing from the memory code of the motor vehicle operative systems such as collapsible steering unit, power steering system, steering wheel lock, steering assistance control unit, steering column switch, universal joint shaft to steering gear and all wheel steering system. Other includes electronic anti-lock brake system, electronic brake force limiting unit, rear wheel electromechanical brake, optimized performance parking brake, cruise control etc. The graduates also need to access live data from the sensors of these operative systems as well as the data from ECU. Resetting or replacement of factory fitted parts, for example, resetting of steering position sender or steering alignment for use with a new electromechanical power steering.

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The teaching of occupational skills in the formal sector exists in two types of institutions in Nigeria. These institutions are Technical colleges and Trade centres. In these institutions individuals are provided with needed skills that will enable them become proficient in both public work place and private employment (Oziengbe, 2009). It is important that schools extend relevant skill training to all fields of study in technical colleges. This Dike (2009) opined would enable graduates of technical colleges to make intelligent use of product of technology and develop better skills to become more innovative workers.

Curriculum improvement is a process by which a curriculum planner deletes the irrelevant information, knowledge or skills of an existing curriculum, and substituting with available improved ones, taking into consideration the required resources for its success (Olaitan and Ali, 1997). Curriculum improvement includes when shortfalls in a curriculum package are added and also when overloading are shed-off for the purpose of effectiveness of the curriculum. The factors that can influence experts to improve an existing curriculum to bring about the needed curriculum improvement were enumerated by Olaitan and Ali (1997) as follows:

1. When the curriculum is subjected to public criticism or ineffectiveness or not meeting people’s needs.
2. When it is observed that there is inadequate qualified manpower and resources to implement a well planned curriculum, there is need for a review of that curriculum to meet the available manpower and resources.
3. When a country is competing technologically, either in warfare, business invention, discovery, diplomacy, governance etc with other countries that are far ahead.
4. When a country is threatened scientifically, economically, or in technology or governance by other neighbouring countries for the purpose of exploitation of available untapped resources. Curriculum improvement in such a threatened country is inevitable for the survival of the citizens.

Agba, Ushie & Agba (2007) stressed that the need to improve curriculum as a means of fostering economic growth and socio-political development has always been acknowledged by educational administrators in Nigeria. The provision of relevant curriculum and effective implementation is a factor that determines the quality of education in any country.

**Statement of the Problem**

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Apparent low level of skills in diagnosing modern motor vehicles among the graduates of technical college motor vehicle mechanic work programme is a matter of concern not only as it affects the programme but also the entire nation. Olufemi (2011) stressed that the graduates of motor vehicle mechanics work programme lack relevant skills to handle repairs and maintenance of modern motor vehicles effectively. This situation has made it difficult for the graduates of motor vehicle to diagnose faults in modern motor vehicles effectively. The problem of the low level of skills among the graduates of motor vehicle can be rightly attributed to the way they were trained. Acquiring desired skills for diagnosing modern motor vehicles will help graduates of technical college motor vehicle mechanic work programme to have the potential to accelerate and enrich their basic skills in diagnosing faults and effectively handle repairs in motor vehicle steering and braking systems. Ngozi (2014) in Robert, Abutu, Mohammed, and Asele (2015) observed that the Nigerian government industrial development effort through establishment of Technical Vocational Education and Training (TVET) institutions and training centres is supposed to enhance skill development and empower youths with the required work skills for self-reliance and employment in various industrial occupations. Yet, many industries complained that over 70 percent of TVET graduates at various levels lack the required work skills for employment thereby hindering industrial development.

**Purpose of the Study**

Based on the above problem, the main purpose of this study was to identify the emerging skills needs in motor vehicle steering and braking systems for job creation.

**Research Questions**

1. What are the emerging skills needs in motor vehicle steering and braking systems for job creation?
2. What strategies are needed for improving effectiveness of the emerging skills needs in motor vehicle mechanics work programme for job creation?

**Hypotheses**

The following hypothesis was formulated to guide this study and tested at 0.05level of significance.

**Ho**: There is no significant difference in the responses of Automobile engineers, the Graduates of technical college motor vehicle mechanics work programme and the Technical college motor vehicle mechanics work teachers on the emerging skills needs in motor vehicle steering and braking systems for job creation.

**Significance of the Study**

Apart from the socio-economic benefits derived by the graduates of technical college motor vehicle mechanic work programme this study will also help students who passed through this newly improved motor vehicle mechanic curriculum to be equipped with relevant motor vehicle emerging skill needs in order to be able to cope with the trend in the new developments in motor vehicle industry. The findings of this study will be of immense benefit to the National Board for Technical Education (NBTE) and National Business and Technical Board (NABTEB) by exposing students to this needed development, specifically on how well to diagnose motor vehicle steering and braking operative system. The society will also benefit from the more efficient and effective services in form of having a good and well maintained car rendered by the graduates of technical colleges in Nigeria that will pass through such improved study of motor vehicle steering and braking system.

**Scope of the Study**

The study focused on the Emerging Skill Needs in Motor Vehicle Steering and Braking System for job creation specifically, the components system includes Electromechanical Power Steering Motor, Steering Position Sender, Collapsible Steering Column upon Impact, Steering Column Electronic Unit, Steering Self-diagnosis unit, Electronic Stability Programme and Traction Control System. Others include Anti-lock Braking System, Electronic Brake Force Limitation Unit, and Cruise Control etc.: implication for curriculum improvement.

**Methodology**

The study adopted a descriptive survey research design and was conducted in Kano and Kaduna states. The population of the study was 167 made up of 26 Automobile Engineers and 97 Graduates of Technical College Motor Vehicle Mechanics Work Programme from Automobile Manufacturing Companies Kano and Kaduna States, and 44 Motor Mechanics Work Teachers of Technical Colleges, Kano and Kaduna States. The entire population studied due to it manageable size, hence no sampling was made. The instrument was face-validated by three experts from Technology Education, Modibbo Adama University of Technology, Yola and was subjected to reliability test. The internal consistency of the items of the questionnaire was ascertained through Cronbach Alpha technique (𝛼) which yield coefficient of 0.86 considered high enough for the study.

Items with mean weight of 3.0 and above were accepted while items with less mean weight were rejected. The questionnaire was coded with nominal values designed for each response that was expected from the respondents. Each of the items was scored on the basis of the following code. The items are on 5 point scale of Highly Required (HR), required (R) Moderately Required (MR), Less Required (LR), Not required (NR). The data were analysed using means, standard deviation while analysis of variance (ANOVA) was used to analyze the hypothesis.

**Results**

**Research Question 1**

What is the Emerging Skill Needs in Motor Vehicle Steering and Braking Systems for Job creation?

**Table 1:** Mean Ratings and Standard Deviation of Participants on the Emerging Skill Needs in Motor Vehicle Steering and Braking Systems for Job Creation

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| S/N | Item Statement |  |  |  |  | S.D | Remark |
| 1 | Collapsible steering wheel | 4.62 | 4.09 | 4.39 | 4.37 | 0.65 | R |
| 2 | Electro-mechanic power steering system | 4.58 | 4.13 | 4.23 | 4.31 | 0.58 | R |
| 3 | Electronic steering column unit | 4.19 | 3.88 | 4.23 | 4.10 | 0.73 | R |
| 4 | Steering column switch | 4.12 | 3.58 | 4.09 | 3.93 | 0.71 | R |
| 5 | Steering position sender | 4.46 | 3.87 | 3.98 | 4.10 | 0.73 | R |
| 6 | Steering movement sender | 4.19 | 4.08 | 4.27 | 4.18 | 0.65 | R |
| 7 | Steering column tube | 3.31 | 3.52 | 4.02 | 3.62 | 0.96 | R |
| 8 | Universal joint shaft to steering gear | 3.92 | 3.67 | 3.98 | 3.86 | 0.77 | R |
| 9 | Steering wheel lock | 4.46 | 4.16 | 4.20 | 4.27 | 0.65 | R |
| 10 | Steering active self alignment | 4.23 | 3.96 | 3.14 | 4.11 | 0.69 | R |
| 11 | Steering self diagnosis unit | 4.38 | 4.10 | 4.27 | 4.25 | 0.70 | R |
| 12 | All wheel steering system | 2.42 | 2.70 | 3.07 | 2.72 | 1.01 | R |
| 13 | Electronic brake force limiting unit | 4.27 | 3.68 | 4.05 | 4.00 | 0.56 | R |
| 14 | Brake servo vacuum | 4.04 | 3.73 | 4.14 | 3.97 | 0.73 | R |
| 15 | Electronic anti-lock brake system | 4.65 | 3.88 | 4.36 | 4.30 | 0.64 | R |
| 16 | Optimized performance parking brake | 4.42 | 3.96 | 4.25 | 4.21 | 0.63 | R |
| 17 | Reduced residual torque wheel brake | 4.15 | 3.65 | 4.02 | 3.94 | 0.78 | R |
| 18 | Rear wheel electromechanical brake | 4.15 | 4.00 | 4.20 | 4.12 | 0.70 | R |
| 19 | Front wheel conventional hydraulic brake | 3.31 | 4.13 | 4.25 | 3.90 | 0.74 | R |
| 20 | Cruise control | 3.96 | 3.41 | 3.59 | 3.65 | 0.84 | R |
|  | Total | 4.09 | 3.81 | 4.09 | 4.00 | 0.73 |  |

KEY:

x̄1 = Automobile Engineer

x̄2 = Graduates of Technical College Motor Vehicle Mechanical Work Programmes

x̄3 = Technical College Motor Vehicle Mechanic Work Teachers

x̄T = Average Mean of Engineers + Graduates of Motor Vehicle Mechanics + Teachers

R = Require Emerging Skill Needs in Motor Vehicle Steering and Braking Systems for Job creation

Table 1 presented the summary of the responses collected on the Emerging Skill Needs in Motor Vehicle Steering and Braking Systems for Job creation. 19 out of 20 items had total mean ratings of 3.00 and above. Only 1item has mean ratings below 3.00. The overall grand mean of this research question is4.00, indicating that emerging skill needs in motor vehicle steering and braking systems are required for job creation.

**Result**

**Research Question 2**

What strategies are needed for improving effectiveness of the emerging skills in motor vehicle mechanics work programme for job creation?

**Table 2:** Mean Ratings and Standard deviation of Participants on the Strategies needed for improving the effectiveness of Skills in Motor Vehicle Mechanics Work Programme (MVMWP) for Job creation

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| S/N | Item Statement |  |  |  |  | S.D | Remark |
|  | The Curriculum of MVMWP should be reviewed to catch up with present | 4.38 | 4.13 | 4.00 | 4.17 | 0.62 | R |
|  | Global Technology advancement |
|  | Government should ensure teachers ICT literacy to meet up with latest development in skill acquisition | 3.73 | 3.59 | 3.66 | 3.66 | 0.91 | R |
|  | Educational system should provide skill profiles required by the labour market to enhance employability of Technical College graduates | 4.31 | 3.86 | 4.07 | 4.08 | 0.87 | R |
|  | The Skills to be taught in Technical Colleges are those that are required in the industries. | 4.54 | 3.96 | 3.95 | 4.15 | 0.65 | R |
|  | Government should organize regular staff training to up-date the knowledge and skill of Technical Teachers. | 4.12 | 4.08 | 4.00 | 4.07 | 0.81 | R |
|  | At least 40% of the allocation to education ministry should be meant for the supply of equipment for Technical Education.  TOTAL | 3.46  24.54 | 3.72  23.39 | 3.52  23.20 | 3.58  23.71 | 0.92  4.78 | R |

Table 2 showed analysis of data collected on research question 3. From the table, it was indicated by the participants that all the Six (6)

strategies needed for improving the effectiveness of the emerging skills in motor vehicle mechanics work programme are required for job creation. This was proved by their mean values. The standard deviation indicates that the responses do not vary widely from the mean.

**Table 3:** ANOVA Table Comparing Means Ratings of Participants on the Emerging Skill Needs in Motor Vehicle Steering and Braking Systems for Job creation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Source of variance SS df MS F    Between Groups 1.05 2.00 0.53  3.20  Within Groups 9.37 57.00 0.16  Total 10.43 59.00 | P-Value    0.05 | F-Crit      3.16 | Remark    Rejected |

There is no significant difference in the mean responses of Automobile Engineers, the Graduates of Technical College Motor Vehicle Mechanics Work Programmes and the Technical College Motor Vehicle Mechanics Work Teachers on the Emerging Skill Needs in Motor Vehicle Steering and Braking Systems for Job creation. From Table 3 the Anova Table revealed that F-Calculated is 3.20 while the F-Critical is 3.16. Since F-Calculated value is greater than the F-Critical value, the null hypothesis is rejected and the alternative which states that significance difference exists in the Mean ratings of Automobile Engineers, Graduates of Technical College Motor Vehicle Mechanics Work Programme and Technical College Motor Vehicle Mechanics Work Teachers on the Emerging Skill Needs in Motor Vehicle Steering and Braking Systems for Job creation.

**Findings of the study**

The respondents showed that all the twenty (20) items on the Emerging Skill Needs in Motor Vehicle Steering and Braking Systems are required for Job creation. The Anova results revealed that F-Calculated is 3.20 while the F-Critical is 3.16. Since F-Calculated value is greater than the F-Critical value, the null hypothesis is rejected and the alternative which states that significance difference exists in the mean ratings of Participants on the Emerging Skill Needs in Motor Vehicle Steering and Braking Systems for Job creation is upheld.

**Discussion of the Findings**

Emerging Skill Needs in Motor Vehicle Steering and Braking Systems for Job creation

The findings of this study with regards to this research question revealed that the emerging skills needs in Motor Vehicle Steering and Braking Systems such asElectromechanical Power Steering Motor, Steering Position Sender, Collapsible Steering Column upon Impact, Steering Column Electronic Unit, Steering Self-diagnosis unit, Electronic Stability Programme and Traction Control System, Anti-lock Braking System, Electronic Brake Force Limitation Unit, and Cruise Control were indicated required for Curriculum Improvement by the Participants. This finding confirm with the study of Duffy (2008) who observed that electronic control steering systems using electromechanical actuators, electronic stability control (ESC) and steering feel emulators are used to improve safety and flexibility of the vehicles. The system eliminate the use of traditional components such as intermediate shafts, pumps, hoses, belts, coolers and vacuum servos and master cylinders from the vehicle. The study was also in line with Kirpal (2006) who emphasised that Electronic Stability Programme (ESP) uses the vehicle braking system to assist in steering the vehicle. It can apply the brakes on individual wheels in order to counteract under-steer or over-steer. Using a combination of braking and acceleration, individual wheels’ ESP can held the driver to maintain control of the vehicle and reduce the risk of overturning the vehicle and/or an accident occurring.

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The findings of the study were in line with Hillier (2007) who stressed that Cruise Control is a system that automatically controls the speed of Automobile. The driver sets the speed and the system takes over the throttle of the car to maintain the speed. The system thereby improves driver comfort in steady traffic conditions.

Strategies for improving effectiveness of the emerging skills needs in motor vehicle mechanics work programme for job creation

Result in table 3 showed that the strategies for improving effectiveness of emerging skills needs in motor vehicle mechanics work programme for job creation such as the review of the curriculum of motor vehicle mechanics work programme to catch up with the present global technology advancement were indicated required by the participants. Obioma (2014) submitted that providing appropriate curriculum and pedagogical guides will reduce illiteracy level and eradicate poverty. Government should ensure teachers ICT literacy to meet up with latest development in skill acquisition. This finding confirms with the study of Davis and Roblyer (2005) in Samuel (2015) encouraged teachers to be active users of internet technologies. So, a technology teacher must be resourceful, competent and experienced in the application of instructional methods. At least 40% of the allocation to education ministry should be meant for the supply of technical education equipment. Ikeoji and Agwubike in Canice and Samuel (2015) observed that funding can contribute to sustainable newly developed educational innovation and reformation in vocationalisation.

**Conclusion**

The study was conducted on the Emerging Skills needs in Motor Vehicle Steering and Braking Systems for Job creation. It was carried out in Technical Colleges and Automobile manufacturing Companies in Kano and Kaduna States. One hundred and sixty seven respondents made up of 26 Automobile Engineers, 97 Graduates of Technical College Motor Vehicle Mechanics Work Programmes and 44 Technical College Motor Vehicle Mechanics Work Teachers formed the population used for the study. Descriptive survey research design was adopted to carry out the study. One Research question and one hypothesis were formulated to guide the study. 20 items structured questionnaire was developed based on 5-point rating scale. Findings were made based on the two research questions and one hypothesis. Findings of the study showed that all the 20 items on the Emerging Skills needs in Motor Vehicle Steering and Braking systems for Job creation were rated required by the participants. The study also indicated that all the six (6) items on the strategies for improving effectiveness of emerging skills needs in motor vehicle mechanics work programme for job creation were rated required by the participants.

**Recommendations**

1. Students need to be given guidance. Hence, it is the responsibility of institutions to provide relevant education which fulfils the requirement of current industrial market.
2. Government need to establish strong linkages and collaboration with institutions, employer and industries as well as other private sectors in considering mainstream gender into training activities and programmes.
3. Educational curriculum needs to be reviewed to ensure that education received by students is relevant.
4. Further studies should be conducted to identify other elements of emerging skill needs in motor vehicle which may includes suspension system, transmission system, auto electrical system, etc.

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***Catherine, C.K.***

**FRAMEWORK FOR TRAINING AND INITIATING RELATIONSHIPS IN MENTORING PROGRAMMES IN NIGERIAN FAST-MOVING CONSUMER GOODS MANUFACTURING INDUSTRY**

**BY**

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***Abstract***

*This paper presents a research-informed framework for training and initiating mentoring relationships in formal mentoring programmes designed for raising skilled and committed workforce in fast-moving consumer goods (FMCG) manufacturing industry. A survey was conducted to determine the principles that were applicable to mentor training, mentee training and mentoring relationship initiation in mentoring programmes in FMCG manufacturing industry. The findings were used to develop the framework for training and initiating mentoring relationships. Subjects were 55 senior-level staff of five manufacturing companies in Lagos State that had designed and implemented formal mentoring programmes. The subjects responded to a 54-item questionnaire. Data analysis involved the use of Mean and Standard Deviation. The study revealed that training objectives for mentors and mentees should be developed based on goals of the mentoring programme, lessons learned from previous programmes and specific needs of prospective mentors and mentees. It was found that contents for training mentors and mentees should include, among others, topics on the programme’s structure, rules, requirements and procedures; ethical issues in mentoring; and communication. Findings also indicate that a meeting of mentor and mentee in which they sign an agreement consenting to programme rules can be organised for each pair to initiate their relationships. All the findings were used to develop a draft framework for training and initiating mentoring relationships in formal mentoring programmes in FMCG manufacturing industry. The draft framework was validated by 3 experts in human resource development, management and business education. Their feedback was used to refine the framework.*

*Key words: FMCG manufacturing industry, Mentoring, Mentor Training, Mentee Training*

**Introduction**

Fast-moving consumer goods (FMCG) manufacturing industry is a collection of legal entities that design and develop non-durable, low-price goods that consumers purchase frequently with minimum effort such as food, beverages and personal care products. The Nigerian FMCG industry is large and the consumption of FMCGs in Nigeria is high compared to other African countries. According to KPMG (2013), World Bank recorded that household consumption expenditure in 2013 was highest in Nigeria (US$377bn), followed by Egypt (US$221bn) and South Africa (US$213bn). However, unfavourable macro-economic factors such as depreciating Naira and non-payment of workers' salaries are negatively affecting the FMCG industry since its performance is linked to the aggregate spending power in the economy. In spite of these challenges, Daka (2016) argued that the manufacturing sector, along with agriculture, remains Nigeria’s hope for driving economic growth. To meet this expectation, FMCG manufacturing companies need employees who are not only highly skilled but also emotionally committed to the success and survival of the companies. Extant literature indicate that mentoring is probably the fastest as well as most effective and efficient talent development programme for raising substantial number of highly skilled and committed workforce (Clutterbuck cited in Alred, Garvey & Smith, 2003; Spitzmuller, Neumann, Spitzmuella, Rubino, Keeton, Sutton & Manzey, 2008; Payne & Huffman, 2005).

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Mentoring is described as programmes and relationships, which aim to build the skills and wellbeing of a young person through the input and/or assistance of another person who has more skills, experience and knowledge (Blaber & Glazebrook, 2006). Similarly, Rhodes (2002) defined mentoring as “a relationship between an older, more experienced adult and an unrelated, younger protege in which the adult provides ongoing guidance, instruction, and encouragement aimed at developing the competence and character of the protege”. Megginson & Clutterbuck in McKimm, Jollie and Hatter (2007) agreed that mentor and mentee are usually not related. The authors, thus, described mentoring as an ‘offline’ help by one person to another in making significant transitions in knowledge, work or thinking. The word “offline” in the definition provided by Meggingson and Clutterbuck implies that a mentor is not someone who is naturally responsible for the development of the mentee such as a father or a line manager. Interestingly, the above definitions of mentoring are consonant with historical perspectives. As Carruthers (1993) narrated, Mentor in Greek mythology was the faithful companion of Odysseus, King of Ithaca, who set-off for the Trojan War and gave Mentor the responsibility to ensure that his son, Telemachus, was raised to be fit to succeed his father. It is, thus, evident that mentoring has always been a highly insightful and nurturing process involving a more experienced professional (mentor) and a less experienced person (mentee) in which the mentor provides direction and guidance with a view to helping the mentee develops necessary skills, navigate work place politics and improve performance. It is also evident that the process of mentoring can enhance the extent to which the mentees’ need for affection and belonging are satisfied and therefore strengthen their sense of attachment to the organization (Allen & Meyer, 1990). Thus, those who receive mentoring from a senior member of an organisation would tend to experience higher levels of organizational commitment (Sebastian and Zacharias, 2015)

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Mentoring can be informal (Natural) or formal (Planned). According to Blaber & Glazebrook (2006), Mentoring may occur either as informal, when a sustained relationship develops naturally between a coach, teacher, neighbour, or other adult and a young person. The authors also noted that mentoring can be formal or planned when a relationship is purposefully created to help a young person who may otherwise not have the access he or she needs to the wisdom and support of a caring adult. Therefore, informal mentoring relationships usually occur spontaneously. In such relationships, the mentee visits the mentor on ‘anytime’ basis (Alred et al, 2003). Formal or planned mentoring, on the other hand, are usually organized in the workplace where mentors are matched to mentees for developing careers (Wong & Prekumar, 2007). Formal mentoring relationships are characterized by agreed appointments, meeting venues and timing (Alred, et al, 2003). In formal mentoring programmes, a structure is articulated and appropriate mentors and mentees are selected and carefully paired for successful mentoring relationships.

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Following these preparatory stages, mentors and mentees are trained and their relationships initiated. Training prospective mentors is a vital component of any successful mentoring programme (Miller, 2007), given that it helps them build capacity to perform well in their roles as mentors. Although some prospective mentors may assume that having subject expertise and experience would be adequate preparation for being a mentor (Wong & Prekumar, 2007), those who assume mentor roles without being prepared are often disappointed and dissatisfied (Zachary, 2000). Thus, training the mentors before the relationship begins helps them develop necessary skills as well as feelings of self-efficacy as a mentor (Martin & Sifers, 2012). Mentor training is an opportunity to provide the mentors with information about the mentoring programme and the mentees. It is also an opportunity to help prospective mentors reflect on the reason the company is embarking on the mentoring programme, their motivations for joining and how best they can play their roles to help in achieving organizational objectives.

Just like the mentors, selected mentees also need to be trained given that some prospective mentees may not fully understand what it means to be mentored. Mentee training, according to Taylor (2003), can help mentees learn about the concept of mentoring; understand the roles of those involved in the program; develop reasonable expectations for the mentoring relationship, understand their responsibilities as mentees and learn how to get the most out of their mentoring relationships. Taylor also argued that the training will help mentees understand the limits of confidentiality in the mentoring relationship as well as provide opportunity for them to practice skills that will assist them in the relationship.

Once mentors and mentees are trained, a formal meeting is organised for each mentoring pair to initiate their relationship. This meeting is important to enable mentors and mentees build rapport and have clear expectations from beginning. Literature indicates that mentors and mentees need to be prepared for their first meeting. Garringer, kupersmidt, Rhodes, Stelter & Tai (2015) argued that preparing mentees for their first meeting with their mentors can alleviate their anxieties about who their mentor will be and what kind of activities they will be doing together. Garringer et al (2015) also contended that signing a commitment agreement consenting to the programme rules and requirements is one of the tasks that must be accomplished at the initial meeting. The authors noted that formally signing a commitment agreement will help establish clear expectations for the mentoring relationship. Thus, at the end of the initiation meeting, participants should know their partners better and have better defined goals and priorities for the relationship.

***Catherine, C.K.***

Completing the process from preparation through training to initiation of mentoring relationships is considered a giant step towards facilitating knowledge, skill and attitude development for middle and early career employees. This is because researches indicate a strong link between career mentoring activities and positive employee outcomes (Kammeyer-Mueller & Judge, 2008; McKimm et al, 2007). Moreover, organisations have used mentoring for many years to increase job satisfaction, improve employee commitment and reduce turnover intentions (Spitzmuller et al, 2008; Payne & Huffman, 2005).

In spite of these benefits, empirical research in mentoring is inadequate and in some cases, lacking. Hamlin & Sage (2008) observed that many journal articles as well as books on mentoring schemes and practice (such as Cranwell-Ward, Bossons & Glover, 2004; and Klassen and Clutterbuck, 2002) tend to be highly anecdotal, opinion-based and predominantly informed by ‘best practice’ as opposed to ‘best evidence’ derived from empirical research. Garringer et al (2015) also noted that more empirical research is needed in some aspects of mentoring including mentor training. Thus, while there are many principles and suggestions for designing and implementing mentoring programmes, empirical studies are required to confirm the relevance and effectiveness of the principles in various industries and cultures. In the context of the Nigerian manufacturing sector, empirical studies in mentoring are still lacking. Thus, the companies are still unclear about the principles they can apply in designing and implementing formal mentoring programmes including training and mentoring relationship initiation. Given this background, the need to develop a research-informed framework to guide the companies in implementing training and initiating mentoring relationships is underlined. Therefore, the present study was designed and undertaken to:

1. determine the principles applicable to training mentors in formal mentoring programmes in Nigerian FMCG manufacturing industry
2. determine the principles applicable to training mentees in formal mentoring programmes in Nigerian FMCG manufacturing industry
3. determine the principles applicable to initiating mentoring relationships in formal mentoring programmes in Nigerian FMCG manufacturing industry
4. use the baseline data to develop a framework for training and initiating relationships in formal mentoring programmes in Nigerian FMCG manufacturing industry

**Method**

The study employed a structured questionnaire to gather data regarding the applicability of existing principles of mentor training, mentee training and relationship initiation to mentoring programmes in FMCG manufacturing industry. The findings were used to develop a framework for implementing training and initiating mentoring relationships in FMCG manufacturing companies. Subjects were 55 senior employees of 5 manufacturing companies in Lagos state, Nigeria (30 males and 25 females). The 102 FMCG manufacturing companies based in Lagos and registered with Manufacturers Association of Nigeria (MAN) as at 2015 were contacted on telephone (using the numbers provided in the directory) to enquire whether they had implemented a formal mentoring programme in the last ten years. Only five companies confirmed that they had implemented formal mentoring programmes within the decade while forty-two companies were unreachable or did not respond after at least, four trials. The five companies that had implemented formal mentoring programmes had varying numbers of matches which had to do with the size of the companies; bigger companies had more matches than smaller companies. Accordingly, varying numbers of respondents were drawn from the organisations. Stratified random sampling was used to select 50% of those who participated as mentors, mentees, programme staff or line managers of mentees from each organisation. Thirty-three respondents were drawn from one organisation. Fourteen respondents were drawn from two organisations while eight respondents were drawn from the other two organisations. Altogether, the sample was made up of staff with varying years of working experience (mean work experience = 7.6 years; standard deviation = 3.51).

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A questionnaire developed by the researcher and validated by three experts was used for this study. It had four sections (A-D). Section A sought personal information about respondents (age, sex and years of work experience). Section B comprised 21 items on mentor training. Section C comprised 17 items on mentee training while section D had 13 items on initiation of mentoring relationships. The questionnaire was trial-tested using 12 senior-level workers in an FMCG manufacturing company in Ogun State which had also implemented formal mentoring programme. The trial-test results showed no ambiguity in the instrument and produced a Crombach coefficient alpha (for internal consistency reliability) of 0.842.

The researcher and one research assistant administered the questionnaire. Respondents were requested to indicate the level of applicability of the principles by checking on a 4- point scale: (i) Highly Applicable (ii) Applicable (iii) Inapplicable and (iv) Highly Inapplicable. Fifty questionnaires were eventually retrieved, representing a response rate of 91%. Mean and Standard Deviation were used to analyse the data collected. Any item with mean value of 3.50 and above was considered highly applicable while items with mean value between 2.50 and 3.49 were considered applicable. On the other hand, items with mean value between 1.50 and 2.49 were considered inapplicable while those with mean value between 0.50 and 1.49 were considered highly inapplicable. Items considered highly applicable or applicable were used in developing the framework for training and initiating mentoring relationship in Nigerian FMCG manufacturing industry. The Framework was validated by three experts in human resource development, management and business education. The feedback from the experts was used to revise the framework.

**Results** Table 1: Respondents’ perception of the applicability of existing mentor training principles to mentoring programmes in Nigerian FMCG manufacturing industry

***Catherine, C.K.***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/No | Item | Mean | Standard Deviation | Remark |
| 1 | Consider any specific needs of mentors in setting the objectives for mentor training | 3.34 | 0.63 | Applicable |
| 2 | Consider lessons-learned from previous programmes in setting the objectives for mentor training | 3.30 | 0.51 | Applicable |
| 3 | Consider the programme goals in setting the objectives for mentor training | 3.78 | 0.70 | Highly Applicable |
| 4 | Develop training materials that will deliver the objectives of the training | 3.70 | 0.66 | Highly Applicable |
| 5 | Evaluate the training project to find out the extent to which the objectives were achieved | 3.67 | 0.55 | Highly Applicable |
|  | **The contents of mentor training should include:** | | | |
| 6 | Programme structure | 3.67 | 0.91 | Highly applicable |
| 7 | Programme ground rules | 3.60 | 0.82 | Highly applicable |
| 8 | Programme requirements such as responding to surveys | 3.68 | 0.56 | Highly Applicable |
| 9 | Grievance procedures | 3.42 | 0.77 | Applicable |
| 10 | Monitoring procedures | 3.32 | 0.88 | Applicable |
| 11 | Roles of mentors in the programme | 3.56 | 0.76 | Highly applicable |
| 12 | Responsibilities of other participants | 3.74 | 0.76 | Highly Applicable |
| 13 | Available support for mentors | 3.54 | 0.67 | Highly Applicable |
| 14 | Styles of mentoring relationships | 2.65 | 0.66 | Applicable |
| 15 | Developing relationship-enhancing behaviours | 3.15 | 0.90 | Applicable |
| 16 | Setting boundaries | 3.78 | 0.86 | Highly Applicable |
| 17 | Ethical issues in mentoring relationships | 2.70 | 0.82 | Applicable |
| 18 | Effective communication with mentees | 3.20 | 0.56 | Applicable |
| 19 | Limits of confidentiality | 2.54 | 0.87 | Applicable |
| 20 | Effective time management | 2.98 | 0.62 | Applicable |
| 21 | Closing mentoring relationships | 3.70 | 0.59 | Applicable |

Table 1 show that all the items had mean scores above 2.49 which indicate that FMCG manufacturing companies can apply all the principles identified for training mentors. However, eleven items (3, 4, 5, 6, 7, 8, 11, 12, 13, 16 and 21) had mean scores above 3.49, which imply that the items were highly applicable. Thus, FMCG manufacturing companies can consider the eleven principles as priority in designing and implementing mentor raining projects

**Table 2:** Respondents’ perception of the applicability of existing mentee training principles to mentoring programmes in Nigerian FMCG manufacturing industry.

***Catherine, C.K.***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/No | Item | Mean | Standard Deviation | Remarks |
| 1 | Consider any specific needs of mentees in setting objectives for mentee training | 3.14 | 0.60 | Applicable |
| 2 | Consider any lessons learned from previous programmes in setting objectives for mentee training | 3.42 | 0.59 | Applicable |
| 3 | consider the programme goals in setting the objectives for mentee training | 3.77 | 0.61 | Highly Applicable |
| 4 | Develop training materials that will deliver the objectives of the training | 3.73 | 0.66 | Highly Applicable |
| 5 | Evaluate the training project to find out the extent to which the objectives were achieved | 3.68 | 0.76 | Highly Applicable |
|  | The contents of the mentee training should include: | | | |
| 6 | Goals and objectives of the mentoring programme | 3.82 | 0.61 | Highly Applicable |
| 7 | Programme structure | 3.69 | 0.52 | Highly applicable |
| 8 | Roles of mentees in the programme | 3.78 | 0.55 | Highly applicable |
| 9 | Roles of other participants | 3.68 | 0.66 | Highly Applicable |
| 10 | Programme ground rules | 3.74 | 0.67 | Highly Applicable |
| 11 | Supports available for mentees | 3.54 | 0.56 | Highly Applicable |
| 12 | Ethical issues in mentoring relationships | 3.71 | 0.70 | Highly Applicable |
| 13 | Limits of confidentiality | 3.32 | 0.70 | Applicable |
| 14 | Effective communication with mentors | 3.21 | 0.55 | Applicable |
| 15 | Use of social media in mentoring relationship | 2.76 | 0.60 | Applicable |
| 16 | Effective time management | 2.68 | 0.71 | Applicable |
| 17 | Closing mentoring relationships | 3.01 | 0.65 | Applicable |

Table 2 showed that all the items had mean score above 2.49 which indicate that all the principles identified for training mentees were applicable. However, ten items (3, 4, 5, 6, 7, 8, 9, 10, 11 and 12) had mean scores above 3.49, indicating that the principles were highly applicable and may be considered priority principles of training mentees in FMCG manufacturing companies.

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**Table 3:** Respondents’ perception of the applicability of some mentoring relationship initiation principles to mentoring programmes in Nigerian FMCG manufacturing industry

***Catherine, C.K.***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/N | Item | Mean | Standard Deviation | Remark |
| 1 | Organize a formal meeting to create rapport between mentor and mentee | 3.64 | 0.54 | Highly Applicable |
| 2 | Prepare mentors for the initial meeting with mentees so they know what to expect | 2.55 | 0.64 | Applicable |
| 3 | Prepare mentees for the initial meeting with their mentors so they know what to expect. | 2.71 | 0.71 | Applicable |
| 4 | Managers of mentees to attend the first meeting so as to learn their roles in the relationship | 1.25 | 0.58 | Highly Inapplicable | |
| 5 | a mentoring programme staff should attend the first meeting to facilitate the meeting | 2.46 | 0.60 | Inapplicable | |
|  | mentor and mentee should perform the following activities in their first meeting: |  |  |  |
| 6 | Read and sign an agreement consenting to programme rules and requirements | 3.75 | 0.58 | Highly Applicable |
| 7 | Discuss their goals for the mentoring relationship | 3.63 | 0.79 | Highly Applicable |
| 8 | Discuss their expected outcomes in the first meeting | 3.43 | 0.80 | Applicable |
| 9 | Discuss logistics (meeting time, venue, etc) | 3.46 | 0.67 | Applicable |
| 10 | Discuss their availability | 3.44 | 0.45 | Applicable |
| 11 | Discuss how they will deal with challenges | 2.51 | 0.58 | Applicable |
| 12 | Discuss and agree behaviours that are unacceptable | 3.12 | 0.60 | Applicable |
| 13 | develop plans for subsequent meetings | 3.79 | 0.66 | Highly Applicable |

Table 3 showed that two items only (4 and 5) had mean scores below 2.50. This revealed that the principles (Managers of mentees should attend the initial meeting so as to learn their roles in the relationship; Programme staff should be on site during the initial meeting) were not applicable. Therefore, FMCG manufacturing companies should not apply the principles in initiating mentoring relationships. On the other hand, four items (1, 6, 7 and 13) had mean scores above 3.49, indicating that the principles were highly applicable.

**Discussion**

The finding that all the principles on mentor training were applicable to mentoring programmes in FMCG manufacturing companies indicate the need for training prospective mentors with a view to enlightening them on the mentoring programme structure, requirements and procedures as well as the risks and ethical issues in the relationships which will equip them with capacity to mitigate risks, resolve ethical dilemmas and deal with situations according to programme standards. The finding is consistent with Jamison (2003) which stated that mentors who receive training tend to be more satisfied and have good quality mentoring relationships. All the findings in mentor training are consistent with existing literature. For example, the finding that mentors should be taught boundary setting agrees with Nasser-Abu Alhija & Fresko (2014) which argued that mentors need to be aware of possible boundary issues to avoid engaging in uncomfortable and sometimes unsafe dual relationships with mentees. Definitely, mentors engaged for the purpose of increasing employee skills and organizational commitment need to be trained so that their behaviours towards their mentees are consistent with the values and goals of the orgsnaisation.All the principles of mentee training identified were applicable to mentoring programme in FMCG manufacturing companies. The findings are consistent with extant literature. For instance, Taylor, 2003 and Keller & Blakeslee (2013) noted that when mentees are trained before a mentoring programme, they understand their contribution to the relationship in terms of their roles and responsibilities which will enhance the likelihood of their commitment to the mentoring programme. Enlightening mentees about the programme structure, rules, procedures, roles and ethics prepares mentees to participate fully in the programme and to get the most out of their mentoring relationships. The finding that organizing an initial formal meeting to initiate mentoring relationship is consistent with recommendations of authors such as Miller (2007) and Garringer et al (2015) who stated that a formal meeting should be organised to kick-off the mentoring relationship. Although, Miller (2007) added that this initial meeting should be attended by a programme staff, this study found that programme staff should not be on site during this initial meeting. Similarly, it was also found that mentee managers should not attend the meeting. In addition, the finding that mentoring pairs should sign agreement consenting to programme rules during their initial meeting and that the meeting should give opportunity for introduction, discussion of goals for the programme, availability, approaches to dealing with challenges are in line with Garringer et al, 2015. Indeed, the process of reading and signing the agreement helps mentors and mentees to reflect on the programme requirements and expectations which need to be clear to participants from beginning to avoid premature closure.

**The Framework and Managerial Implications *(****see figure 1)* The major goal of the FTIMR is to guide FMCG manufacturing companies in implementing mentor and mentee training as well as initiating mentoring relationships with a view to raising highly skilled and committed employees. However, every organisation is different in terms of complexity, background and business environment. Therefore, companies adapting the FTIMR would need to articulate their specific objectives for the mentoring programme based on their unique situations and needs.

The Framework has the following implications for managers and mentoring programme coordinators

1. Adult training principles would be helpful in training the mentors. Thus, successful implementation of mentor training is likely to require resource persons who have mastery of the substantive content of the training as well as experienced in using effective methods of instruction that include adult learning principles.

2 Training materials especially those containing the mentoring programme goals, guidelines, rules and frequently asked questions (FAQs), would need to be prepared in detailed, unambiguous manner and handed out to mentors and mentees during training. These documents would be valuable to participants throughout the duration of the mentoring relationship as they can make references to them when necessary to facilitate decision making.

1. Since respondents considered attendance of initial mentoring meetings by programme staff as inapplicable, the mentoring programme coordinator would need to prepare mentors and mentees adequately for the meeting and would also need to answer the question: How can I get the information I need to monitor and support relationships while giving the pairs the degree of privacy they require? Developing working guides and templates for logging mentoring meetings/activities may be a viable option. The meeting log templates could be given to the mentors for completion. However, it may be necessary for the logs to be signed by both mentor and mentee.

***Catherine, C.K.***

**The Framework and Managerial Implications**

*Figure 1: The Framework for Training and Initiating Mentoring Relationships (FTIMR)*

**Limitations and Directions for Future Research**

***Catherine, C.K.***

1. A major limitation of this study is the nature of data used. Some elements of the FTIMR such as contents of mentor and mentee training as well as the kind of activities that mentors and mentees perform to initiate their relationships can change. As fast change is a major characteristic of the 21st century, some themes may become outdated and new ones emerge. In addition, as generation of mentors and mentees change, mentoring programmes would need to consider the generational characteristics of participants in deciding what and how they should learn; how their relationships will be initiated; and what kind of activities will be fruitful. This study would therefore benefit from a longitudinal study. In other words, it is important to repeat the studies from time-to-time to track changes in principles applicable to the sector for achieving highly skilled and committed workforce.
2. The FTMR needs to be field-tested in FMCG manufacturing companies in Nigeria.
3. The researcher focused the study on the Nigerian FMCG manufacturing industry. However, the study should be replicated in other settings, particular closely related industries such as agriculture and retail. It should also be replicated in other countries with similar development status and cultures.

**Conclusion**

Mentoring, no doubt, is one of the most effective talent development programmes that can be used in organisations to improve the skills and commitment of a workforce. While there is a large volume of literature on the principles that may help in designing and implementing mentoring programmes (“best practice”) there are relatively less understanding of whether these principles actually work. Consequently, many authors have called for (“best evidence”) - empirical studies investigating how and where the principles can be applied. It is believed that this study has responded to the above call with a focus on the Nigerian FMCG manufacturing industry. The study has provided empirical information on mentor and mentee training as well as initiation of mentoring relationships in mentoring programmes designed for raising skilled and committed employees in Nigerian FMCG manufacturing industry. While continuous observations of and improvements to the FTIMR are undoubtedly required, it is expected that the Framework will guide the companies in designing their mentoring programmes in the next decade.

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**REFOCUSING TECHNICAL VOCATIONAL EDUCATION AND TRAINING: PANACEA FOR ECONOMIC DEVELOPMENT IN NIGERIA.**

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***Abstract***

*This paper defines Technical Vocational Education and Training (TVET) as an aspect of education that provides the learners with theoretical and practical knowledge of becoming independent members in society. Also, it looks at Economic Development as qualitative and quantitative increase in productivity that improves the living standard of majority segment of the population. It also discussed theories of Economic development such as neoclassical theory, structural theory and so on. Besides, it reviewed the strategies for refocusing (TVET). Also, the roles of (TVET) to Economic Development were reviewed. Finally, the paper recommended that (TVET) should be part of general statics in aim higher institution should enlightened on the importance of (TVET) among others.*

**Introduction**

Generally speaking, education is said to be the most important element in the development of any nation. The importance of education in social, economic, politics cannot be over emphasized. It is in line with this that no nation of the world is ishing to be left behind in educating her citizens. Moreso, it is the means for the advancement of knowledge and development, refinement and application of theories and for providing solutions to all forms of problems (Adedokun, 2009). The level of economic development of every society depends on education especially Technical Vocational Education and Training (TVET). This is because TVET is both theoretical and practical oriented which is needful as far as 21st century is concerned. In addition, the level of Economic Development of any nation is defined by its ability to provide for its citizens with basic needs like food cloth, shelter, health and basic education. TVET is a password to any nation that wants to join the league of technologically developed nations. Infarct, it is the backbone of industrial, social and economic development. The quality of economic development of a nation depends on TVET. Agogo (2010) lamented that Nigeria’s economy is at a crossroad because of the stress on a one footed revenue agenda: Oil and Gas Sector. The basic solution to Nigeria’s monocultural economy is diversification in which TVET is a panacea to industrialization, modernization andcivilization and among others. It is in the light of above that this paper reviews theories of economic development, importance of TVET to economic development and principles TVET among others.

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**Concept of Technical Vocational Educational and Training**

***Rilwanu, O.A.***

Technical Vocational Education and Training (TVET) has been an integral part of national development strategies in many societies because of its impact on productivity and economic development. Despite its contributions the leaders of Nigeria have not given this aspect of education the attention it deserves. And that is one of the reasons for the nation’s underdevelopment. This article focuses on the dearth of skilled technical manpower in Nigeria and argues that technical education holds the key to national development.1

Technical education “is a planned program of courses and learning experiences that begins with exploration of career options, supports basic academic and life skills, and enables achievement of high academic standards, leadership, preparation for industry-defined work, and advanced and continuing education.”2 And vocational education and training “prepares learners for careers that are based in manual or practical activities, traditionally non-academic and totally related to a specific trade, occupation or vocation.” In other words, it is an “education designed to develop occupational skills.”3 Vocational and technical education gives individuals the skills to “live, learn and work as a productive citizen in a global society.”

 According to the National Policy on Education (NPE, 2004) it is defined as that aspect of education that leads to the acquisition of practical and applied skills as well as basic scientific knowledge. In this sense, it forms a practical segment of education that involves skill acquisition. Therefore, technical education is a subset of vocational education.

Similarly, technical vocational education and training is that education designed to prepare an individual for gainful employment as semi-skilled or skilled worker or technicians or sub-professional in recognized occupations and in new and emerging occupations or to prepare the individual for enrolment in advanced technical education programme. Technical Vocational Education Training can be explained in terms of: – training designed to advance an individual’s proficiency in relation to his or her present or future occupation, training or re-training which is given in schools or classes under public supervision and control; provision of systematic training experiences which are designed to fit individuals in recognized occupations. Thus, vocational education is that part of total educational system, which offers courses leading to the acquisition of specific skills to enable one to perform certain job. Sometimes, vocational education offers re-training to up-grade workers already in employment.(Adedakum, 2009)

It is directed towards the preparation for occupational life since its recipients are equipped to face the challenges of the world of work. Vocational education preparation can be equated to the acquisition of a training experience that culminates in an industrial experience within a work-oriented society. It entails the transmission of knowledge and acquisition of skills that are related to various occupations.

It also entails the enrichment of the capabilities that influence the effective, psychomotor or cognitive domains of individual in readiness for entry into the world of work in order to satisfy their intrinsic and extrinsic values, work goals and aspirations such that local and national needs would be met. Recently, technical and vocational education is used as a comprehensive term for retraining in those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisitions in various sectors of economic and social life.(Agogo, 2010).Technical vocational educational and training courses attract students who leave school and are unable to obtain employment. For such students, it offers them the opportunity the school system has to give them for training in technical fields. Furthermore, the mission of technical vocational education is not only to provide definite training in the various occupations, but also to relate that training to science, mathematics history, geography which is useful the society. Vocational and technical education is not left out in agriculture.

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It is needed to direct those in the sector towards making the farmer an intelligent user of our natural resources. Technical vocational education and training is also needed to prevent waste of human resources. So far, Nigeria has given very little attention to conservation of human resources. It is obvious that the waste of labour by improper employment can be largely avoided through technical vocational and training. Such training is the most potent remedy for unemployment.

Furthermore, technical vocational education training is needed in every aspect of our national life. The problem of juvenile delinquency and crime can be reduced if the youths are given the necessary technical vocational education and training that will keep them busy. In developed world, technical vocational education and training is regarded as a wise investment. It is believed by many people that through technical vocational education and training, boys and girls as well as adults will be trained to acquire requisite skills that will enable them secure employments, which will be beneficial to themselves and the society.(Apago and Adedural, 2007) The further buttressed that students have to work in laboratories and workshops that are well equipped with recent machines and tools like the ones they will encounter in industries. A lot is required. Therefore, government should increase the budgetary allocation to technical vocational education and training. And we know that government cannot do it all alone, corporate organizations, parents and alumni associations should assist in providing some of these equipment needed in the training of technical vocational education for students. Efforts should also be made by the government to see that there is full implementation of the policies as they concern technical vocational education and training. They should make this possible by promulgating a decree or sanctioning each state that fails to adopt or implement the policy fully. (Mohammad, 2010)

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**Concept of Economic Development**

Economic development is a term that economists, politicians, and others have used frequently in the 20th century. The concept, however, has been in existence in the West for centuries. *Modernization*, [*Westernization*](https://en.wikipedia.org/wiki/Westernization), and especially [*Industrialization*](https://en.wikipedia.org/wiki/Industrialization) are other terms people have used while discussing economic development. Economic development has a direct relationship with the [environment](https://en.wikipedia.org/wiki/Environment_%28biophysical%29) and issues. Whereas economic development is a policy intervention endeavor with aims of economic and social [well-being](https://en.wikipedia.org/wiki/Well-being) of people, [economic growth](https://en.wikipedia.org/wiki/Economic_growth) is a phenomenon of market [productivity](https://en.wikipedia.org/wiki/Productivity) and rise in gross domestic product (GDP). Consequently, as economist [Amartyasen](https://en.wikipedia.org/wiki/Amartya_Sen) points out, "economic growth is one aspect of the process of economic development you most likely help fund economic development every time you purchase something at the store and pay local or state sales tax. That cup of coffee, those new shoes you bought, or the real estate taxes you may pay, all usually have a percentage of the sales going towards economic development projects or initiatives.

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**Economic Development** is the development of economic wealth of countries, regions or communities for the well-being of their inhabitants. From a policy perspective, economic development can be defined as efforts that seek to improve the economic well-being and quality of life for a community by creating and/or retaining jobs and supporting or growing incomes and the tax base.

In support of the mission of the University of Wyoming, the Department of Agricultural and Applied Economics and the Cooperative Extension Service conduct research in the area of Community Economic Development and analysis.

The concept of *economic development* is often misunderstood. Many times the term is confused with *economic growth* to define any type of money generating activity in the community. To further cloud the issue, there is no one prescription for economic development that will full-fill the needs of all communities. Successful economic development is a process that fills different needs for different communities at different times. Its success is often case specific, depending on the development goals, implementation and funding resources available. Communities need to thoroughly understand the process before jumping onto the economic development bandwagon. The results of misunderstanding the process can be misunderstanding by the community and political gridlock in the bureaucracy. (PA Klein 1977).

**Theories of development economics:** the most significant visible impact of American TVET institution has been in the field of what is called development economics according to PA Klein-Journal of uneconomic issues, (1977) Taylor & Francis.

**Mercantilism Theory**

The earliest Western theory of development economics was [mercantilism](https://en.wikipedia.org/wiki/Mercantilism), which was developed in the 17th century, paralleling the rise of the [nation state](https://en.wikipedia.org/wiki/Nation_state). Earlier theories had given little attention to development. For example, [Scholasticism](https://en.wikipedia.org/wiki/Scholasticism) the dominant school of thought during medieval feudalism, emphasized reconciliation with Christian theology and ethics, rather than development.

**Structural Change Theory**

Structural-change theory deals with policies focused on changing the economic structures of developing countries from being composed primarily of subsistence agricultural practices to being a "more modern, more urbanized, and more industrially diverse manufacturing and service economy." There are two major forms of structural-change theory; W. Lewis' *two-sector surplus model*, which views agrarian societies as consisting of large amounts of surplus labor which can be utilized to spur the development of an urbanized industrial sector, and Hollis Chenery's*patterns of development* approach, which holds that different countries become wealthy via different trajectories. The *pattern* that a particular country will follow, in this framework, depends on its size and resources, and potentially other factors including its current income level and comparative advantages relative to other nations. Empirical analysis in this framework studies the "sequential process through which the economic, industrial and institutional structure of an underdeveloped economy is transformed over time to permit new industries to replace traditional agriculture as the engine of economic growth.

Structural-change approaches to development economics have faced criticism for their emphasis on urban development at the expense of rural development which can lead to a substantial rise in inequality between internal regions of a country. The two-sector surplus model, which was developed in the 1950s, has been further criticized for its underlying assumption that predominantly agrarian societies suffer from a surplus of labor. Actual empirical studies have shown that such labor surpluses are only seasonal and drawing such labor to urban areas can result in a collapse of the agricultural sector. The patterns of development approach have been criticized for lacking a theoretical framework.

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**International Dependence Theory**

International [Dependence Theories](https://en.wikipedia.org/wiki/Dependency_theory) gained prominence in the 1970s as a reaction to the failure of earlier theories to lead to widespread successes in [international development](https://en.wikipedia.org/wiki/International_development). Unlike earlier theories, international dependence theories have their origins in developing countries and view obstacles to development as being primarily external in nature, rather than internal. These theories view developing countries as being economically and politically dependent on more powerful, developed countries which have an interest in maintaining their dominant position. There are three different, major formulations of international dependence theory: [neocolonial dependence](https://en.wikipedia.org/wiki/Neocolonial_dependence) theory, the false-paradigm model, and the dualistic-dependence model. The first formulation of international dependence theory, neocolonial dependence theory, has its origins in [Marxism](https://en.wikipedia.org/wiki/Marxism) and views the failure of many developing nations to undergo successful development as being the result of the historical development of the international capitalist system.

**Neoclassical Theory**

First gaining prominence with the rise of several conservative governments in the developed world during the 1980s, neoclassical theories represent a radical shift away from International Dependence Theories. Neoclassical theories argue that governments should not intervene in the economy; in other words, these theories are claiming that an unobstructed free market is the best means of inducing rapid and successful development. Competitive [free markets](https://en.wikipedia.org/wiki/Free_markets) unrestrained by excessive government regulation are seen as being able to naturally ensure that the allocation of resources occurs with the greatest efficiency possible and the economic growth is raised and stabilized.

It is important to note that there are several different approaches within the realm of neoclassical theory, each with subtle, but important, differences in their views regarding the extent to which the market should be left unregulated. These different takes on neoclassical theory are the *free market approach*, *public-choice theory*, and the *market-friendly approach*. Of the three, both the free-market approach and public-choice theory contend that the market should be totally free, meaning that any intervention by the government is necessarily bad. Public-choice theory is arguably the more radical of the two with its view, closely associated with

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**Strategies for Refocusing TVET:**

Apagu and Andural (2007) suggested the following strategies for refocusing vocational education in Nigeria

* **Ensuring equality of Access to Technical Vocational Education and Training by all Nigeria:** The national Board for Technical Education (NBTEJ) and the National Business and Technical Examination Board (NABTEB) should ensure that their modular curriculum make vocational education to be affordable by all Nigerians irrespective of academic strong and weak persons.
* **Coping with possible Enrolment Explosion in Technical Vocational Education and Training Programs in Nigeria:** Establishment of vocational education institutions, improvement of the introductory technology education facilities available in: the existing secondary schools of admit students in streams and run shifting system at the presently available science and technical colleges in the country.
* **Relent curricula in technical vocational education and training:** Re-engineer the curricula offering in technical vocational education and training institutions in the country to first prepare Nigerian to live a happy life and satisfying life in Nigeria using Nigerian indigenous technologies and materials. This situation will make Nigerian vocational education more relevant to the needs of the majority of Nigerians even adults Nigerians who live in the rural areas. Technical vocational education training is expected to prepare people to come up with products or render services in areas of local needs, not only in modern imported technologies. The nation’s over dependence on imported technical vocational education and training curricula has resulted to the present high rate of unemployment even among the technical vocational education training programmed-graduated. This is so because what is needed by society is not taught/learnt.
* **Reviving Handicrafts subject at the primary School Level:** There is need to revive the handicrafts subject in the primary school curriculum and monitor its teaching/Learning. There is also the need to include effective vocational guidance and counseling using vocational aptitude lessons in the handicraft lessons. This situation will help inculcate positive attitude towards vocational/technical and Nigerian indigenous technological education among the Nigerian youths during the early part of their formal education. The inculcation of appropriate attitude towards vocational/technical and Nigerian indigenous technological education in the youths is very important. Ndagan, (1995) says a battle in which people are being forced to accept training against their wish cannot be nurtured early in life towards the creation of good society and capacity to complete globally and successfully.
* **Palled Talent Search and Development:** There is need to establish talent search avenues and encourage development of identified talents The idea of Junior Engineers, Technologists, and Scientists (JETS) club in secondary schools is one of such avenues A person with special talent(s) should be helped to discover him/her self the more, for the good of society. For example, the AkwaIbom State government has approved 150 million Naira for the commercialization of an automatic voltage regular construction idea conceived by two indigenes of the state (Adefaye, 2004)
* **Adaptation Rather than Wholesale Adoption of the Teaching/Learning of imported Technological Knowledge/ Skills:** Adaptation of the teaching/ Learning of imported technologies in our vocational education programmes should be encouraged. Experience has shown that many products of imported technologies have wasted away in the country just because of lack of spare parts. Consequently, Nigerian craftsmen and technicians should learn the technique of adapting imported technologies to serve us better, especially where there are no spare parts readily available. The production of the non-available spare parts alone will provide employment for the many unemployed Nigerian in addition to the actual maintenance and repair of these imported technological products.

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* **Vocational Perspective of University Education:** in order to initiate the university undergraduates who have no previous vocational education in a chosen occupation. It will be more proper to introduce them to the basics of employment requirements in the chosen occupations to allow them explore the occupations and consider possible further preparation and practice on graduation.

**Roles of TVET to Economic Development**

* **Generation of Self-Empowerment:-** TVET assists developing nations in creating job opportunities. Okoro (1999) pointed that graduates are unemployed because they do not have saleable skills. TVET provides graduates with saleable skills. It generates employment in various areas such as plumbing, painting, GSM repair, entrenuring activities, electronics e.t.c
* **Poverty Reduction:-** poverty is a situation whereby an individual cannot meet his basic needs such as: food, clothing, shelter and education. TVET could champion the setting up of small scale ventures, cassava production and others. This increase in productivity reduces poverty.
* Youth Empowerment:- TVET contributes to youth empowerment by providing them with both practical and theoretical knowledge needed in the world of work. It makes youth to be creative and innovative. Empowering youth had been put by Ali (2013) gaining power to make one’s voice heard, to contribute to plans and decision that affect them. To use one’s expertise to work and to improve performance.
* **Generating Capacity to achieve Millennium Development Goals** (MDGs) The MDGs are eight time bound development goals which were formulated to eradicate poverty, promote human dignity, peace, equality, women and youth empowerment,, democracy and environment stability. For these to be achieved TVET is crucial. According to Unongo (2012) TVET is a dynamic train that could create a good manufacturing environment, train people in specialized areas, services, maintaining existing infrastructures. It is heart-warming to know that Nigeria has established many agencies like National Directorate Empowerment, students Industrial Work Experience Schemes, Industrial training Fund and others. These agencies are solidly depending on TVET.
* **Provision of Skilled Manpower:-** Economic Prosperity of any nation depends on production. And success in production depends on skilled labour. It is TVET that is responsible for impacting needed knowledge of production and distribution of goods and services. TVET is responsible for equipping young people for employment by exposing them to experience that provides manipulative, cognitive and social skills that are vital in the world of work.

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* **Stimulation of Technological and Industrial Development.** Another importance of Technical vocational education and training to the Nigerian society is that it stimulates technological and industrial development by producing competent workers who are capable of developing and economic development. Technical vocational education and training is the mechanism for meeting the manpower of the nation in agricultural, business, home economics, technical and other clusters of occupations. Finally, Technical vocational education and training is a most reliable vehicle to economic prosperity and political or diplomatic supremacy of a nation over others. For instance, some development countries like United State have used food and technical aid to support and diplomatically.

**Conclusion**

This paper has already defined TVET as Technical Vocational Education and Training. It discussed some theories of Economic Development in relation to TVET. It reviewed some roles of TVET job training has been an integral part of national development in many societies because of the impact on human resources development, productivity and economic growth (Dike,2007).and among others. It also looked at theories of Economic Development as strategies of refocusing TVET in Nigeria.

**Recommendations**

* TVET should be made as part of curriculum for General Studies in our Educational Institutions.
* Policies makers should be enlightened on importance of TVET in relation to Economic Development.
* Government should be should be open more TVET centers: this will aid in combing problem of unemployment, poverty inequality among others.

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**TVET AND ENTREPRENEURSHIP EDUCATION FOR JOB CREATION AND NATIONAL DEVELOPMENT IN NIGERIA**

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***Abstract***

*This paper examined Technical Vocational Education and Training (TVET) as tool for job creation and national development in Nigeria. Since the nation is presently faced with challenges of unemployment, uncertainty, and poverty, the study observed that one of the most proficient ways to provide employment is to develop efficient Technical Vocational Education and Training (TVET)as a tool for national development. The objectives of TVET includes job creation and service delivery which also develop the mind-set of an individual to undertake the risk of business enterprise by applying the knowledge and skills acquired through TVET programs. The paper identified challenges facing TVET such as policy instability, inadequate funding, lack of trained teachers, and non- availability of equipment. The paper recommended that the curriculum at all levels of education should be TVET based and that all stakeholders and government should provide enabling environment for the development of TVET needed for economic job creation and national development in Nigeria.*

***Keywords:*** *Technical, Vocational Education, Skills Acquisitions, Poverty alleviation, job creation.*

**Introduction**

Entrepreneurship education provide a person with well-developed idea and can takes the risk of setting up an enterprise to produce a product or service which satisfies customer desires. All entrepreneurs are business persons, but not all business persons are entrepreneurs.A person who sell the same type of commodity, from the same source and may not have been able to change a standard of living to any appreciable extent is a business person but not an entrepreneur. The entrepreneur on the other hand is the business person who is not satisfied with his/her performance and therefore always finds ways to improve and grow at alltimes. It is pertinent to know that all these type of individuals are products of Technical Vocational Education and Training (TVET) One of the first individuals to recognise its importance in economic theory was *Richard Cantillon,* who said that “The farmer is an entrepreneur who promises to pay the landowner, for his farm or land, a fixed sum of money without assurance for the profit he will derive from his enterprise” (Anderson and Jack, 2008).but most of the farmers are demoralized due to in adequate modern raining which Technical Vocational Education and Training (TVET) shall pioneer.

Entrepreneurship as a whole contributes to social wealth by creating new markets, industries, technology, jobs and net increases in real productivity. The jobs created through their activities in turn lead to equitable distribution of income which leads tohigher standards of living of the people. In this way, the resources available to the government will likewise increase and hence enable it to offer social services like roads, hospitals and schools develop the infrastructure and keep law and order well checked. To cap it all, the Global Entrepreneurship Monitor Project, a comparative international study assessing entrepreneurship’s importance to economies worldwide concluded that the correlation between the level of entrepreneurial activity and economic growth is greater than 70% and all nations with high levels of entrepreneurial activity have above-average rates of economic growth (Alstete, 2002). Therefore, entrepreneurship education plays a privileged role in job creation and national development.

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Many organizations have implemented a variety of programs to support small enterprise development, especially for Africa. In Nigeria, a variety of policies and programs have been enacted to facilitate the growth of the small enterprise sector such as poverty alleviation program, operation feed the nation etc. But all had a little significance on the entire society because of the lapses in the earlier programs, such as neglect on TVET. Therefore, government should take an active interest in the continued growth and expansion of the small business sector to be nurtured as beacons for future growth through the development of entrepreneurship (Onyango andTomecko,1995). These enterprises may provide the bulk of thousands new jobs the country aspired to generate in years to come (Pratt, 1996).On the other hand, Technical Vocational Education and Training (TVET) is a sort of knowledge acquired to service the community on their immediate request.

**Unemployment problem in Nigeria**

Unemployment has become a major problem disturbing the lives of Nigerian Youth causing frustration and dejection. The high rate of unemployment among the youths in Nigeria has contributed to the high rate of poverty and insecurity in the country (Ajufo, 2013). More than half of the Nigerian population is under the age of 30 according to the National Population Commission (2013). Awogbenle and Iwuamadi (2010) observed from the excepts of statistics obtained from the National Manpower Board and Federal Bureau of statistics that Nigeria has a youth population of eighty (80) Million representing 60 percent of the total population of the country. Sixty-four (64) Million of them are unemployed while one million six hundred thousand (1.6 million) are underemployed.

Therefore, the need for entrepreneurship education is so enormous in order to close the gap between the urban and rural populace in the country by providing means of adequate social and physical infrastructures to meet the needs of a rapidly growing population (Ferej, 1994). To provide a means of survival, attention need to be shifted the provision of adequate TVET friendly environment in order to fit in well into mainstream of skill acquisition to become proper entrepreneurs, such as small enterprise sector which is composed of a range of enterprises including: self-employed artisans, microenterprises, cottage industries, and small enterprises in the formal business sector. As a result of the trend toward the creation of small enterprises, the informal sector has grown to include approximately 60% of the labor force in Africa (International Labor Organization, 1985).

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**Past Approach to Underdevelopment**

In the past, a widespread approach to the problem of limited job opportunities was through the establishment of large industrial complexes that were expected to provide many jobs and enhance the economic situation of the local area (Charmes, 1990). This approach has been largely unsuccessful because it was capital-intensive; it actually provided few new employment opportunities and exacerbated the gap between the rich and poor. Because of the failures of this approach, formal development efforts are now emphasizing the creation of small enterprises in the informal sector that are operated by self-employed individuals which TVET and Entrepreneurship fit in comfortably. While much of the job growth potential in developing countries seems to exist through the creation of small enterprises, the ultimate impact of new job creation through the informal sector may be limited for numerous reasons. First, much of the growth of private enterprise in the informal sector in Nigeria has been spontaneous rather than a result of deliberate strategies within an over all government policy framework. Second, although large numbers of small enterprises may be created, their prospects for growth into medium-sized enterprises are limited (House, Ikiara, & McCormick,1990; Mwaura, 1994).

Reasons for this lack of growth include an over-supply of similar goods in the marketplace, lack of management and technical skills, limited capital, and low product quality which need the support of TVET and Entrepreneurship Education (House, et aI., 1990). In addition, many of these small enterprises are owned by "first generation" entrepreneurs who have limited experience and are unwilling to take the necessary risks to expand their businesses. Third, while technology is a primary factor in economic development, it has had a limited impact on the growth of small enterprises because of political conflicts, economic restrictions, limited educational capabilities, and weak technological infrastructures (Githeko, 1996).

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**Creation of an Enterprise Culture through TVET**

One approach in enhancing entrepreneurial activity and enterprise growth in developing countries is to create an "enterprise culture" among the youth of the country (Nelson & Mburugu, 1991).By focusing on youth while they are still in school, this approach may provide a long-term solution to the problem of job growth. To achieve a widespread "enterprise culture" in the long run, education and training programs in Nigeria must integrate business, technology, self-employment, and entrepreneurship into school curriculum and promote the development of Vocational Education. This idea may save the country from the ugly situation of unemployment. With its history firmly entrenched in the technical and occupational aspects of work, technical education is an ideal vehicle through which to create an "enterprise culture."

This role includes developing human resources through formal programs in entrepreneurship education, training teachers to implement new curricula that emphasize the development of entrepreneurship knowledge and skills, and promoting entrepreneurship and small enterprise creation and growth within local communities through training programs and consultancy services. The paper uses an educational change initiative that is supporting the creation of an "enterprise culture" through entrepreneurship education (Basu and Virick, 2008).

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**Unemployment**

Unemployment, particularly among the youths, is a critical problem in developing countries. Self-employment in small enterprises has been identified as a partial solution (Nelson, 1986). Entrepreneurship education can playa vital role in changing attitudes of young people and providing them with skills that will enable them to start and manage small enterprisesat some point in their lives.

**Rural-Urban Balance**

Potential entrepreneurs who are able to establish small enterprises in small towns and villages in rural areas must be developed in adequate numbers. By increasing the number of entrepreneurs in a region, a more even distribution of income between rural and urban Entrepreneurship Education areas can be achieved by improving the productive capacity of people living in rural areas (Gibb, 1988). Establishment of adequate technical training institutions will help ensure an adequate supply of potential entrepreneurs in both urban and rural areas.

**Entrepreneurship Education Developments**

Entrepreneurship Education is the type of education which has the ability to impact on the growth and development of an enterprise through TVET. Basically, entrepreneurship education has its peculiar learning and teaching approaches. At inception the approach adopted for teaching and learning entrepreneurship education was writing of business plan (Hill, 1988). The business plan was viewed as ineffective and insufficient to train potential entrepreneurs who is expected to choose or assumes risks, identifies business opportunity, gather resources, initiatives actions and establishes an organization or enterprise to meet such demand or market opportunity (Anyakolu, 2006). If properly educated the entrepreneur can be depicted as a role model in the community, a provider of employment opportunities for others, a stabilizing factor in society, and a primary contributor to the development of natural and human resources within a nation. Entrepreneurs provide new insights and perform a positive function in the economic development of a country. In the private sector, entrepreneurs are those who are motivated to take risks, be innovative, develop new business ideas, and invest money and other resources to establish enterprises that have growth potential. (Bird,1988).

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**Development of Entrepreneurship Attitude**

To achieve the aforementioned, TVET shall be given wide publicity in terms of development and applications so that her graduates can compete effectively in the marketplace, because it is important that the workforce of a country have entrepreneurial attitudes before they enter employment, whether as employers or employees. Since graduates of these institutions will provide much of the national leadership in the business community and in public service, entrepreneurship education through TVET should be an integral component of these instructional programs.(Stuart, 2008).

**The Benefits of being an Entrepreneur**

The primary benefits entrepreneurs are enormous since it enables an individual to create their own destiny in businesses base on the purpose they have in mind that make their products different with other business partners in terms of customer preference and satisfaction and it also give them some opportunities to reach their full potential in marketing their products special and to generate impressive profits in their business by contributing to societal need and be recognized for their efforts at the same time they open chances to others due to the recognition given to them and the status they attain as a result of being entrepreneur in nature.(Ezeani,2012)

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## Challenges Facing TVET in Nigeria

TVET has been receiving increasing recognition as a source of job creation, empowerment for the unemployed and economic development in a rapidly developing world. But despite this, there are several factors that hinder VET in Nigeria they include:

1. Poor knowledge based on economic development and low spirit of competition
2. Poor enterprising culture
3. Inadequate TVET teachers
4. Unavailability of fund
5. Non-patronage of TVET programs in the school curricula
6. Poor societal attitude to TVET development.
7. Inadequate facilities and equipment for teaching and learning.
8. Insensitivity of government to enterprise creation and expansion strategy.
9. Poor plan and execution of processes of action (Ogundele, Akingade and Akinlabi, 2012).

## Strategies for Effective TVET development in Nigeria

Youth are the future leaders of tomorrow. Hence, this fact should be at the core of pro-youth policies and programs, both in the public and private sectors. Ayodele (2006) suggested the following strategies that will help to solve the problem of unemployment and nation under development in Nigeria.

1. Government should establish small business schools where interested students and community members can participate. This will make students to be self-reliant.
2. Government should develop entrepreneur internship program by matching students with locally successful entrepreneurs with clearly stated education programs.
3. The government should establish an enterprise college aimed at fostering the specific skills required for entrepreneurship. This will serve as skill-acquisition centre for the youths.
4. Government should create an economic friendly environment.
5. There should be enough incentives for students of vocational and technical schools. This will motivate them to establish their businesses after school.

**Conclusion**

TVET has been viewed in this paper as a veritable remedy to the prevalent problem of poverty, hunger and employment. When youth are trained, they explore opportunities in their immediate rural environment instead of chasing gloom and uncertainties in the urban areas. The development of TVET will go a long way in creating employment, give young people the opportunity to develop their business skills, empowering the young to be job creators and not job seekers and by providing them with the necessary skills and knowledge to raise their output; income and wealth. TVET would also contribute to improve the image of her graduates in society.

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## Recommendations

The control of development of any country lies on the shoulders of how productive and creative the people are. The stalk holders of the nation have obligations to ensure that TVET are empowered to discharge their obligations to the society and to better their life. In view of the above issues discussed, the following recommendations are proffered.

* Finding of TVET should be taken seriously by the local, state and federal government. This can be achieved through increase in the budgetary allocation to educational sector.
* TVET should be inculcated into the school’s curriculum to promote human empowerment and development through entrepreneurial skill acquisition. It is a means of reducing unemployment since it is skilled oriented and employment motivated.
* The private partners and Non-Governmental Organization (NGO) should be encouraged to participate in TVET development through funding or contributions.
* To empower TVET program government should provide enabling environment and all the necessary equipment and materials for easy teaching and learning entrepreneurship education needed for economic development in Nigeria.
* The generality of people should shun joblessness and criminality through the cultivation of entrepreneurial spirit and acquisition of relevant skills that will instigate them into greatness and economic independence.

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**DEVELOPMENT OF APPROPRIATE CONTENTS IN CELL PHONE MAINTENACE FOR YOUTHS EMPOWERMENT**

**BY**

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***Abstract***

*The study developed appropriate contents in cell phone maintenance for youth empowerment. The study was conducted in Lagos State of Nigeria. Four research questions guided the study and three null hypotheses formulated were tested at 0.05 level of significance. A survey research design was adopted for the study. The population for the study was 137 which comprised of all the 35 lecturers and 14 instructors of electrical/electronic technology, 21 supervisors in communication industries and 67 cell phone technicians in Lagos State. These were purposively sampled 67 literate road side cell phone technicians, all the 35 lecturers, 14 instructors in the polytechnics, and 21 supervisors in telecommunication industries in the study area. A structured questionnaire was used for data collection. The instrument was validated by three experts. Cronbach alpha reliability method was adopted to determine the internal consistency of the questionnaire item and 0.86 was obtained. One hundred and thirty seven copies of the questionnaire were administered. One hundred and four copies of the questionnaire were retrieved and analyzed using factor analysis while analysis of variance was used to test the hypotheses of no significant difference at 0.05 level of significance. The study found out that the competencies identified in cell phone maintenance are appropriate for youth empowerment at skill acquisition centres. It was recommended that all the competencies identified should be employed to train youths at skill acquisition centres.*

***Keywords:*** *Appropriate content, Cell phone maintenance, Youths empowerment, Development*

**Introduction**

Anybody who is young, energetic and can still work is commonly referred to as youth. Youths according to United Nation General Assembly Report (1995) are young people of 15-24 years age bracket. This age range may go up to 30 years in developing nations like Nigeria. The National Youth Development Policy (2001) defined youths as people aged 18-35. The youth population according to the 2006 census is almost a hundred million. This means that they constitute more than two third of the country’s population of 180 million. They are the backbone of the development of the country. Indeed if Nigeria is to be sustained as a viable entity, there must be a very good plan to tap the energy and resourcefulness of the youth population to fast track economic development. Sowande and Olaitan (2001) listed some characteristics of youths that could be exploited for skill acquisition to include: having less fear of failure, stronger and generally healthier than the aged, less conservative and ready to welcome innovation faster than adults, having sound memory and very conscious of their personal, occupational and community development. Youths are therefore considered as young people who can still be trained to acquire skills in cell phone maintenance. To be functional, these youths need to be empowered with skills for productive living.

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Youth empowerment according to Vavrus and Fletcher (2006) is an alternative besides other methods of creating employment opportunities. Sazama and Young (2006) described youth empowerment as an attitudinal, structural, and cultural process whereby young people gain the ability, authority, and agency to make decisions and implement change in their own lives and the lives of other people, including youth and adults. These youths could be empowered in cell phone maintenance. Such empowerment can only be meaningful when appropriate content in cell phone maintenance is developed and continuously implemented.

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A cell phone is also called mobile phone, hand phone, handset or mobile. It is a portable telephone that uses wireless cellular technology to send and receive phone signals. Hahn and Kibora (2008) described cell phone as an electronic device used to make mobile telephone calls across a wide geographic area. Feig-Nancy (2007) stated that cell phones and their network vary very significantly from provider to provider and country to country. However the basic communication method of all of them is through the electromagnetic microwaves with a cell base station. Donner and Steenson (2008) explained that cell phone makes use of different mobile communication methods, such as SMS, Wireless Application Protocol (WAP), Wireless Local Area Network (WLAN), WIFI, GPRS, Bluetooth, Infrared, Infra red Data Association (IrDA) and I-Phone. Naeem (2011) also said that cell phones are in different types manufactured by different companies with their trademarks or brands. Some are NOKIA, SAMSUNG, MOTOROLA, PHILIP products among others. They have a number of features in common, but manufacturers also try to differentiate their own products by implementing additional functions to make them more attractive to consumers. Waard, Schepers, Ormel and Brookhuik (2010) said that mobile or cell phones have features beyond sending text messages and making the short or long distance voice calls, the other features include internet browsing, mp3 playback music, email, personal organizer, built in cameras, multimedia messaging (MMS), short messages (SMS), call registries, built in games, voice mails, downloading, video call, Bluetooth and infrared. In addition to functioning as a telephone, Reardon (2010) also explained that modern mobile phone typically supports additional services such as e-mail and [internet](http://en.wikipedia.org/wiki/Internet) access; short-range wireless communications; as well as business and gaming applications, and photography.

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There is hardly any human activity where cell phones have not made impact. In Nigeria, according to Oluwaseun (2011) 50.3% of the total population of 158,259,000 possessed cell phones for making calls, sending text messages to relations and for businesses. Cell phone helps in organizing daily plans and gives some entertainment like phone games, WAP and SMS games. Cell phone helps in selling and buying of goods and services with ease but has created some management problems to the users in the areas of maintenance. Maintenance according to Olaitan in Ihediwah (2007) is a set of measure or steps taken to ensure that a given piece of equipment or infrastructure is kept in good operational order until it attain its maximum possible life span. Bakare (2014) described maintenance of cell phone as the activities carried out to repair, service, flash, upgrade, and configure damaged or malfunctioned cell phones. Most of the users could not easily locate efficient technicians who could repair and service faulty cell phones thereby making users whose cell phones are bad to abandon them for the purchase of new ones. Maintenance of faulty phones will reduce continuous spending of money and electronic wastage which can cause health problems such as cancer to the people especially where they are exposed carelessly. There is need to tap the huge economic resources available in cell phone maintenance for youths through the development of appropriate contents in cell phone maintenance. This will help in eradicating most of the cell phone maintenance problems facing cell phone users. Appropriate content is a pre-requisite for achievement of effective training in cell phone maintenance.

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Content is what the teachers and their students pay attention to. Content according to Urevbu (1994) refers to what is taught in school, it is the subject matter or topics consisting facts, concepts, ideas, knowledge within a particular subject and how they will bring about change in the individual and to the society. Content according to Kapoma and Namusokwe (2011) is a list of subjects, topics, skills, competencies, themes, concepts or works to be covered by teacher and his students. Prossers and Quingley (1949) in their content theory stated that only reliable source of content for specific training in an occupation is in the experience of masters in that occupation. The theory recognizes the need for performance of activities such as those involved in training and the knowledge and skills of people who had been involved in the performance of these activities on the job over a long time. Content theory is relevant in this study in that master or experts of cell phone are involved in the study to identify appropriate contents in cell phone maintenance for the training of youths.

Content is the totality of the subject matter delivered to the students through appropriate process in order to achieve a clearly stated objective. It embodies knowledge, skills and attitude to be learnt by the learners. Appropriate content in cell phone is a content that can lead to effective maintenance of cell phone as well give employment to the teeming youths. Gay (1999) explained that appropriate content should therefore meet the needs of society in which it is being implemented. Bakare (2014) stated that content is appropriate when it meets the need of the immediate society.

Appropriate content in cell phone maintenance therefore involves competencies in trouble shooting, repairing, flashing, configurating, maintaining malfunctioned cell phones and facilities for cell phone maintenance. Development of appropriate contents in cell phone maintenance for youth empowerment will not only help providing information on the knowledge, skills and attitude required for effective cell phone maintenance but if well implemented will enhance technological development and provide employment to the youths. Fanimo and Okere (2009) stated that unemployed youths are readily available for anti-social criminal activities that undermine the stability of society. Jorge Saba Arbache (2011) in their own view stated that unemployed and underemployed youths are more exposed to conflicts and illegal activities, many of them fall prey to armed and rebel conflicts. The major purpose of the study was to develop appropriate contents in cell phone maintenance for youth empowerment. Specifically the study sought to identify:

1. Competencies in trouble shooting and repairing faulty cell phone

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1. Competencies in configurating and flashing malfunctioned cell phone
2. Competencies in maintaining cell phones
3. Facilities for the maintenance of cell phones

**Research Questions**

The following research questions guided the study:

1. What are the competencies in trouble shooting and repairing faulty cell phone?
2. What are the competencies in configurating and flashing malfunctioned cell phone?
3. What are the competencies in maintaining cell phones?
4. What are the facilities for the maintenance of cell phones?

**Hypotheses**

The following hypotheses were tested at .05 level of significance:

**H01:** There is no significant difference in the mean response of lecturers, instructors, road side technicians and supervisors in telecommunication industries on the competencies in trouble shooting and repairing faulty cell phone

**H02:** There is no significant difference in the mean response of lecturers, instructors, road side technicians and supervisors in telecommunication industries on the competencies in configurating and flashing malfunctioned cell phone

**H03:** There is no significant difference in the mean response of lecturers, instructors, road side technicians and supervisors in telecommunication industries on the competencies in maintaining cell phones

**H04:** There is no significant difference in the mean response of lecturers, instructors, road side technicians and supervisors in telecommunication industries on the facilities for the maintenance of cell phones

**Method**

A descriptive survey design was employed for this study. A descriptive survey research design, in the opinion of Ali (2006) is a descriptive study which uses sample of an investigation to document, describe and explain what is in existent or nonexistent on the present status of phenomena being investigated. In survey study, views and facts are collected through questionnaire, interviews among others, analyzed and used for answering research questions. The survey research design is appropriate for this study because it aims at the development of appropriate contents in cell phone maintenance for youth empowerment.

The study was conducted in Lagos State of Nigeria. The population for the study was 137 which comprised of all the 35 lecturers and 14 instructors of electrical/electronic technology from Department of Electrical/Electronics Technology, Yaba College of Technology, Lagos State Polytechnic Ikorodu and Lagos City Polytechnic Ikeja, 21 supervisors in Mobile Telecommunication Network (MTN), GLOBACOM, Celtel, Etisalat and Samsung and 67 road side cell phone technicians in Lagos State. The sample for the study was 137 respondents. These were purposively sampled 67 literate road side cell phone technicians, all the 35 lecturers, 14 instructors in the polytechnics, and 21 supervisors in telecommunication industries in the study area.

A structured questionnaire titled: Cell phone Maintenance Training Module Questionnaire (CMTMQ) was used as instrument for data collection and was on 5-point Likert scale. The structured questionnaire had 56 competency items developed for collecting data in accordance with the research questions. The instrument was in four sections A-D. A centered on competencies in trouble shooting and repairing faulty cell phone, B was on competencies in configurating and flashing malfunctioned cell phone, C dealt with competencies in maintaining cell phones while D centered on facilities for the maintenance of cell phones. The instrument was face validated by three experts. These were experts from Department of Industrial Technical Education, University of Nigeria, Nsukka, Department of Electrical/Electronic Technology, Institute of Management Technology Enugu and Electrical/Electronic Industry in Enugu State. The internal consistency reliability coefficient of 0.86 was obtained for CMTMQ using Cronbach alpha technique. Out of one hundred and thirty seven copies of the questionnaire administered to the respondents with the help of five research assistants, only 104 copies were duly retrieved which represent 75.91 percent return rate.

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The data collected from the study were analyzed using factor analysis for answering the research questions. For selecting the appropriate competencies in cell phone maintenance for youth empowerment, 0.50 as factor loading was utilized. Any competency with factor loading of 0.50 and above was required and any competency with factor loading less than 0.50 was not required. Analysis of variance (ANOVA) was employed for testing all the null hypotheses at 0.05 and relevant degrees of freedom. The null hypothesis of no significant difference was accepted for any item whose P- value was greater than the 0.05, but it was rejected for any item whose P-value was less than 0.05.

**Results**

The results for the study were obtained from the research questions answered through data collected and analyzed.

**Research Question 1**

What are the competencies in trouble shooting and repairing faulty cell phone?

**Hypotheses 1**

There is no significant difference in the mean response of lecturers, instructors, road side technicians and supervisors in telecommunication industries on the competencies in trouble shooting and repairing faulty cell phone

The data answering research question and testing hypothesis one are presented in Table 1

**Table 1:** Summary of the Outcome of Factor Analysis for answering Research Question One and Analysis of Variance for Testing Hypothesis One

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/N** | **Competency items** | **Factor Loading at 0.50** | **P-values** | **Sig.** | **Remark, Ho** |
| **A** | **Competencies in Trouble Shooting** |  |  |  |  |
| 1 | Take down the history of the faults from the cell phone user | 0.77 | 0.56 | 0.05 | Appropriate **NS** |
| 2 | Identify the facilities for cell phone trouble shooting | 0.56 | 0.32 | 0.05 | Appropriate **NS** |
| 3  ***Ogbuanya, T.C., Bakare, J. & Yisa, M.A*** | Test the faulty cell phone in the present of the owner | 0.57 | 0.51 | 0.05 | Appropriate **NS** |
| 4 | Identify the symptoms of all the possible faults | 0.67 | 0.39 | 0.05 | Appropriate **NS** |
| 5 | List all the possible causes of the problems | 0.59 | 0.45 | 0.05 | Appropriate **NS** |
| 6 | Check the list of possible causes against the list of the symptoms | 0.60 | 0.54 | 0.05 | Appropriate **NS** |
| 7 | Rank the remaining causes in order of likelihood | 0.74 | 0.50 | 0.05 | Appropriate **NS** |
| 8 | Tackle the likeliest causes in the order of the complexity, cost and /or time required to check them | 0.77 | 0.38 | 0.05 | Appropriate **NS** |
| 9 | Use tested okay unit to replace bad unit of the same capacity if fault is obvious | 0.54 | 0.49 | 0.05 | Appropriate **NS** |
| 10 | Record down the outcome of the trouble shooting | 0.79 | 0.61 | 0.05 | Appropriate **NS** |
| 11 | Reveal the result of the trouble shooting to the owner of the cell phone | 0.67 | 0.67 | 0.05 | Appropriate **NS** |
| **B** | **Competencies in repairing faulty cell phones** |  |  |  |  |
| 12 | Dismantle the cell phones | 0.69 | 0.59 | 0.05 | Appropriate **NS** |
| 13 | Split out the casing of the cell phone | 0.60 | 0.51 | 0.05 | Appropriate **NS** |
| 14 | Separate the key pad from the mechanism | 0.56 | 0.62 | 0.05 | Appropriate **NS** |
| 15 | Move the slider down | 0.58 | 0.71 | 0.05 | Appropriate **NS** |
| 16 | Lift the connector up to unplug the screen that is attached to the circuit ribbon | 0.49 | 0.54 | 0.05 | Appropriate **NS** |
| 17 | Move the slider up in case of slide phone | 0.71 | 0.71 | 0.05 | Appropriate **NS** |
| 18 | Run fingernail along the edge of the front cover to unclip it | 0.65 | 0.43 | 0.05 | Appropriate **NS** |
| 19 | Remove the front cover of the cell phone | 0.58 | 0.21 | 0.05 | Appropriate **NS** |
| 20 | Identify faulty area or components in a cell phone | 0.67 | 0.43 | 0.05 | Appropriate **NS** |
| 21 | Test the components with appropriate testing instruments | 0.56 | 0.51 | 0.05 | Appropriate **NS** |
| 22 | Remove the component(s) from the mother board using appropriate tools | 0.78 | 0.34 | 0.05 | Appropriate **NS** |
| 23 | Select components of correct specification | 0.62 | 0.08 | 0.05 | Appropriate **NS** |
| 24 | Verify the condition of the components before fixing it back to the mother board | 0.59 | 0.54 | 0.05 | Appropriate **NS** |
| 25 | Repair or change the faulty components if totally bad | 0.72 | 0.67 | 0.05 | Appropriate **NS** |
| 26 | Fixes back the components into mother board correctly  -247- | 0.64 | 0.43 | 0.05 | Appropriate **NS** |
| 27 | Applies soldering iron for only 3 seconds if needed | 0.52 | 0.21 | 0.05 | Appropriate **NS** |
| 28 | Applies sufficient flux to point(s) being soldered | 0.63 | 0.43 | 0.05 | Appropriate **NS** |
| 29 | Couple back the phone | 0.53 | 0.08 | 0.05 | Appropriate **NS** |
| 30 | Configure the phone | 0.50 | 0.37 | 0.05 | Appropriate **NS** |

Data in Table 1 showed that all the competencies in trouble shooting and repairing faulty cell phones had their factor loadings ranged from 0.50 to 0.79 which were either equal to or greater than 0.50 loading factor. This indicated that all the competencies in trouble shooting and repairing faulty cell phones are appropriate for youth empowerment. The table also indicated that all the items had their P-values greater than 0.05 at degree of freedom 3 and 100. This indicated that there was no significant difference in the mean responses of lecturers, instructors, cell phone technicians and supervisors in electrical/electronic industries on the competencies in trouble shooting and repairing faulty cell phones. Therefore, the null hypothesis of no significant difference was upheld for all the 30 competencies in trouble shooting and repairing of faulty cell phones.

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**Research Questions 2**

What are the competencies in configurating and flashing malfunctioned cell phone?

**Hypothesis 2**

There is no significant difference in the mean response of lecturers, instructors, road side technicians and supervisors in telecommunication industries on the competencies in configurating and flashing malfunctioned cell phone. The data answering research question and testing hypothesis two are presented in Table 2

**Table 1:** Summary of the Outcome of Factor Analysis used for answering Research Question two and Analysis of Variance for Testing Hypothesis two

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/N** | **Competency items** | **Factor Loading at 0.50** | **P-values** | **Sig.** | **Remark, Ho** |
| C | Competencies in configurating malfunctioned cell phones |  |  | 0.05 | Appropriate NS |
| 1 | Select or click on menu | 0.64 | 0.51 | 0.05 | Appropriate NS |
| 2 | Select settings | 0.50 | 0.34 | 0.05 | Appropriate NS |
| 3 | Select configure setting correctly | 0.52 | 0.08 | 0.05 | Appropriate NS |
| 4 | Identify or generate personal configuration | 0.49 | 0.54 | 0.05 | Appropriate NS |
| 5 | Select add new in web | 0.71 | 0.67 | 0.05 | Appropriate NS |
| 6 | Create wap.mtnonlineplay.com | 0.65 | 0.43 | 0.05 | Appropriate NS |
| 7 | Select home page | 0.58 | 0.21 | 0.05 | Appropriate NS |
| 8 | Click on bearing setting to have proxy server | 0.67 | 0.43 | 0.05 | Appropriate NS |
| 9 | Generate 8080 on port | 0.56 | 0.81 | 0.05 | Appropriate NS |
| 10 | Rewrite username and password two times | 0.78 | 0.27 | 0.05 | Appropriate NS |
| 11 | Click back up and choose options | 0.62 | 0.58 | 0.05 | Appropriate NS |
| 12 | Activate as web | 0.59 | 0.54 | 0.05 | Appropriate NS |
| 13 | Click web for browsing to show bookmark | 0.72 | 0.09 | 0.05 | Appropriate NS |
| 14 | Complete the configuration correctly | 0.64 | 0.08 | 0.05 | Appropriate NS |
| D | Competencies in flashing malfunctioned cell phones |  |  |  |  |
| 15 | Select appropriate facilities for flashing | 0.63 | 0.56 | 0.05 | Appropriate NS |
| 16 | Connect the laptop to the internet | 0.53 | 0.88 | 0.05 | Appropriate NS |
| 17 | Key in the website of the service provider | 0.58 | 0.44 | 0.05 | Appropriate NS |
| 18 | Unzip the downloaded flashing software | 0.61 | 0.65 | 0.05 | Appropriate NS |
| 19 | Download correct software from the website of the service provider | 0.65 | 0.08 | 0.05 | Appropriate NS |
| 20 | Register with the CDMA or GSM carrier in the cell phone | 0.67 | 0.54 | 0.05 | Appropriate NS |
| 21 | Connect the cell phone to the computer with the help of appropriate USB cable | 0.61 | 0.69 | 0.05 | Appropriate NS |
| 22 | Install the downloaded software onto the phone | 0.58 | 0.21 | 0.05 | Appropriate NS |
| 23 | Complete the installation within 15-20 minutes | 0.56 | 0.11 | 0.05 | Appropriate NS |
| 24 | Disconnect the phone from laptop | 0.54 | 0.23 | 0.05 | Appropriate NS |
| 25 | Test the cell phone for functionality | 0.72 | 0.12 | 0.05 | Appropriate NS |

Data in Table 2 show that all the competencies in configuring and flashing malfunctioned cell phones had their factor loadings ranged from 0.50 to 0.78 which were either equal to or greater than 0.50 loading factor. This indicated that all the competencies in configuring and flashing malfunctioned cell phones are appropriate for youth empowerment. The table also indicated that items had their P-values greater than 0.05 at degree of freedom 3 and 100. This indicated that there was no significant difference in the mean responses of lecturers, instructors, cell phone technicians and supervisors in electrical/electronic industries on the competencies in trouble shooting and repairing faulty cell phones. Therefore, the null hypothesis of no significant difference was upheld for all the 25 competencies in configurating and flashing malfunctioned cell phones.

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**Research Question 3**

What are the competencies in maintaining cell phones?

**Hypothesis 3**

There is no significant difference in the mean response of lecturers, instructors, road side technicians and supervisors in telecommunication industries on the competencies in maintaining cell phones

The data answering research question and testing hypothesis three are presented in Table three

**Table 3:** Summary of the Outcome of Factor Analysis for answering Research Question two and Analysis of Variance for Testing Hypothesis two

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/N** | **Competency items** | **Factor Loading at 0.50** | **P-values** | **Sig.** | **Remark, Ho** |
| E | Competencies in maintaining malfunctioned cell phones |  |  | 0.05 | Appropriate NS |
| 1 | Dismantle cell phone before embarking on maintenance actions | 0.60 | 0.56 | 0.05 | Appropriate NS |
| 2 | Check the battery contacts for proper connection | 0.54 | 0.88 |  |  |
| 3 | Clean the battery by removing carbon from the contacts | 0.78 | 0.44 | 0.05 | Appropriate NS |
| 4 | Clean the motherboard of a phone using soft wool | 0.58 | 0.65 | 0.05 | Appropriate NS |
| 5 | Adjust the settings of the phone for functionality | 0.65 | 0.08 | 0.05 | Appropriate NS |
| 6 | Heat each ICs inside the phone for functionality | 0.54 | 0.54 | 0.05 | Appropriate NS |
| 7 | Dry clean the phone if drop inside the water | 0.62 | 0.69 | 0.05 | Appropriate NS |
| 8 | Check for proper contact of SIM card | 0.59 | 0.21 | 0.05 | Appropriate NS |
| 9 | Clean the whole of cell phone with appropriate agents | 0.68 | 0.11 | 0.05 | Appropriate NS |
| 10 | Check the speaker or mouth piece for proper operation | 0.55 | 0.23 | 0.05 | Appropriate NS |
| 11 | Check the charging point of a phone for functionality | 0.66 | 0.12 | 0.05 | Appropriate NS |
| 12 | Clean the screen of a cell phone | 0.59 | 0.32 | 0.05 | Appropriate NS |
| 13 | Check the flash light of a cell phone for proper operation | 0.75 | 0.16 | 0.05 | Appropriate NS |
| 14 | Check the flip flop IC for proper operation in case of sliding phone  -250-  ***Ogbuanya, T.C., Bakare, J. & Yisa, M.A*** | 0.64 | 0.83 | 0.05 | Appropriate NS |
| 15 | Check the power ICs of a cell phone for functionality | 0.61 | 0.32 | 0.05 | Appropriate NS |
| 16 | Check all electrical installation operations as designed in schematic manual | 0.63 | 0.49 | 0.05 | Appropriate NS |
| 17 | Check for contact of keyboard for proper operation | 0.51 | 0.55 | 0.05 | Appropriate NS |
| 18 | Test the keyboard IC for effective operation | 0.58 | 0.21 | 0.05 | Appropriate NS |
| 19 | Check the active components in the charger for functionality | 0.61 | 0.67 | 0.05 | Appropriate NS |
| 20 | Check the passive components in the charger for functionality | 0.65 | 0.54 | 0.05 | Appropriate NS |
| 21 | Clean the screen of a cell phone with a very soft damped cotton cloth | 0.67 | 0.43 | 0.05 | Appropriate NS |
| 22 | Scratch the battery and SIM contacts with fine sharp paper or object | 0.72 | 0.33 | 0.05 | Appropriate NS |

The data in Table 3 reveal that factor loading of the competencies in maintaining malfunctioned cell phones ranged from 0.51 to 0.78. This means that all the 22 competencies in maintaining malfunctioned cell phones are appropriate for youth empowerment. The table also indicated that each item had its P-value greater than 0.05. This showed that there was no significant difference in the mean response of lecturers, instructors, road side technicians and supervisors in telecommunication industries on the competencies in maintaining malfunctioned cell phones. Therefore, the hypothesis of no significant difference was upheld for the 22 competencies.

**Research Question 4**

What are the facilities for the maintenance of cell phones?

**Hypotheses 4**

There is no significant difference in the mean response of lecturers, instructors, road side cell phone technicians and supervisors in telecommunication industries on the facilities for the maintenance of cell phones

The data answering research question 4 and testing hypothesis four are presented in Table four

Table 4: Summary of the Outcome of Factor Analysis for answering Research Question four and

Analysis of Variance for Testing Hypothesis four

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/N** | **Facilities for maintenance of cell phones** | **Factor Loading at 0.50** | **P-values** | **Sig.** | **Remark, Ho** |
| 1 | Set of Screw Drivers | 0.60 | 0.56 | 0.05 | Appropriate NS |
| 2 | Soldering iron (small-tipped 30-to-50 watt irons) for soldering | 0.54 | 0.88 | 0.05 | Appropriate NS |
| 3 | Infra red Rework station | 0.76 | 0.44 | 0.05 | Appropriate NS |
| 4 | Computer with Windows 2000 or newer with a USB Port, 800Mhz+, 256MB RAM | 0.58 | 0.65 | 0.05 | Appropriate NS |
| 5 | Compatible universal serial bus for cell phone | 0.65 | 0.08 | 0.05 | Appropriate NS |
| 6 | Flashing software | 0.54 | 0.54 | 0.05 | Appropriate NS |
| 7 | Internet facilities | 0.62 | 0.69 | 0.05 | Appropriate NS |
| 8 | Eyelets and eye letting tools | 0.59 | 0.21 | 0.05 | Appropriate NS |
| 9 | Torque screw driver/precision tools | 0.68 | 0.11 | 0.05 | Appropriate NS |
| 10 | Long nose pliers | 0.55 | 0.23 | 0.05 | Appropriate NS |
| 11  ***Ogbuanya, T.C., Bakare, J. & Yisa, M.A*** | Soldering paste for aiding soldering | 0.66 | 0.12 | 0.05 | Appropriate NS |
| 12 | Soldering lead for soldering | 0.59 | 0.32 | 0.05 | Appropriate NS |
| 13 | Digital power supply | 0.75 | 0.16 | 0.05 | Appropriate NS |
| 14 | Magnifying desk lamp | 0.64 | 0.83 | 0.05 | Appropriate NS |
| 15 | Multitester | 0.61 | 0.32 | 0.05 | Appropriate NS |
| 16 | Ultrasonic cleaner | 0.63 | 0.65 | 0.05 | Appropriate NS |
| 17 | Solder-resistant paint | 0.53 | 0.22 | 0.05 | Appropriate NS |
| 18 | Magnifying lens | 0.58 | 0.06 | 0.05 | Appropriate NS |
| 19 | Broad holder | 0.61 | 0.61 | 0.05 | Appropriate NS |
| 20 | Extension box | 0.65 | 0.07 | 0.05 | Appropriate NS |
| 21 | Intelligent printed circuit board cleaner | 0.67 | 0.43 | 0.05 | Appropriate NS |
| 22 | Anti-static wrist strap for ESD control | 0.59 | 0.21 | 0.05 | Appropriate NS |
| 23 | User manual | 0.53 | 0.45 | 0.05 | Appropriate NS |
| 24 | Compressed air for blowing dust | 0.76 | 0.32 | 0.05 | Appropriate NS |

Data in Table 4 show that all the facilities had their factor loadings ranged from 0.53 to 0.76 which were greater than 0.50 loading factor. This indicated that all the facilities are appropriate for maintenance of cell phones. The table also indicated that items had their P-values greater than 0.05 at degree of freedom 3 and 100. This indicated that there was no significant difference in the mean responses of lecturers, instructors, cell phone technicians and supervisors in electrical/electronic industries on the facilities for maintenance of cell phones. Therefore, the null hypothesis of no significant difference was upheld for all the 25 facilities for maintenance of cell phones.

**Discussion of Result**

The findings of this study revealed 20 appropriate competencies in trouble shooting and repairing faulty cell phones, 26 competencies in configurating and flashing malfunctioned cell phones, 21 competencies in maintaining malfunctioned cell phones and 25 facilities for maintenance of cell phones.

This finding is in agreement with the finding of Bakare, Zakka and Fittoka (2004) who conducted a study on the integration of mechatronics in electrical/electronic technology programme of colleges of education in order to ensure occupational quality assurance of graduates in the 21st century Nigeria. The authors found out 10 contents and 22 competencies of mechatronics to be included into electrical /electronic technology programme of colleges of education to ensure occupational quality assurance of graduates in the 21st century.

This finding is in line with the finding of Yakubu (2004) who conducted a study on safety practice skills needed by woodwork students of technical colleges in Kaduna state where he found out that students of woodwork in technical colleges needed sixteen safety practice skills in using hand tools; twenty safety practice skills in operating portable power tools; thirty safety practice skills in operating machines; ten safety practice skills in handling wood materials and ten safety practice observances in the use of instructional operating guides. This finding is also in agreement with the study of Akinduro (2006) who carried out a study on electrical installation and maintenance work skills needed by technical college’s graduates to enhance their employability in Ondo state. The author found out that the graduates of technical colleges need domestic installation skills, industrial installation skills, cable jointing skills, battery charging skills and winding skills in electrical machine for employment in Ondo State. The findings of the above researchers in their various research activities helped to support the justification of the results of this study on the development of appropriate contents in cell phone maintenance for youth empowerment.

**Conclusion**

Cell phone is a telecommunication device found very useful in every human endeavour. It is found very useful in education, health, business, transportation, governance and security but has created some management problems to the users in the areas of maintenance. Most of the users could not easily locate efficient technicians who could repair and service faulty cell phones thereby making users whom cell phones are bad to abandon for the purchase of new ones. It is in this direction that this study was carried out to develop appropriate contents in cell phone maintenance for youth empowerment. It will help the youths overcome this societal problem.

**Recommendations**

The following recommendations were made:

1. The identified competencies should be used for empowering youths
2. Facilities identified should be made available either by government or individuals for cell phone maintenance.

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## EMOTIONAL INTELLIGENCE AS PREDICTORS OF CAREER DEVELOPMENT, JOB CREATION AND OCCUPATIONAL INNOVATIONS FOR NATIONAL DEVELOPMENT IN NIGERIA

**BY**

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## *Abstract*

*Descriptive survey research design was adopted. Population for the study was of 4018 persons made up of 24 lectures of technology 3994 registered tradesmen in technology occupations in Northern Nigeria. Sample compromised 351 made up of 317 tradesmen 24 lecturers and 10 academic experts’ institution purposive sampling and multi-stage stratified random sampling techniques was used. Structured questionnaire five point liket scale with 50 items validated by experts. Validated instrument was trial tested, Cronbach Alpha reliability technique realized at 0.78. Two research questions and two null hypotheses formulated and tested at 0.05 significance level. The data generated from the study were analyzed using the mean to answer the research questions. The finding made include the following: 62 emotional intelligence competency items were found to be very indispensable for successful career in technology occupation in Nigeria. Emotional intelligence inventory for technology occupations in Nigeria has a five factor structure with 38 emotional intelligence aptitude items and was found to have high construct validity high coefficient of internal Consistency of 0.834 The study has this findings Understand the emotional implication of one’s action lean from past experience; Ability to be persistent in pursuing goals despite obstacles and setbacks; Ability to take independent decisions. Therefore, recommend the use deep technical knowledge and skills to avoid ambiguity and risk and Insist in detail orientation.*

**Introduction**

The 21stcentury workforce has experienced tremendous changes due to technological advancement and globalization. These changes have posed serious challenges on technical and vocational education as it strives to achieve its fundamental goal of preparing graduates of technology for the world of work (Masri, 2009).One of these challenge, according to Mitchell (2010) is the emergence of and increased demand for a new set of employability skills generally known as generic skills in additional to technical skills. According to Nam (2009) generic skills as a group of psychosocial competencies and interpersonal skill help people to make informed decision solve problem, think critically and creatively, communicate effectively build relationship, empathize with others and cope with and manage their lives in a healthy and productive manner. Generic skills are known by other names such as Soft skills, life skills, key skills, employability skills. Therefore, effective work skills or effective work competencies are known as soft skills or generic skills.

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Soft skills include interpersonal skills communication skills leadership skills and emotional intelligence. Rao (2010) posited that soft skills are in high demand in contemporary labour market and are considered by many employers as requirements for recruitment in many occupations. Roubini and Mihm (2010) posited that hiring individuals who possess soft skills is very instrumental for the success of many occupations. This explain why several industrial organizations particularly those in the electricity, information and communication technology and hospitality sectors provide soft skills training for their employee’s ability to understand and monitor one’s own and others emotion.

Emotional Intelligence is the ability to understand and monitor one’s own and others people’s moods, to discriminate among them and to use the information to guide one’s thinking and schedules. According to Rao (2010) emotion are moods that people experience, express and cope and they arise through social interactions. Jimoh, (2008) express that emotions could be positive such as a joy love and happiness or it could be negative such as anger, anxiety, stress, disgust, fear and aggression. Emotions play substantial roles in one’s life both at home and workplace (Eniola, 2007) in addition, emotion shape an individual’s decisions and judgment as well as how one acts towards others and their jobs. Stubbs (2005) pointed out, that one could get angry, excited happy or frustrated in the workplace and this will not only affect him or her. But those around the individual as well as the person’s level of job commitment and performance. Emotion in the workplace is therefore positively associated with the overall performance of one’s job or individual ability (Kakkad, 2011)

An individual’s ability to understand, manage and control his own and others emotional constitutes emotional intelligence. According to Goleman (2011) emotional intelligence consist of four domains namely self-awareness, self-management, social awareness and relationship management. Self-awareness is concerned with the ability to accurately perceive, identify, understand and evaluate one’s personal feelings (Egbedion, 2010). While self-management involves the ability to manage one’s reactions, situations describe as social awareness (Telent smart incorporated, 2011).

Social awareness is concerned with the ability to recognize and appropriately respond to the emotions and feeling of others (Egbedion, 2010 while relationship management is concerned with the ability to use the awareness of one’s emotion and that of others to manage relationship and interactions successfully (Argyris 2008). The first two of these domains are termed intrapersonal or personal aptitudes while the last two are interpersonal or social capabilities. Chapman (2009) posited that emotional intelligence subsidize meaningfully to one’s success in life. Emotional intelligence enhance leadership and management skills, academic achievement (Olatoye, Akintunde and Yakasai, 2010), stress tolerance (Adeyemo and Ogunyemi, 2005) as well as the rate of social adaptation (Marquez, Martin and Brackett, 2008). At the organizational level, s leader’s emotional intelligence has been found to enhance group or organizational performance (Uba, 2009) and reduce conflict among workers. Sunbul and Aslan (2010) stated that emotional intelligence is the most important single variable influencing personal achievement, career success and life satisfaction. Greshem (2010) imitate that is an important factor for predicting an individual’s performance at home school of in workplace Hence it is an imperative consideration in human resource planning, job profiling as well as personal selection and promotion (Chapman, 2009). Emotional intelligence increases with age. This verdict is however contradicted by Aremu and Tejumola (2008) who originate that emotional intelligence is not meaningfully influenced by age gender, job status or working experience. Moreover, emotional intelligence has been established to vary among student’s indifferent academic disciplines especially in technical and vocational education (Castejon, Cantero and Perez, 2008).

Employers of technical and vocational education graduates have complained that most of their new employees are deficient in generic skills (Rao 2010). This has resulted in the rising tide of advocacy among vocational education for the integration of emotional intelligence and other soft skills into the programmers as well as lecturer’s adoption of appropriate instructional strategies to enable their education graduate’spossess the relevant soft skills (Mitchell, 2010;). However, one major limitation to the achievement of this laudable objective is that the specific emotional intelligence competencies needed for successful career in technical occupation, particularly technology occupation have not been delineated hence, technical and vocational education lecturers find it difficult to effective, teach student to acquire emotional intelligence (Harris and Rogers, 2008). Also there is indication of negative disposition to work by many technology-related workers in Nigeria. According to Amuka (2002), these are manifested in form of dishonesty, carelessness, laziness, lack of initiatives absenteeism, irresponsibility and lack of other work-related interpersonal skills. Waitzkin (2008) pointed out that these negate disposition to work have contributed in great measure to many people losing their jobs or not advancing in their profession jobs.

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It is obvious that workers in technological occupation need a high level of emotional intelligence competencies for many reasons. Firstly, they require a high level of emotional self-control since they work with such tools like hammers, chisels hacksaws and scribers which could be injurious if thrown at someone at the slightest provocation. Secondly, some of their jobs such as screw thread making, machining foundry, casting work and replacement of engine parts need higher level of precision hence they need to be conscious kind on such jobs in order to achieve precision and of their emotional state on such jobs and achieve precision at the same time to ensure their safety as well as the safety the equipment and others in the workshop. Moreover, these require a high level adaptability so that they can easily adapt to changes in technology, machine design and production processes. Therefore, this is needs for emotional intelligence of workers as predictors of career development Job creation and occupations Innovations in National development becomes inevitable.

Despite the wide recognition of emotional intelligence as an indispensable trait on predicting career success in many occupation, appears to be limited in Nigeria, particularly workers are relatively more aggressive and restive as a reaction to their perceived deprivation and negligence by the Government at all levels, thus predisposing citizens to kidnapping and boko haram crises which are signs of absence of emotional intelligence. There is therefore an imperative need to assess the emotional intelligence of graduates for career development job creation and occupations innovations in national development in Nigeria.

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**Main purpose**

## Specifically, the study was designed to achieve the following objectives:

1. Identify the personal capabilities of graduates needed for career success in technology occupations in Nigeria.
2. Identify the social aptitudes of graduates needed for career successful in technology occupation.

**Research Question**

1. What are the personal capabilities of graduates needed for career success in technology occupations in Nigeria?
2. What are the social aptitudes of graduates needed for career successful in technology occupation?

**Hypotheses**

HO1 Job status has no statistically significant between lecturers of technology and tradesmen’s, personal capabilities of graduates needed for career success in technology occupations in Nigeria.

HO2 Job status has no statistically significant between lectures of technology and tradesmen’s social aptitudes of graduates needed for career successful in technology occupation

**Methodology**

Descriptive survey research design was adopted. Population for the study consisted of 4018 persons made up of 24 lectures of technology 3994 registered tradesmen in technology occupations in Northern Nigeria. Sample compromised 351 made up of 317 tradesmen 24 lecturers and 10 academic experts’ institution purposive sampling and multi-stage stratified random sampling techniques was used. Structured questionnaire five point liket scale with 50 items validated by experts. Validated instrument was trial tested, Cronbach Alpha reliability technique realized at 0.78. Two research questions and two null hypotheses formulated and tested at 0.05 significance level. The data generated from the study were analyzed using the mean to answer the research questions.

**Results**

**Table 1**

Research Question One: What are the personal capabilities of graduates needed for career success in technology occupations in Nigeria?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Ability to:- | X | SD | Remarks |
| A | **emotional awareness** |  |  |  |
|  | identify ones feeling correctly | 3.59 | 0.55 | HN |
|  | know why certain feeling such as joy or anger occur in oneself | 3.45 | 0.59 | NN |
|  | understand how one’s feeling affect what one says or do such as angry | 3.39 | 0.55 | NN |
|  | recognized how one’s feeling affect one performance as a technology | 3.62 | 0.82 | HN |
|  | understand the emotional implication of one’s action | 3.77 | 0.84 | HN |
|  | **Cluster Mean** | **3.56** | **0.67** | **HN** |
| B | **Accurate Self-Assessment** |  |  |  |
|  | accurately identify one’s ability (that is what one can do well) in his area of | 3.82 | 0.78 | HN |
| ***Ogbuanya, T.C.,. & Shetima, A*** | identify one’s weaknesses (what one not do well) in his area of Technology | 3.32 | 0.53 | NN |
| ***Ogbuanya, T.C.,. & Shetima, A*** | lean from past experiences | 3.71 | 0.52 | HN |
|  | come useful comments and critics from others about oneself | 3.24 | 0.47 | NN |
|  | Open to continuous learning for self-development. | 3.32 | 0.53 | NN |
|  | **Cluster Mean** | **3.48** | **0.566** | **NN** |
| **C** | **Adaptability** |  |  |  |
|  | Ability to easily change one’s behavior, actions and attitude to suit different purpose in a new situation | 3.32 | 0.53 | NN |
|  | Ability to smoothly handle rapid changes | 3.32 | 0.50 | NN |
|  | Ability to adapt effectively with different changing situation | 3.37 | 0.54 | NN |
|  | Ability to work effectively with various individuals and groups | 3.37 | 0.55 | NN |
|  | Ability to smoothly handle multiple demands in one’s place of work | 3.44 | 0.56 | NN |
|  | **Cluster Mean** | **3.36** | **0.54** | **NN** |
| D | **Optimism** |  |  |  |
|  | Ability to be persistent in pursuing goals despite obstacles and set backs | 3.50 | 0.56 | HN |
|  | Ability to have better perspective of situations at hand | 3.53 | 0.53 | HN |
|  | Ability to view threats as more opportunities that can be acted upon | 3.57 | 0.56 | HN |
|  | Ability to view threats as mere opportunities that can be acted upon | 3.59 | 0.55 | HN |
|  | Ability to operate from hope of success rather than fear of failure | 3.62 | 0.55 | HN |
|  | **Cluster Mean** | **3.56** | **0.55** | **HN** |
| E | **Initiative** |  |  |  |
|  | Ability to take important decision without waiting for someone else to tell you what to do | 3.66 | 0.55 | HN |
|  | Abilities to readily act on any available opportunities | 3.65 | 0.54 | HN |
|  | Ability to take independent decisions | 3.66 | 0.54 | HN |
|  | Ability to purpose goals beyond what is expected of him | 3.65 | 0.511 | HN |
|  | Ability to consistently strive to do better in his area of technology | 3.69 | 0.53. | HN |
|  | **Cluster Mean** | **3.66** | **0.54** | **HN** |

Table 1 revealed that 16 items had their mean values ranging from 3.50 to 3.82. These were above the cutoff point of 3.50 this indicated that the 16 items. Items numbers 1, 4, 5, 6, 7, 8, 16, 17, 18, 19, 20, 21, 22, 23, 24, and 25 were highly needed for emotional intelligence capabilities for career success in occupations. While items numbers from 3.24 to 3.45 this indicate that were below 3.50 therefore, not needed for emotional

intelligence capabilities for career success in occupations are items number, 2, 39, 10, 11, 12, 13, 14, and 15. The cluster mean of emotional awareness yielded 3.56 which was highly needed but the cluster of accurate self-assessment with 3.48 and adaptability cluster mean with 3.36 shows not needed. While optimism cluster means 3.56 and cluster mean 3.56 and initiative cluster Mean 3.66 respectively were highly needed

**Table 2**

Research Question Two: What are the social aptitudes of graduates needed for career successful in technology occupation?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/N | ability to;- | X | SD | Remarks |
|  | avoid technical/functional errors | 3.74 | 0.50 | HN |
|  | make the time to learn even known skills | 3.78 | 0.48 | HN |
|  | do jobs at a high level of accomplishment | 3.77 | 0.49 | HN |
|  | develop personal, interpersonal and managerial skills | 3.81 | 0.46 | HN |
|  | use deep technical knowledge and skills to avoid ambiguity and risk | 4.00 | 0.50 | VHN |
|  | Insist in detail orientation | 4.00 | 0.50 | VHN |
| ***Ogbuanya, T.C.,. & Shetima, A*** | develop interest in the function Time management; haven’t gotten around to it | 3.93 | 0.46 | HN |
|  | Stuck in a past technology | 3.93 | 0.29 | HN |
|  | Some Remedies Need subject-matter expertise? Locate a pro | 3.86 | 0.49 | HN |
|  | Subscribe for Standard reference in the area to looks for knowledge | 3.85 | 0.47 | HN |
|  | Identify some national leaders in your function/technology and buy books, articles, and attend lectures and workshops. | 3.82 | 0.49 | HN |
|  | Ask others in your function/technology which skills and what knowledge is mission-critical and ask how to learn it, Follow the same or a similar path | 3.79 | 0.51 | HN |
|  | Find a consultant in your technology/function and hire to provide a private tutorial to accelerate your learning | 3.80 | 0.50 | HN |
|  | Learn to think as an expert in the technology does. | 3.80 | 0.47 | HN |
|  | Teach others Form a study group and take turns presenting on new, different or unknown aspects of the technology | 3.82 | 0.46 | HN |
|  | Manage the purchase of a major product, equipment, materials, program, or system | 3.80 | 0.47 | HN |
|  | Audit cost overruns to assess the problem, and present your findings to the person or people involved | 3.77 | 0.49 | HN |
|  | Study aspect of job or a new technical area you haven’t studied before that you need in order to be more effective | 3.74 | 0.51 | HN |
|  | problem-prevention analysis on a product or service | 3.71 | 0.52 | HN |
|  | Competitive analysis of organization’s products or services or position in the marketplace | 3.68 | 0.50 | HN |
|  | Monitor and follow a new product or service through the entire idea, design, test market, and launch cycle | 3.68 | 0.53 | HN |
|  | Represent the organization at a trade show, convention, exposition | 3.67 | 0.55 | HN |
|  | Seek out and use a seed budget to create and pursue a personal idea, product, or service | 3.64 | 0.54 | HN |
|  | Teach a course, seminar, or workshop on something you know well | 3.64 | 0.54 | HN |
|  | Train customers in the use of the organization’s products or services | 3.52 | 0.53 | HN |

Table 2 revealed that all 25 items had their mean values ranging from 3.52 to 4.00. These were above the cutoff point of 3.50 this indicated that all the 25 items. Items numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15,16, 17, 18, 19, 20, 21, 22, 23, 24, and 25 were highly needed. While 4 and 6 are very highly needed for technical intelligence competencies needed for successful career in occupation.

**Hypothesis 1**

Job status has no statistically significant between lectures of technology Education course and tradesmen factor in emotional intelligence capacity for career success in technology occupations in Nigeria.

**Table 3:**

Summary of t-test Analysis of Mean Response Job status has no statistically significant between lecturers of technology and tradesmen’s, personal capabilities of graduates needed for career success in technology occupations in Nigeria

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | emotional Intelligence competency Ability to:- | X1  Lectures | SD1 | X2  Trades  men | SD2 | t-  test | Sig |
| A | **emotional awareness** |  |  |  |  |  |  |
|  | identify ones feeling correctly | 3.58 | 0.58 | 3.38 | 0.53 | 0.40 | Sig |
|  | know why certain feeling such as joy or anger occur in oneself  ***Ogbuanya, T.C.,. & Shetima, A*** | 3.45 | 0.58 | 3.35 | 0.53 | 0.31 | Sig |
|  | understand how one’s feeling affect what one says or do such as angry | 3.45 | 0.77 | 3.71 | 0.83 | 0.30 | Sig |
|  | recognized how one’s feeling affect one performance as a technology | 3.79 | 0.88 | 3.76 | 0.82 | 0.47 | Sig |
|  | understand the emotional implication of one’s action | 3.83 | 0.81 | 3.80 | 0.77 | 0.70 | Sig |
| B | **Accurate Self-Assessment** |  |  |  |  |  |  |
|  | accurately identify one’s ability (that is what one can do well) in his area of | 3.25 | 0.44 | 3.35 | 0.57 | 0.08 | Sig |
|  | identify one’s weaknesses (what one not do well) in his area of Technology | 3.37 | 0.49 | 3.28 | 0.55 | 0.64 | Sig |
|  | lean from past experiences | 3.37 | 0.49 | 3.28 | 0.50 | 0.43 | Sig |
|  | come useful comments and critics from others about oneself | 3.37 | 0.49 | 3.38 | 0.58 | 0.51 | Sig |
|  | Open to continuous learning for self-development. | 3.50 | 0.58 | 3.33 | 0.52 | 0.22 | Sig |
| **C** | **Adaptability** |  |  |  |  |  |  |
|  | Ability to easily change one’s behavior, actions and attitude to suit different purpose in a new situation | 3.58 | 0.58 | 3.50 | 0.50 | 0.28 | Sig |
|  | Ability to smoothly handle rapid changes | 3.58 | 0.50 | 3.57 | 0.59 | 0.21 | Sig |
|  | Ability to adapt effectively with different changing situation | 3.66 | 0.63 | 3.54 | 0.50 | 0.19 | Sig |
|  | Ability to work effectively with various individuals and groups | 3.62 | 0.57 | 3.61 | 0.53 | 0.69 | Sig |
|  | Ability to smoothly handle multiple demands in one’s place of work | 3.62 | 0.49 | 3.64 | 0.57 | 0.32 | Sig |
| D | **Optimism** |  |  |  |  |  |  |
|  | Ability to be persistent in pursuing goals despite obstacles and set backs | 3.66 | 0.48 | 3.64 | 0.49 | 0.99 | Sig |
|  | Ability to have better perspective of situations at hand | 3.70 | 0.46 | 3.64 | 0.53 | 0.14 | Sig |
|  | Ability to view threats as more opportunities that can be acted upon | 3.70 | 0.55 | 3.61 | 0.48 | 0.51 | Sig |
|  | Ability to view threats as mere opportunities that can be acted upon | 3.79 | 0.50 | 3.64 | SD2 | 0.31 | Sig |
|  | Ability to operate from hope of success rather than fear of failure | 3.83 | 0.56 | 3.64 | 0.55 | 0.40 | Sig |
| E | **Initiative** |  |  |  |  |  |  |
|  | Ability to take important decision without waiting for someone else to tell you what to do | 3.58 | 0.58 | 3.38 | 0.53 | 0.47 | Sig |
|  | Abilities to readily act on any available opportunities | 3.45 | 0.58 | 3.35 | 0.53 | 0.70 | Sig |
|  | Ability to take independent decisions | 3.45 | 0.77 | 3.71 | 0.83 | 0.36 | Sig |
|  | Ability to purpose goals beyond what is expected of him | 3.79 | 0.88 | 3.76 | 0.82 | 0.03 | Not Sig |
|  | Ability to consistently strive to do better in his area of technology | 3.83 | 0.81 | 3.80 | 0.77 | 0.08 | Sig |

Table 3 shows that the calculated t value for only item number 24, was below 0.05. This indicates that there is no significant difference in the mean responses of the lectures of technology Education course and tradesmen on the items. Therefore, the null hypothesis was upheld. Therefore, there is significant difference in the mean responses of the respondents on those items. The null hypothesis was therefore rejected for those items except item number 24.

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**Hypothesis 2**

Job status has no statistically significant between lectures of technology Education course and tradesmen factor in technical intelligence capacity for career success in technology occupations in Nigeria.

**Table 4:**

*Summary of t-test Analysis of Mean Response of Job status has no statistically significant between lectures of technology and tradesmen’s social aptitudes of graduates needed for career successful in technology occupation.*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| S/N | Items ability to;- | X1  Lectures | SD1 | X2  Trades  men | SD2 | t-test | Sig |
|  | avoid technical/functional errors | 3.83 | 0.48 | 3.69 | 0.51 | 0.10 | Sig |
| 2 | make the time to learn even known skills | 3.08 | 0.40 | 3.04 | 0.30 | 0.42 | Sig |
| 3 | do jobs at a high level of accomplishment | 3.87 | 0.53 | 3.71 | 0.45 | 0.54 | Sig |
| 4 | develop personal, interpersonal and managerial skills | 3.83 | 0.48 | 3.80 | 0.45 | 0.99 | Sig |
| 5 | use deep technical knowledge and skills to avoid ambiguity and risk | 4.04 | 0.55 | 4.02 | 0.46 | 0.42 | Sig |
| 6 | Insist in detail orientation | 4.04 | 0.62 | 3.97 | 0.41 | 0.04 | Not Sig |
| 7 | develop interest in the function Time management; haven’t gotten around to it | 4.04 | 0.55 | 3.97 | 0.46 | 0.42 | Sig |
| 8 | Stuck in a past technology | 3.33 | 0.76 | 3.04 | 0.30 | 0.00 | Not Sig |
| 9 | Some Remedies Need subject-matter expertise? Locate a pro | 3.95 | 0.55 | 3.90 | 0.37 | 0.26 | Sig |
| 10 | Subscribe for Standard reference in the area to looks for knowledge | 4.00 | 0.48 | 3.83 | 0.51 | 0.68 | Sig |
| 11 | Identify some national leaders in your function/technology and buy books, articles, and attend lectures and workshops. | 3.15 | 0.40 | 3.08 | 0.30 | 0.00 | Not Sig |
| 12 | Ask others in your function/technology which skills and what knowledge is mission-critical and ask how to learn it, Follow the same or a similar path | 3.92 | 0.53 | 3.87 | 0.45 | 0.05 | Sig |
| 13 | Find a consultant in your technology/function and hire to provide a private tutorial to accelerate your learning | 3.95 | 0.35 | 3.92 | 0.26 | 0.90 | Sig |
| 14 | Learn to think as an expert in the technology does. | 3.87 | 0.67 | 3.85 | 0.35 | 0.11 | Sig |
| 15 | Teach others Form a study group and take turns presenting on new, different or unknown aspects of the technology | 3.87 | 0.61 | 3.83 | 0.37 | 0.00 | Not Sig |
| 16 | Manage the purchase of a major product, equipment, materials, program, or system | 3.87 | 0.53 | 3.78 | 0.47 | 0.04 | Not Sig |
| 17 | Audit cost overruns to assess the problem, and present your findings to the person or people involved | 3.83 | 0.63 | 3.76 | 0.43 | 0.28 | Sig |
| 18 | Study aspect of job or a new technical area you haven’t studied before that you need in order to be more effective  ***Ogbuanya, T.C.,. & Shetima, A*** | 3.25 | 0.67 | 3.00 | 0.00 | 0.81 | Sig |
| 19 | problem-prevention analysis on a product or service | 3.79 | 0.58 | 3.80 | 0.39 | 0.70 | Sig |
| 20 | Competitive analysis of organization’s products or services or position in the marketplace | 3.87 | 0.44 | 3.78 | 0.47 | 0.63 | Sig |
| 21 | Monitor and follow a new product or service through the entire idea, design, test market, and launch cycle | 3.75 | 0.44 | 3.83 | 0.48 | 0.06 | Sig |
| 22 | Represent the organization at a trade show, convention, exposition | 3.70 | 0.46 | 3.80 | 0.50 | 0.23 | Sig |
| 23 | Seek out and use a seed budget to create and pursue a personal idea, product, or service | 3.66 | 0.48 | 3.78 | 0.51 | 0.19 | Sig |
| 24 | Teach a course, seminar, or workshop on something you know well | 3.62 | 0.57 | 3.76 | 0.48 | 0.00 | Not Sig |
| 25 | Train customers in the use of the organization’s products or services | 3.58 | 0.50 | 3.73 | 0.49 | 0.27 | Sig |

Table 4 shows that the calculated t value for item number 6, 7, 11, 15, 16 and 24 were below 0.05. This indicates that there is no significant difference in the mean responses of the lectures of technology Education course and tradesmen on the items. Therefore, the null hypothesis was upheld. However, items 1, 2, 3, 5, 9, 10, 12, 13, 14, 17, 18, 19, 20, 21, 22, and 23 had their calculated t value above 0.05. Therefore, there is significant difference in the mean responses of the respondents on those items. The null hypothesis was therefore rejected for those items.

**Major findings**

**Emotional awareness**

1. identify ones feeling correctly
2. understand the emotional implication of one’s action Accurate Self-Assessment
3. accurately identify one’s ability (that is what one can do well) in his area
4. lean from past experience Optimism
5. Ability to be persistent in pursuing goals despite obstacles and set backs
6. Ability to view threats as mere opportunities that can be acted upon
7. Ability to operate from hope of success rather than fear of failure Initiative
8. Ability to take important decision without waiting for someone else to tell you what to do
9. Ability to take independent decisions
10. use deep technical knowledge and skills to avoid ambiguity and risk
11. Insist in detail orientation

**Implication**

The several interesting findings of the study has far reaching implications for workers in technology occupations, lecturers and students of technology courses in vocational and technical education and other educational institutions as well as administrators and the management of technical colleges, polytechnic, mono-technics, colleges of education and universities offering mechanical technology courses in Nigeria. The emotional intelligence in occupations should effectively be used as a valid and reliable ways for emotional intelligence competencies of workers in technology occupations. This will enable them to know their level of emotional competency and hence, make effort to improve on their level of emotional competency, if found to be low.

Moreover, the emotional intelligence competencies identified as being indispensable for successful career in technology occupations should be integrated into the curriculum of educational institutions offering technology courses at the various levels of education in Nigeria to enable workers acquire these competencies. This will facilitate their success in the labour market when they graduate.

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The finding of the study that there was a statistically significant difference in the mean. Emotional intelligence implies that workers need to be trained on how to improve their emotional technical competencies to enable them be at par with their counterparts in workplace. Finally, the finding of the study will guide other researchers in developing similar skills in other occupations where none exists.

**Conclusion**

Based on the findings of the study, the following conclusions are drawn. There were considerable evidence that the 18 emotional intelligence items resulted from analysis satisfied conditions of construct validation and were therefore valid. The reliability coefficient of the inventory (0.834 for internal consistency and 0.992 for stability) were satisfactory when compared with similar studies such as Rossiter (2008) Argyris (2008) and Amuka (2002).

Moreover, it could rightly be concluded that there is a statistically significant difference in the mean emotional intelligence scores of teleworkers and lecturers in the emotional intelligence for mechanical technology occupations in favour of workers. However, there were no interaction effect of occupational and experience or job status on the mean emotional intelligence scores of technology workers emotional intelligence technology occupations.

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***Agbaoku, O. A & Shodipe, O. T***

**NIGERIA BEYOND JOB SCARCITY: THE ROLE OF TVET**

**BY**

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***Abstract***

*The increase in abled and employable Nigerians has limited the chances of being employed as available jobs are limited and scarce. As a result of this, these category of people fight for survival and integration into the economic society of the country. At this point, creating jobs is the only way the graduates and undergraduate skilled personnel can be self sustained and end up being employers of labour rather than been employed. TVET, with the objective of equipping individuals with required marketable skills will empower them to make a living from the acquire skills. TVET skill enhances productivity and boost competitiveness among cottage industries and in the global economy. It was concluded that acquired technical skills will enable individuals to be gainfully employed, employers of labour and reducing the search for white collar jobs. Therefore, it was recommended that TVET stakeholders should ensure that aids are given to those who have chosen TVET as a career at the expense of general education only.*

***Keyword****: Unemployment, Job Scarcity, TVET and skill training*

**Introduction**

Nigeria is currently faced with diverse problems including unemployment and job scarcity. University graduates search for white collar jobs and end up bargaining for little than they expected or rather they get jobs that do not fit their field of study and some does not get at all. This leads to high level of unemployment in the country culminating into diverse economic problems and insecurity. Ajiboye, Oyebanji and Awoniyi (2013) defined unemployment as the share of the labour force that is without work but available and seeking employment. It could also be seen as an economic condition in which individuals seeking jobs remain unhired (Eurostat, 2013). More worrisome is the problem of graduate unemployability, which has rendered many Nigerian graduates useless without hope. This is because it is one thing for tertiary institutions to produce graduates, it is another for the products of these schools to meet up with employers’ requirements, skills or competences for employment (Edinyang, Odey and Gimba, 2015). Sodipo (2014) buttressed further that employers of labour often complain that some of these graduates though professionally or technically qualified are unemployable, in that they lack the requisite, essential skills or competencies needed in the job or for sustainable employment. These skills create a gap in their knowledge which must be filled to make them suitable to compete for few, existing vacancies that crop up from time to time.

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Akanmu (2011) noted that employers want their graduate recruits to be competent technically in their chosen field. They also want them to come out of school well equipped with complementary life skills such as problem solving, reflective and critical thinking, interpersonal and teaming skills, effective communication, character, integrity and high level of personal ethics, self esteem, self–discipline, organizing skills and abilities to translate ideas to action. The factors responsible for unemployment have not been limited to employee’s education level or skills only. Ewumi (2014) stated that the factors responsible for unemployment in Nigeria include: poor leadership, corruption, profligacy, poor work ethics, incompetent management, lack of saving and investment culture, lack of infrastructures and incompetent education policy. These at the end will lead to migration of youths to search for green pastures, conflict among members and increase in crime rate, low national industrial output, high level of poverty, kidnapping and robbery, and lawlessness in the country.

**Creating Jobs in Nigeria**

Job creation is the notion that jobs are created in response to some sort of event or situation. Conceptually, it is the proactive opposite of unemployment. Free dictionary (2016) describe job creation as the process by which the number of job in an economy increases. Job creation often refers to government policies intended to reduce unemployment. Job creation is developing/tapping into a fresh idea or existing ideas to compete with several others that make the individual unique while investing financially and other resources to make it successful.

After 56 years of achieving independence from the colonial masters it cannot be argued that Nigeria has attained her optimum level of development. The Nigerian government seems to have woken up to the reality that the country needs to break away from the vicious cycle of poverty, infrastructure neglect, corruption and other problems. Kolawole and Omolayo (2006) noted that many individuals have difficulties in translating their business ideas to realities and creating new business ventures because of lack of necessary information and skills to achieve their targets.

PRNewswire (2009) identified four various ways to which jobs can be created. These include:

1. **Job creation by government spending/stimulus:** The Government can stimulate job creation when it invests in projects that improve or create new services. These activities could include releasing contracts to the private sector for infrastructure, defense, engineering, justice, etc. Other ways that the government creates jobs is by issuing special grants for privately run programs. These are often for special studies and research. Grant receivers do employ people. However these grants are often connected to special favors called earmarks. These seemingly good gestures destroy independent innovation that is developed by unconnected science communities and can cause discouragement to innovate by others. The government also often decides to grow itself and hires new government employees. Some people argue that the bigger government gets; the more overhead private taxpaying industries must pay to support the costs of government.
2. **Job creation influenced by legislation and monetary policy:** A change to monetary policies, tax incentives and changes in regulations effects employment. The government needs tax revenues and walks a fine line trying to measure the complicated causal effects of their actions. Good intentions can stray an economy as the actors in the theatre of the economy react to a multitude of conditions at once. These rules and regulations are what established businesses love or hate. The more often there are major changes to tax structure and regulation, the more often there are major movements in rates of employment, either job creation or job destruction.
3. **Job creation, a market share approach:** Job creation can occur when the unemployed become ambitious and start their own business in easy entry industries and markets. This is usually accomplished when an unemployed person turns into an entrepreneur and goes into business to compete in the industry they were familiar with for many years. These new businesses' create jobs simply by innovating and implementing the ideas that were ignored when they were employed. Most small businesses that begin come to the rude awakening that "it's not that easy" but survivors tend to change entire industries that were stuck in operating the "same old way" for years. This also leads to lower prices, stable wages, higher revenues and growth for services in that industry.
4. **Job creation through ideas:** Innovate, create, invent, and invest. The most difficult but the most effective way to create long-term employment is to create new industries. It truly is the hardest way but the best way to continually grow an economy that can support its citizens with employment.

**Key barriers to Job Creation in Nigeria**

UNESCO-UNEVOC (2013) during the online conference, noted that the following are the barriers encountered in creating jobs.

1. **Lack of relevant skills**: the young participant told the forum that young people often have difficulties creating jobs because they lack the skills needed to establish such.
2. **Lack of information about the labour market**: another issue was lack of information about the labour market. Students generally receive such information in the form of career guidance and counseling in their schools and universities.
3. **Lack of entrepreneurship skills to create new jobs**: in some cases young people have no choice but to relocate in the face of job shortages, because they lack the entrepreneurial skills required to start their own businesses. These skills include: confidence, communication and persuasion, courage, learning skills etc.
4. Inhospitable investment climate discouraging entrepreneurship and job creation.

Despite the challenges stated by the UNESCO-UNEVOC, Muhammed (2011) viewed the challenges encountered in job creation in a different way. He stated that these challenges range from poor state of infrastructure, lack of access to productive inputs such as finance and workspace, lack of access to Business Development service (BDS), lack of sufficient government stimulus, changes in government policies, lack of the right attitude by Nigerians.

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**The Role of TVET in Job Creation in Nigeria**

It has become necessary that there must be a change in the system of education in Nigeria, because many school leavers at all levels had to struggle for a very few vacancies in the employment market after school. It is now key important for people to embrace Technical and Vocational Education and Training (TVET) as the sure means to create jobs and solve the problem of unemployment.

Technical Vocational Education and Training, as spelt out by Danko (2006) is an education programme that prepares students mainly for occupations requiring manipulative skills or non-technical occupations in such fields as Agriculture, Business Education, Home Economics, Painting, Decorating and others, organized to secure confidence and experience by the individual students. It is also designed to develop skills, abilities, understanding, attitudes, work habits and appreciation encompassing knowledge and information needed by a worker to enter and make progress in employment on a useful and productive basis.

Skill training enhances productivity and sustains competitiveness in the global economy. Countries are renewing efforts to promote technical and vocational education and training, this is because it is the only way to prepare young people for world of work, which reaches out to the marginalized and excluded groups to engage them in income-generating livelihoods (Alhasan and Abdullahi, 2013).

Technical and vocational education and training (TVET) is increasingly being viewed as a potential solution to the youth employment crisis and job scarcity. TVET’s orientation towards the world of work and the acquisition of employable skills means that it is well placed to overcome the skills mismatch issues that have impeded smooth education-to-employment transitions for many young people. Recent evidence suggests that TVET yields higher returns than either general secondary or tertiary education, mainly because its focus is on providing work-relevant skills (Kuepie, Nordman and Roubaud, 2009).

The government initiated TVET for two objectives: First, it is to provide training opportunities and career advancement avenues for the growing numbers of school leavers joining the workforce. Second, it is expected that the graduates will provide the much-needed skilled manpower to all levels of the economy. In the absence of employment opportunities, TVET training can lead to self-reliance, thus playing a role in industrialization.

**Conclusion**

It is no gainsaying that unemployment has caused great havoc to the country, its economy and industrialization among others. This challenge has made successful entrepreneurs, non-governmental organizations and government to encourage the citizens to be empowered with formal, informal and non-formal skill(s). These skills would enable individuals to be self employed and some to be employers of labour thereby reducing the average number of the unemployed and reduce the weight of job provision on government.

**Recommendations**

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The following recommendations were made so that TVET could meet up with the demand of creating job and ending job scarcity in Nigeria.

1. TVET stakeholders (government, NGO’s, Microfinance bank, BOI etc) should ensure that aids are given to those who have chosen TVET as a career.
2. Individuals should not only be trained in TVET but should be empowered by the government, NGO and other TVET stakeholders with tools, machineries and financially so as to be able to practice.
3. TVET should be adequately funded to help individuals have access to infrastructures thereby exposing them to the ethics of the chosen career.
4. There should collaboration of the TVET institutions with the media towards massive campaign of TVET programmes at the grassroot level so that the non-educated can participate in informal TVET (i.e such individuals can learn a trade)
5. TVET subjects should be made compulsory at all secondary level (both junior and senior) by the ministry of education. This will enable students who could not further their senior secondary education to be skilled.
6. Teaching theoretical aspect of TVET only should be discouraged and encourage the teaching of both theory and practicals in TVET institutions especially at the tertiary level, as most institutions suffers lack of equipment to carry out teaching and learning activities

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**REPOSITIONING TECHNICAL VOCATIONAL EDUCATION AND TRAINING (TVET) AND ENTREPREUNUERSHIP EDUCATION FOR SELF-RELIANCE IN NIGERIA**

**BY**

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***Abstract***

*High unemployment rate amongst the youths in Nigeria has led to increased poverty and serious social problems in Nigeria. Coincidentally there has been a decline in TVET enrolments despite the juicy goals of TVET. As a result, this study was conducted to ascertain ways of repositioning TVET and Entrepreneurship education for self-reliance in Nigeria. The study adopted a descriptive survey research design and was conducted in Cross River State. The population for the study was 241. 143 from the Department of Vocational Education, University of Calabar and 98 students from Cross River State University of Technology. The entire population was studied due to the manageable size of the population. A structured questionnaire containing 34 items on a four point rating scale and a response options of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD) with their corresponding values of 4, 3, 2, and 1 was used to elicit responses from respondents and generate data for the study. The instrument was face-validated by three experts in the Department of Vocational Education, University of Calabar. Cronbach Alpha reliability method was used to determine the internal consistency of the instrument. The reliability yielded a coefficient of 0.87 which was high enough to be used for the study. The data collected for the study was analysed using mean to answer the research questions and standard deviation to determine the closeness or otherwise of the responses from the mean. In taking decision, any item with a mean of 2.50 and above was considered accepted, while any mean score below 2.50 was taken as rejected. The findings revealed that vocational skills, job creation abilities, and product marketing skills are needed for effective repositioning of TVET and entrepreneurship education for self-reliance in Nigeria. Based on the findings of the study, it was recommended amongst others, the creation of entrepreneurship development support agencies to encourage business interaction between entrepreneurs and TVET students for job creation and sustainable development in Nigeria.*

*Key words: TVET, Entrepreneurship Education, Self-Reliance*

**Introduction**

Nigeria has a growing youth population with an educational system that turns out millions of graduates every year. A rule of thumb is that youth unemployment rate tends to be approximately twice the adult rate and it is rising sharply across much of the developed and developing countries alike. In countries with the most severe youth unemployment rates, a quarter of young people are looking for work. Unemployment in Nigeria stands at 23%; it is widely accepted that this is not merely a short-run waste of human resources and a source of unhappiness among youths; it may have long term scarring effects on the working adults and far reaching implications for the next generation (Blanchflower & Andrew, 2007). The persistence of unemployment problem seems to demonstrate that standard economic policies have been insufficient. The need to create more entrepreneurship opportunities among the youths becomes pertinent. The youth needs exposure in practical entrepreneurial work experience in order to be proficient in their chosen career and be useful to themselves and the society. The only way to empower the youth is to provide them with adequate and qualitative education in order to make them job creators and eradicate poverty (Sekena, 2004). Many countries of the world have considered Technical Vocational Education and Training (TVET) as relevant in equipping young people with technical skills that would enable them engage in productive livelihoods.

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Technical and Vocational Education and Training (TVET) is an all-inclusive term referring to all forms and levels of the educational process involving, in addition to general knowledge, the study of technologies and related sciences and the acquisition of practical skills, know-how, attitudes and understanding relating to occupations in the various sectors of economic and social life (Federal Republic of Nigeria (FRN, 2013). This definition highlights the importance of the acquisition of practical knowledge, skills and attitudes in any training offered by TVET providers (UNESCO, 2011). Thus TVET is an integral part of all-inclusive education for all types of initiative which helps an individual to become an active citizen and contributes positively to his well-being and to economic growth of his society. This implies that TVET equips the individual with relevant skills for self-reliance. The FRN (2013) enumerated the following as TVET objectives: to provide trained manpower in applied science, technology and commerce particularly at sub-professional level; to provide the technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development…; and to give training and impart the necessary skills leading to the production of craftsmen, technicians and other skilled personnel who will be enterprising and self-reliant.

Technical Vocational Education and Training is result oriented. It brings about technological advancement and aims to fit new manpower for employment and provide continuing training so that the individuals can keep pace with modern and emerging work environment, thus, equipping such an individual for self-reliance. Self-reliance becomes feasible through entrepreneurship education. Self-reliance, according to Bassey (2009), is that which presupposes the attainment of the individual’s financial and economic autonomy without necessarily resorting to begging. Abanyam (2012) posited that self-reliance refers to dependence on one’s own abilities, judgments, or resources or independence. It thus means the ability to rely on oneself to do whatever should be done. It entails the development of local markets, local production, local processing of previously imported goods, and greater cooperation amongst local economic entities. Entrepreneurship foster self-reliance among youths, therefore, should be encouraged.

Furthermore, it becomes imperative for entrepreneurs to have some useful knowledge on how to succeed in business. This should be a prerequisite to floating any business venture especially if sustaining the business is the guiding principle. This is where entrepreneurship education comes in. Entrepreneurship education is a form of education which promotes the dignity of labour by entrenching work as the goal of education (Abanyam, 2014). According to Abubakar (2010), entrepreneurship education has led most African countries, including Nigeria to realise that training in TVET is necessary to alleviate poverty through skill acquisition. Therefore, given the enabling environment, entrepreneurship education enlightens and equips the youth with modalities for operating and managing enterprises. Therefore, as a means of empowering Nigerian youths for sustainable self-employment and wealth creation, the repositioning of TVET and entrepreneurship education for self-reliance constitute the thrust of this study.

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**TVET and Entrepreneurship Education for Self-Reliance** The learning experiences may occur in variety of learning context, including educational institutions and workplace. In Nigeria, the teaching of skills in the formal sector exists in two types of institutions (Oziengbe, 2009). These institutions are Technical Colleges and Trade Centres. In these institutions, individuals are provided with needed skills that will empower the youths become proficient in both the public workplace and private employment. With the urgent need to fight unemployment, reduce poverty and promote economic prosperity, the Nigerian government has embarked on reforms in various aspects of the economy. As part of the on-going reforms, Nwaokolo (2005) suggests the promotion of entrepreneurship education at various levels of the tertiary education so that more graduates of the system can set up their own business, create employment and alleviate poverty in the society. Technology education emphasis skill acquisition, while entrepreneurship education emphasizes on the ability to set up and manage small business venture. The entrepreneurial ability will make it possible for the acquired technology skills to be salable (Igweh, 2005).

The relationship that exist between entrepreneurial training with TVET would provide gainful employment (paid or self-employment) to the recipient which is the base for industrialization and technological development. The UNESCO, (2003), while addressing the need for fostering entrepreneurship mind sets and promoting entrepreneurship education among the youth recommends TVET as a sure way out of poverty facing the youth worldwide today. It is a fact that the society needs men and women that are capable of establishing businesses that would help cushion the adverse effects of mass unemployment and poverty which entrepreneurial skills in TVET affords. Entrepreneurial studies allows the beneficiaries to consider various occupational possibilities that the work required, available rewards, necessary training and relative advantages and disadvantages of each (Nwoye, 2011).The scope of entrepreneurship education according to the UNESCO, (2003) includes creativity, innovations, risk taking and the ability to plan and manage projects in order to achieve objectives. In line with the scope of entrepreneurship education, and by its definition as the ability to turn ideas into action, Entrepreneurship and TVET may serve as a tool for achieving youth empowerment.

It is thus evident that TVET and entrepreneurship foster economic growth, increase productivity, create new technologies, products, and services and also change and rejuvenate market competition. Therefore, if TVET and entrepreneurship education taught in the institutions must meet these laudable objectives, then such programmes should be taught in context. In achieving these, Abanyam and Etonyeaku (2012) suggested ways of repositioning TVET and entrepreneurship education to include equipping the individual with worthwhile knowledge, usable skills and the right aptitude to identify opportunity, evaluate opportunities for choice making, decide on form of enterprise, factors combination, business directorship and risk management, which will ultimately lead to self-reliance. Abanyam (2014) emphasized the need for TVET graduates to be mandated to develop and implement a viable business plan before graduation as this would bring out their abilities in creating jobs for themselves in particular and the nation at large.

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**Statement of the Problem**

TVET enhances productivity and sustains competitiveness in the global economy. Worldwide countries are renewing efforts to promote technical and vocational education and training, this is because it is the only way to prepare young people for world of work, which reaches out to the marginalized and excluded groups to engage them in income-generating livelihoods. High unemployment has led to increase poverty and serious social problems in Nigeria. Coincidentally there has been a decline in TVET enrolments in Nigerian higher institutions. Less than one percent of students’ enrolment in Nigeria is oriented towards technical and vocational skills (Abanyam, 2914). It is even more pathetic to see the few TVET graduates hovering everywhere in search of non available jobs, when they should be at the forefront of job creations. The question that comes to mind is why has this joblessness continue to persist among TVET graduates? It is in recognition of this that the study sought way of repositioning TVET and entrepreneurship education that will lead to self-reliance of the youths in Nigeria.

**Purpose of the Study**

The major purpose of the study was to determine ways of repositioning TVET and Entrepreneurship education for self-reliance in Nigeria. Specifically, the study sought to:

1. Ascertain ways in which TVET and Entrepreneurship education can be repositioned in developing vocational skills for self-reliance in Nigeria.
2. Ascertain ways in which TVET and Entrepreneurship education can be repositioned in creating jobs for self-reliance in Nigeria.
3. Determine ways in which TVET and Entrepreneurship education can be repositioned in developing product marketing skills for self-reliance in Nigeria.

**Research Questions**

The following research questions guided the study:

1. What are the ways in which TVET and Entrepreneurship education can be repositioned in developing vocational skills for self-reliance in Nigeria?
2. What are the ways in which TVET and Entrepreneurship education can be repositioned in creating jobs for self-reliance in Nigeria?
3. What are the ways in which TVET and Entrepreneurship education can be repositioned in developing product marketing skills for self-reliance in Nigeria?

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**Methodology**

The study adopted a descriptive survey research design and was conducted in the two universities in Cross River State. They are University of Calabar and the Cross River State University of Technology. The population for the study was 241 made up of 143 students from the Department of Vocational Education, University of Calabar and 98 students from the Department of Vocational Education, Cross River State University of Technology. The entire population was studied due to the manageable size of the population. A structured questionnaire containing 35 items on a four point rating scale with response options of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD) and corresponding values of 4, 3, 2, and 1 were used to elicit responses from respondents and generated data for the study. The instrument was face-validated by three experts from the Department of Vocational Education, University of Calabar. Cronbach Alpha reliability method was used to determine the internal consistency of the instrument. The reliability yielded a coefficient of 0.87 which was high enough to be used for the study.

**Method of Data Analysis**

The data collected for the study were analyzed using mean to answer the research questions and standard deviation to determine the closeness or otherwise of the responses from the mean. In taking decision, any item with a mean of 2.50 and above was considered accepted, while any mean score below 2.50 was not accepted.

**Presentation of Results**

The findings of the study are presented and discussed as follows:

**Research Question 1**

What are the ways TVET and Entrepreneurship education can be repositioned in developing vocational skills for self-reliance in Nigeria?

**Table 1:** Mean ratings and standard deviations of the respondents on the ways in which TVET and Entrepreneurship education can be repositioned in developing vocational skills for self-reliance in Nigeria. N=241

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/NO | ITEMS | X | SD | Remark |
| 1 | Emphasis on developing management ability | 3.57 | .75 | A |
| 2 | Provision of technical skills | 3.45 | .73 | A |
| 3 | Possession of sound communication skills | 3.40 | .70 | A |
| 4 | Effective interpersonal skills | 3.28 | .76 | A |
| 5 | Effective personal skills. | 3.34 | .84 | A |
| 6 | Acquisition of analytical ability | 3.45 | .73 | A |
| 7 | Demonstration of critical thinking skills | 3.29 | .69 | A |
| 8 | Possession of marketing skills. | 3.32 | .75 | A |
| 9 | Interactive accounting skills | 3.37 | .71 | A |
| 10 | Emphasis on practical Information technology skills | 3.35 | .70 | A |
|  | **Grand mean and standard deviation** | **3.38** | **.74** | **A** |

Key: X= Mean, SD= Standard Deviation, A = Agreed

Table 1 presented the mean ratings and standard deviation of respondents on the ways in which TVET and Entrepreneurship education can be repositioned in developing vocational skills for self-reliance in Nigeria. All the ten items listed had their mean scores ranging from 3.28-3.57 which were above the real limit of 2.50, the standard deviation ranged from 0.69 – 0.84 indicating that the respondents were not far from each other in their opinions.

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**Research Question 2**

What are the ways TVET and Entrepreneurship education can be repositioned in creating jobs for self-reliance in Nigeria?

**Table 2**: Mean ratings and standard deviation on the ways TVET and Entrepreneurship education can be repositioned in creating jobs for self-reliance in Nigeria N=241

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/NO** | **ITEMS** | **X** | **SD** | **Remarks** |
| 11 | Identify business opportunities | 2.89 | .99 | A |
| 12 | Generate ideas suitable to the opportunities identified | 3.21 | .92 | A |
| 13 | Set appropriate businesses goals | 2.80 | 1.14 | A |
| 14 | make long and short term planning | 2.83 | .99 | A |
| 15 | Take a decision and act upon it | 3.54 | .87 | A |
| 16 | Organize resources for goal attainment | 2.89 | .96 | A |
| 17 | Implement plans for goal attainment | 3.36 | .87 | A |
| 18 | Evaluate all activities based on set goals | 2.67 | 1.09 | A |
| 19 | Make appropriate use of feedback | 2.91 | .91 | A |
| 20 | Manage time and meet job schedules | 2.80 | .88 | A |
| 11 | Solve both routine and non-routine problems; | 2.83 | .99 | A |
| 12 | Work under pressure | 2.63 | .82 | A |
| 13 | Motivate workers | 2.75 | 0.53 | A |
| 14 | Cope with uncertainty | 2.89 | .99 | A |
| 15 | Analytical reasoning skills | 3.21 | .92 | A |
| 16 | Critical thinking ability | 2.80 | 1.14 | A |
|  | **Grand mean and standard deviation** | **2.94** | **.94** | **A** |

Table 2 presented the mean ratings of respondents on ways TVET and Entrepreneurship education can be repositioned in creating jobs for self-reliance in Nigeria. All the sixteen items recorded mean scores ranging from 2.63-3.54 which were above the cut-off mark of 2.50, the standard deviation ranges from 0.53 – 1.14 indicating that the respondents were not far from each other in their opinions; thus indicating that all the items are ways TVET and Entrepreneurship education can be repositioned in creating jobs for self-reliance in Nigeria.

**Research Question 3**

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What are the ways TVET and Entrepreneurship education can be repositioned in developing product marketing skills for self-reliance in Nigeria?

**Table 3:** Mean ratings and standard deviation on the ways TVET and Entrepreneurship education can be repositioned in developing product marketing skills for self-reliance in Nigeria. N=241

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **Items Statement** | **X1** | **SD1** | **remarks** |
| 21 | Ability to determine the extent to which products will sell | 2.76 | .93 | A |
| 22 | Budget and forecast sales | 3.10 | .99 | A |
| 23 | Determine current trends in sales of products | 3.07 | .98 | A |
| 24 | Determine what customers need and supply of such goods | 2.61 | .81 | A |
| 25 | Interpret factors which indicate extent of and strength of competition | 2.57 | .94 | A |
| 26 | Appreciate consumer behaviour | 3.00 | .86 | A |
| 27 | Advertise a product | 2.51 | .81 | A |
| 28 | Determine seasonal fluctuation of goods | 2.78 | 1.08 | A |
| 29 | Effectiveness in negotiating sales | 2.71 | .89 | A |
| 30 | Use of sale promotion tools | 2.76 | .98 | A |
| 31 | Set the right price for a product | 2.75 | .97 | A |
| 32 | Provide customers with incentives | 2.70 | 0.49 | A |
| 33 | Identify the right channel of product distribution | 2.76 | .93 | A |
| 34 | Identify the target market | 3.10 | .99 | A |
| 35 | Use direct selling strategy in marketing a product | 3.07 | .98 | A |
|  | **Grand mean and standard deviation** | **2.82** | **.91** | **A** |

Table 3 presented the mean ratings of respondents on the ways TVET and Entrepreneurship education can be repositioned in developing product marketing skills for self-reliance in Nigeria. It was revealed that all the fifteen items recorded mean scores ranging from 2.51-3.10 which were above the cut-off mark of 2.50, the standard deviation ranges from 0.49 – 1.08 indicating that the respondents were not far from each other in their opinions; thus indicating that all the items are ways TVET and Entrepreneurship education can be repositioned in developing product marketing skills for self-reliance in Nigeria.

**Discussion**

The result of the study revealed that effective repositioning of TVET and entrepreneurship education for self-reliance in Nigeria demands that Nigerian youths should be empowered with vocational skills, job creation abilities, and product marketing skills to enable them become self-reliant. Research question one revealed that all the 10 items identified are ways in which TVET and Entrepreneurship education can be repositioned in developing vocational skills for self-reliance in Nigeria. The items include: technical skills, communication skills, interpersonal skills, personal skills, analytical ability, information technology skills, marketing skills, accounting skills, and critical thinking skills on the students will provide vocational skills that would ensure self-reliance. The findings are in line with the aims and objectives of TVET and Entrepreneurship education as enumerated by UNESCO (2009).

The study further showed that TVET and Entrepreneurship Education have positive relationship in the impartation of job creation skills and knowledge on the youths. This implies that vocational education students of Universities offering entrepreneurship education are being equip with the vocational skills to identify business opportunities, generate ideas suitable to the opportunities identified, set appropriate businesses goals, make long and short term planning, take a decision and act upon it, organize resources for goal attainment, motivate workers, cope with uncertainty, analytical reasoning skills, and critical thinking ability for self-reliance and sustainable development in Nigeria. It was further revealed that TVET and Entrepreneurship education provide vocational education students with skills to implement plans for goal attainment, solve both routine and non-routine problems; evaluate all activities based on set goals, and make appropriate use of feedback for self-reliance and sustainable development in Nigeria. This finding is in line with Abanyam (2014) who justify the need for promoting entrepreneurship culture on the ground that youth in all societies have sterling qualities such as resourcefulness, initiative, drive, imagination, enthusiasm, zest, dash, ambition energy, boldness, audacity and courage which are all valuable traits for self-reliance.

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This study also revealed that TVET and entrepreneurship education inculcate on the youths the ability to determine products that are needed in the market, budget and forecast sales, identify the right channel of product distribution, identify target market, create the right advertising medium and use direct selling strategy in marketing of products. The implication is that, the youths would be successful in marketing their products since they possessed the skills in marketing. It becomes obvious that any business established by these youths would succeed as a result of excellent marketing abilities imparted by TVET and entrepreneurship education for self-reliance, this findings is in line with the suggestion by Osuala (2004) that the few entrepreneurs who intend to establish businesses, should possess creative thinking, communication, and marketing skills in order to remain in business.

**Conclusion**

The study was conducted to determine ways of repositioning TVET and Entrepreneurship education for self-reliance in Nigeria. Based on the findings, it was therefore concluded that vocational skills, job creation abilities, and product marketing skills are needed for effective repositioning of TVET and entrepreneurship education for self-reliance in Nigeria.

**Recommendations**

Based on the findings of the study, the following recommendations were made

1. Creation of entrepreneurship development support agencies to encourage business interaction between entrepreneurs and TVET students.
2. There should be increased partnership between industries and TVET institutions in order to promote work based interaction.
3. TVET Lecturers should make use of interactive teaching techniques such as business games, role playing and ICTs for instruction in entrepreneurship education.
4. Students should be guided into discovering knowledge by themselves to spur their creativity and problem solving skills.

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**TEACHERS’ SELF-EFFICACY AND ATTITUDE AS CORRELATES OF TEACHERS USE OF ICT IN TEACHING MATHEMATICS FOR JOB CREATION**

**BY**

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***Abstract***

*This study was to determine teachers’ self-efficacy and attitude as correlates of teachers use of ICT in teaching mathematics for job creation in Adamawa and Taraba States. The study adopted a correlation survey design in which three research questions and three null hypotheses were tested. The population for the study was 448 teachers. The study employed proportionate stratified sampling technique. The sample size for the study was 126 teachers. The instrument was structured questionnaire titled “Self-efficacy and Attitude as Correlates of Teachers’ use of ICT Questionnaire (SACTQ)”. The instrument contained 73 items, rated in four points responses and was validated by three experts from Faculty of Education, University of Nigeria Nsukka. The reliability of the instrument was obtained by trial-testing for the instrument on a sample of 20 mathematics teachers in Yola Adamawa State. Cronbach-Alpha Method was used in computing the internal consistency of the instrument. which yielded overall reliability index of 0.91. The three research questions were answered using Pearson Product Moment Correlation Coefficient while regression analysis was used to test the three null hypotheses at 0.05 level of significance. The major findings showed that provision of ICT in Schools is pertinent in teaching across the states. Considering the result of the study, the researcher recommends among other things that, Adamawa and Taraba States government should finance provision of ICT facilities, power supply, Mathematics Computer software, and expand ICT laboratories in Schools in Adamawa and Taraba State. That will enhance the use of ICT in the State. Based on the findings of the study, Adamawa and Taraba States government should make provision of ICT facilities, power supply, Mathematics Computer software, and expand ICT laboratories in Schools, that will enhance the use of ICT in the State. Teachers’ should not be intimidated no matter how their knowledge is in the use of ICT in teaching mathematics*

***Key words:****Teachers,**Self-efficacy****,****Attitude, ICT and mathematics*

**Introduction**

Mathematics is one of the core subjects in primary and post primary schools curriculum in Nigeria. It is very important in our daily life activities. However, mathematics is widely regarded as the language of science and technology that enables man to record his ideas and to communicate such to others (Ononogubu, 2003). In the opinion of Fadare (2010), mathematics is a universal language spoken by all. It is a science that deals with figure, shapes, objects and basic operations on numbers and equations, it is a subject in which facts are derived from figures and where abstract symbols are used to describe orderliness for solution to mathematics problems. It has a wider coverage; and it spreads its usefulness and application to all other sciences. This makes it to be termed “the Queen of all sciences” (Fadare, 2010). The author further stressed that, mathematics is used to explain and predict diverse events and outcomes which reveal hidden patterns that help to understand the world around. Broadly speaking, mathematics is a diverse discipline that deals with data, measurements and observations from science, with inferences, deductions and proofs; as well as with mathematical models of natural phenomena of human behaviour and social systems in improving Information and Communication Technology.

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The Information and Communication Technology (ICT) is an electronic means of capturing, processing, storing, and communicating information from one place to another. These include the internet, wireless networks, cell phones, audio-visual and other communication media. The use of Information and Communication Technology (ICT) has become an essential part of education. The integration of ICT in teaching and learning processes is one of the most practical solutions towards educational reform (Guma, Faruque and Khushi, 2013).

However, communication media across Nigeria are confronted with challenges in bringing ICT into education in general. Faturelab (2003) identified factors that inhibit the use of ICT in teaching mathematics. Such factors include: lack of competence among teachers in the integration of ICT into their lesson delivery, teachers’ negative attitude towards computers, lack of teacher’s confidence, resistance to change, lack of man power, lack of constant power supply, lack of computer skills, and lack of technical know-how and vision as how to integrate ICT in teaching, lack of teachers’ high self-efficacy. Most of these hindrances to the use of ICT are teacher dependent. Therefore, solutions to some of them need to be determined empirically. This is because teachers are very important in the life of the learners in any field of study particularly in job creation. Teachers train learners and equip them with appropriate knowledge and skills that will enable them face the challenges of life as they grow up and subsequently take over the mantle of leadership at the appropriate time in the world. To do these teachers should modify their instructional strategies to solve the problem.

Instructional strategy enable mathematics teacher solve the problem of mathematics better in a simple way for students to understand the various words of mathematical concept. Teachers’ modification of their instructional strategies could only be achieved through the use of Information and Communication Technology (ICT). The use of ICT in teaching mathematics improve critical thinking, motivation and generally enhances the cognitive understanding of man. Also used to promote collaborative learning, including; role playing, group problem solving activities and projects. The use of ICT in teaching mathematics has to change the way students learn, how teachers teach, how it facilitates learning and critical thinking ability, encourages peer discussion and emotionalize the learning processes in mathematics (Schank, 2005). In view of this Grimus (2000) stated that if teachers use ICT in teaching, students are prepared to face future developments, which will be based on the proper application of ICT skills in teaching mathematics. Mathematics teachers should have the ability or self-efficacy toward the use of ICT to teach mathematics in this modern age.

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On the other hand, for teachers of mathematics to have the ICT ability, and various characteristics developed by the teachers throughout electronic system. These characteristics include, flexibility, resourcefulness, imaginative and creative thinking, self-efficacy, honesty and patience. In addition to these, the mathematics teachers should develop positive attitude as well as having the needed skills required in the integration of ICT in teaching mathematics. In this study the researcher intends to investigate teachers’ self-efficacy and attitude in the use of ICT in teaching mathematics for job creation in Adamawa and Taraba State.

Teachers have the capacity or power to produce a desired effect and effectiveness in job creation. Bandura (1986) defines teacher’s self-efficacy as a teachers’ judgment of his capabilities to organize and execute the actions necessary to succeed at a given task in alignment with desired goals. It also refers to how an individual behaves, thinks and motivates to be involved in a particular task and to execute task successfully. The focus is not on the teachers’ skills but on judgmental part of what the teachers can do with the type of skills they possess or procedures used to develop the skill for the purpose of job creation.

Job creation covers a range of procedures used to develop and maintain a consistent internal pay structure that is acceptable to the workforce. According to Asogwa, Odu and Obetta (2015) analytic methods score the requirements of different jobs according to distinct criteria such as physical effort, mental skills, responsibility, working conditions and then use weighted averages of these scores to establish the final pay structure. Employees feel the criteria on which these are based are inconsistent, the effect may be negative. Emmanuel (2015) expressed promotion between job grades depends upon criteria over which managerial discretion has stronger incentive effects. John, Uka and Usoro (2015) stated that techniques uses combination of accurate timing and the observer's judgment of the effort being applied over many repetitions of the job to arrive at a standard [time](ebcid:com.britannica.oec2.identifier.ArticleIdentifier?articleId=72509&library=EB&query=null&title=time" \l "9072509.toc), which is then directly comparable with the standard times for other jobs. Therefore, in practice there is ample opportunity for dispute and self-efficacy for the emergence of contentious anomalies, particularly as a result of minor changes in production technology.

Self-efficacy beliefs can be used to explain technological behaviors. Pajares (2000) examines the factors that affect an individual’s use of technology and finds out that teachers with higher self-efficacy belief use ICT more often and experience less ICT-related anxiety. Self-efficacy has many positive effects and benefits especially among teachers, whose aspiration, tends to have higher self-efficacy and attaining higher achievement in the use of ICT in teaching mathematics. Teachers with high self-efficacy also often take on more efforts, persist in the face of difficulty and use strategies to make learning meaningful while teachers with low aspiration tend to have lower self-efficacy beliefs when they encounter obstacles, and give up more easily and are more frustrated in the use of ICT in teaching mathematics (Kendra, 2015).

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Teacher self-efficacy is influenced by past successes and failures which can subsequently impact on future successes or failure (Redmond, 2010). Bandura (1986) highlighted four sources of self-efficacy to include; mastery experiences, vicarious experiences, social or verbal persuasion and physiological experiences. Mastery experiences are the interpreted results of purposive performance or comparing the past efficacy with the present efficacy of a teacher and see whether self-efficacy is increasing or not. Vicarious experiences are concerned with the effects produced by the action of other teachers or involving a teacher or person’s interpretation of performance in comparison to the performance of another individual or teachers, and whether they conclude it to be a success or failure, or it can be seeing another teacher succeeding at a particular hand work which may boost others self-efficacy. Social persuasion is about the social massages received from the others or encouragements that mathematics teacher receives from influential sources including lecturers, teachers, friends, peers, colleagues, parents, community and society at large.

Based on the context of this study, attitude is the opinions and feelings that one usually have about something. This implies that, attitudes can be positive or negative behaviour towards an object, a person or toward the use of ICT. It denotes the way a person behaves toward someone or something in a particular situation. Ajzen and Fishbein (2000) opined that attitude as a mental concept that depicts favourable or unfavourable feelings toward an object. Attitudes towards mathematics vary among educators. Akinsola and Oluwojaiye (2008) stated that attitudes towards the use of ICT in teaching mathematics as an aggregate measure of liking or disliking, use of ICT in teaching of mathematics, a tendency to engage in or avoiding mathematical activities, a belief that mathematics is useful or useless in teachers’ life. Kersaint, Horton, Stohl, and Garofalo (2003) discovered that, teachers with positive attitudes towards teaching of mathematics may feel more comfortable in accepting any technological innovation such as ICT in teaching mathematics.

Therefore, self-efficacy and attitude of a teacher towards the use of ICT in teaching mathematics may likely be some of the significant factors that enhance the quality of mathematics graduates in Adamawa and Taraba states. However, there are other factors that may affect teachers’ attitudes in the use of ICT in teaching mathematics such as; laziness, time factor, limited knowledge of teacher in ICT in teaching mathematics, lack of competence or confidence and integration of ICT in teaching mathematics on the part of teachers are found to be great barriers in the use of ICT in teaching mathematics (Hew & Brush, 2007; Cakir & Yildirim., 2009).

Unfortunately, most of these ICT and vocational facilities are not utilized by both state teachers. Thus, the inability of teachers’ self-efficacy and attitude in the use of ICT in teaching mathematics for our youth in Adamawa and Taraba State has become a source of concern to the stakeholder in education in the States. Obviously, this indicates that teachers in schools don’t effectively use computer in their teaching and learning process. Therefore, what is the core-related between self-efficacy and attitude in the use of ICT in teaching mathematics for job creations in Adamawa and Taraba State? Specifically, the study seeks to:

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**Purpose of the Study**

1. The teacher’s relationship between self-efficacy and the use of ICT in teaching mathematics for job creation?
2. The teacher’s relationship between attitude and the use of ICT in teaching mathematics for job creation?
3. The teacher’s relationship among’ self-efficacy and attitude in the use of ICT in teaching mathematics for job creation?

**Research Question**

1. What is the relationship between teachers’ self-efficacy and the use of ICT in teaching mathematics for job creation?
2. What is the relationship between teachers’ attitude and the use of ICT in teaching mathematics for job creation?
3. What is the combined relationship of teachers’ self-efficacy and attitude in the use of ICT in teaching mathematics for job creation?

**Hypotheses**

The following hypotheses are postulated to guide the study and will be tested at 0.05 level of significance.

**H01:** There is no significant teachers’ relationship between self-efficacy and the use of ICT in teaching mathematics for job creation.

**H02:** There is no significant relationship between teachers’ attitudes and the use of ICT in teaching mathematics for job creation.

**H03:** There is no significant combined relationship among teachers’ self-efficacy and attitude and the use of ICT in teaching mathematics for job creation in Adamawa and Taraba state

**Methodology**

The study determines teachers’ self-efficacy and attitude as correlates of teachers use of ICT in teaching mathematics for job creation in Adamawa and Taraba States. The study adopted a correlation survey design in which three research questions and three null hypotheses were tested. The population for the study was 448 teachers. The study employed proportionate stratified sampling technique. The sample size for the study was 126 teachers. The instrument was structured questionnaire titled “Self-efficacy and Attitude as Correlates of Teachers’ use of ICT Questionnaire (SACTQ)”. The instrument contained 73 items, rated in four points responses and was validated by three experts from Faculty of Education, University of Nigeria Nsukka. The reliability of the instrument was obtained by trial-testing for the instrument on a sample of 20 mathematics teachers in Yola Adamawa State. Cronbach-Alpha Method was used in computing the internal consistency of the instrument. which yielded overall reliability index of 0.91. The three research questions were answered using Pearson Product Moment Correlation Coefficient while regression analysis was used to test the three null hypotheses at 0.05 level of significance.

**Research Question 1**

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What is the relationship between teachers’ self-efficacy and the use of ICT in teaching mathematics for job creation?

**Table 1:** Pearson’s Product Moment Correlation Analysis of the relationship between teachers’ self-efficacy and the use of ICT in teaching mathematics for job creation.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** |  | **SD** | **N** | **r** | **R2** |
| Teachers’ use ICT | 60.59 | 9.13 | 126 | 0.63 | 0.40 |
| Teachers’ Self-efficacy | 51.67 | 8.45 |  |  |  |

α = 0.05, R2 = coefficient of determination

Result in Table 1 is correlation coefficients of the relationship between teachers’ self-efficacy and the use of ICT in teaching mathematics for job creation. Results showed that the correlation between teachers’ self-efficacy and the use of ICT in teaching mathematics was 0.63. This means there was a strong positive relationship between teachers’ self-efficacy and the use of ICT in teaching mathematics. The coefficient of determination associated with 0.63 is 0.40. The coefficient of determination (0.40) also known as the predictive value means that 40% of self-efficacy accounted for the variation in teachers’ use of ICT in teaching mathematics for job creation. This is an indication that 60% of variation in teachers’ use of ICT in teaching mathematics is attributed to other factors other than self-efficacy.

**Hypothesis 1:**

**HO1:** There is no significant teachers’ relationship between self-efficacy and the use of ICT in teaching mathematics for job creation.

**Table 2:** Regression Analysis of teachers’ self-efficacy and the use of ICT in teaching mathematics

| **Model** | **Sum of Squares** | **Df** | **Mean Square** | **F** | **Sig.** |
| --- | --- | --- | --- | --- | --- |
| Regression | 4125.418 | 1 | 4125.418 | 81.236 | .000 |
| Residual | 6297.122 | 124 | 50.783 |  |  |
| Total | 10422.540 | 125 |  |  |  |

α = 0.05

In order to test hypothesis one (H01), regression analysis was used. The result in Table 2 shows that an F-ratio of 81.24 with associated exact probability value of 0.00 was obtained. This exact probability value of 0.00 was less than 0.05 level of significance set as bench mark and it was found to be significant. The null hypothesis which states that there is no significant correlation between teachers’ self-efficacy and the use of ICT in teaching mathematics was therefore rejected. The inference drawn was that, there is a significant correlation between teachers’ self-efficacy and the use of ICT in teaching mathematics for job creation.

**Research Question 2:**

What is the relationship between teachers’ attitude and the use of ICT in teaching mathematics for job creation?

**Table 3:** Pearson’s Product Moment Correlation Analysis ofteachers’ attitude and the use of ICT in teaching mathematics

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** |  | **SD** | **N** | **r** | **R2** |
| Teachers’ ICT | 60.59 | 9.13 | 126 | 0.45 | 0.21 |
| Attitude | 63.32 | 5.94 |  |  |  |

R2 = coefficient of determination

Result in Table 3 is correlation coefficients of the correlation between teachers’ attitude and the use of ICT in teaching mathematics for job creation and national development. Results showed that the correlation between teachers’ attitude and the use of ICT in teaching mathematics was 0.45. This means there was a moderate positive correlation between teachers’ attitude and the use of ICT in teaching mathematics. The coefficient of determination associated with 0.45 is 0.21. The coefficient of determination 0.21 also known as the predictive value means that 21% of attitude accounted for the variation in teachers’ use of ICT in teaching mathematics. This is an indication that 79% of variation in teachers’ use of ICT in teaching mathematics is attributed to other factors other than attitude.

**Hypothesis 2:**

**H02:** There is no significant relationship between teachers’ attitudes and the use of ICT in           teaching mathematics for job creation.

**Table 4:** Regression Analysis of teachers’ attitudes and the use of ICT in teaching mathematics for Job creation

| Model | Sum of Squares | Df | Mean Square | F | Sig. |
| --- | --- | --- | --- | --- | --- |
| Regression | 2111.775 | 1 | 2111.775 | 31.509 | .000 |
| Residual | 8310.764 | 124 | 67.022 |  |  |
| Total | 10422.540 | 125 |  |  |  |

α = 0.05

In order to test hypothesis 2 (H02), regression analysis was used. The result in Table 4 shows that an F-ratio of 31.51 with associated exact probability value of 0.00 was obtained. This exact probability value of 0.00 was less than 0.05 level of significance set as bench mark and it was found to be significant. The null hypothesis which stated that there is no significant correlation between teachers’ self-efficacy and teachers’ use of ICT in teaching mathematics was therefore rejected and inference drawn was that, there is significant correlation between self-efficacy and teachers’ use of ICT in teaching mathematics for job creation.

**Research Question 3**

What is the combined relationship of teachers’ self-efficacy and attitude in the use of ICT in teaching mathematics for job creation?

**Table 5**: A model summary of the inter-correlation between self-efficacy, attitude and teachers’ use of ICT in teaching mathematics

|  |  |  |  |
| --- | --- | --- | --- |
| **Model** | **R** | **R Square** | **Adjusted R Square** |
|
| 1 | 0.65 | 0.42 | 0.41 |

R2 = coefficient of determination, Predictors: self-efficacy and attitude.

Result in Table 5 seeks to find how much of the overall variance of teachers’ use of ICT in teaching mathematics is explained by the predictor variables (self-efficacy and attitude). Results showed that the correlation of the predictor variables (self-efficacy and attitude) and the criterion variable (teachers’ use of ICT in teaching mathematics) was 0.65 and the coefficient of determination (R Square) was 0.42. This means that the model as a whole explained 42% of the total variance of self-efficacy and attitude that is accountable for teachers’ use of ICT in teaching mathematics.

**Hypothesis 3**

There is no significant combined relationship among teachers’ self-efficacy and attitude and the use of ICT in teaching mathematics for job creation in Adamawa and Taraba state.

**Table 6:** Regression Analysis of combined relationship among teachers’ self-efficacy and attitude and the use of ICT in teaching mathematics for job creation.

| **Model** | **Sum of Squares** | **Df** | **Mean Square** | **F** | **Sig.** |
| --- | --- | --- | --- | --- | --- |
| Regression | 4399.369 | 2 | 2199.685 | 44.920 | .000 |
| Residual | 6023.171 | 123 | 48.969 |  |  |
| Total | 10422.540 | 125 |  |  |  |

α = 0.05

In order to test hypothesis 3 (H03), regression analysis was used. The result in Table 6 shows that an F-ratio of 44.92 with associated exact probability value of 0.00 was obtained. This exact probability value of 0.00 was less than 0.05 level of significance set as bench mark and it was found to be significant. The null hypothesis which stated that there is no significant inter-correlation between self-efficacy, attitude and teachers’ use of ICT in teaching mathematics was therefore rejected and inference drawn was that, there is a significant inter-correlation between self-efficacy, attitude and teachers’ use of ICT in teaching mathematics for job creation.

**Summary of the Finding**

1. There was a strong positive relationship between self-efficacy and teachers’ the use of ICT in teaching mathematics for job creation.
2. There was a moderate positive correlation between attitude and teachers’ use of ICT in teaching mathematics.
3. Seventy-nine percent of variation in teachers’ use of ICT in teaching mathematics is attributed to other factors other than attitude.
4. There was a significant inter-correlation among self-efficacy, attitude and teachers’ use of ICT in teaching mathematics.

**Conclusion**

Based on the findings and discussions of this study the following conclusions were made;

Mathematics teachers do not have ability to produce the desired result so they should put more effort to implement ICT in teaching mathematics in Adamawa and Taraba state. Teachers should develop high efficacy in using ICT in teaching youth so as to create job opportunity in the state. The opinion or general feeling about ICT was that there is a positive attitude to change either conscious or unconscious, especially while interacting with others computer tools and students, in an arrogant or assertive manner or stance assumed as a challenge for effect use of informal technology more especially during this era of a streetwise teenager, with attitude and orientation in global world. Teachers should not allow their attitude to discourage learners in learning mathematics using ICT and also make the learners to understand the significance of ICT in the society at large.

**Recommendations**

1. Adamawa and Taraba States government should make provision of ICT facilities, power supply, Mathematics Computer software, and expand ICT laboratories in Schools, that will enhance the use of ICT in the State.
2. Teachers’ should not be intimidated no matter how their knowledge is in the use of ICT in teaching mathematics
3. Teachers should put more effort to accomplish a task despite the obstacle encounter in teaching mathematics.

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**VOCATIONAL INTEREST AND CAREER CHOICE OF SENIOR SECONDARY SCHOOL STUDENTS FOR JOB CREATION IN ZING EDUCATION ZONE,**

**TARABA STATE NIGERIA**

**BY**

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***Abstract***

*The study investigated the Vocational Interest and Career Choice of Senior Secondary School Students for Job Creation in Zing Education Zone, Taraba State Nigeria***.** T*wo research questions guided the study while three null hypotheses were formulated and tested at 0.05 level of significance. The study adopted a descriptive survey research design. The population of the study consisted800 senior secondary school students (SS II and SS III) in zing education zone of Taraba State. A stratified random sampling technique was used to select 160 students representing 20% of the population. The instrument used for data collection was a structured questionnaire titled “Vocational Interest and Career Choice Questionnaire” (VICCQ) adapted from Bakare (1977). The face and content validity of the instrument was determined by three experts. While Cronbach alpha reliability method was used to determine the internal consistency of the items and a coefficient of 0.83was obtained. Frequency counts and percentages were used to answer the research questions while, Pearson product moment correlation coefficient and t-test were used to test the null hypotheses raised in the study at 0.05 level of significance. The results of the study revealed that, there was a significant relationship between vocational interest and career choice of senior secondary school students. The finding also revealed that there was a significant difference in vocational interest and Career Choice between male and female students in Zing education zone of Taraba State, Nigeria. Based on these findings it was recommended that vocational scholars should always take into cognisant students’ vocational aspiration and career choice in decision making. Counsellors should use vocational inventories on students’ career choice in order to have proper placement.*

*Keywords: Vocation, Interest, Career Choice, job Creation, and National Development*

**Introduction**

One of the significant decisions of secondary school students is to choose a suitable vocation for future plans. Taking a career decision is important to students because it affects their entire lives. Many attempts were made in identifying the vocational interest of students in secondary schools in Nigeria. Despite the valuable insights provided by many researchers, none of the studies have identified the vocational interests of students and career in Zing Education Zone of Taraba State. Considering the goal of the Federal Government in training Nigerians to become aware of existing career choice, it becomes imperative to determine the vocational interest of students’ and career choice in this zone. Career is a term that connotes broader meaning than vocation or occupation. Career refers to “a group of similar jobs or work related roles found in different organizations” or totality of experience in life (Akinade, 2005). While career aspiration has been described as an individual’s expressed career related goals or choices’. In addition, Interest is described as the things that one likes, the tendencies to like, to seek, and to in certain kinds of activities (Abosede, 2010).

The term interest is sometimes used interchangeably with aspiration. However it has been emphasized that aspirations represent individual goals given deal conditions, while, interest reflect an individual’s emotional disposition towards particular career options (Abosede, 2010). In addition, Super as cited in Mamman (1992) noted that the term choice has different meanings at various stages and age levels. Oladele as cited by Mburza(2011) views vocation as the sequence of major positions occupied by a person throughout one’s life span which includes home, school, community experience related to an individual’s life concept and its implementation in life style as a living.

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Interest plays vital roles in both educational and vocational planning. According to Ottaand Williams (2012) who examined the Self Concept and Vocational Interest among secondary school students in Ohafia Education zone of Abia State. The study revealed that there was a significant relationship between self-concept and vocational interest of adolescents with high vocational interest towards scientific, literary, persuasive, computational and social services; whereas low vocational interest towards outdoor activities, mechanical, musical and artistic areas of interest.

In addition, Abdullahi and Atsua (2014) revealed an assessment of vocational interest and career choice of senior secondary school students in Damaturu, Yobe State, Nigeria. The population of the study comprised 200 students in four secondary schools out of which 50 students male and female were selected using random sampling technique. The results of the study revealed that, there was significant relationship between vocational interest and career choice of students in ten (10) vocational interest areas. Also, there was significant relationship between students vocational interest and gender (in favour of male) students. The gabs that were field in this work include the geographical location, population of the study, procedure for data collection and the strategies for research report. Meanwhile, Mburza (1992) opined that, majority of students were unrealistic in their occupational choice, and their educational objectives. The researcher further states that, about half of the students are unaware about occupations and world of work, as a result of this, they are unrealistic in their occupational choice. The researcher further explained that, those who make choice of their career only select from the occupation they know simply because no proper counselling was given on choice of subject or vocational interest and career. In the same vein, Machina (1992) Stated that, career choice is a person’s total life pattern, which include both work and non-work factors because there is no rigid distinction between an individual’s work life and his non-work life.

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Another important issue that is of concern to this study is the issue of gender difference in vocational interest and career choice. The word gender itself implies stratification into male and female. Men and women are different in attitude, skills, interest ability and behaviour. Mburza (1992) says that, gender differences in achievement among secondary school students in Borno State Clearly showed that sex stereotyping appears in their choice of career. The researcher further stressed that, senior secondary school students (Boys) are much more likely to take mathematics, chemistry, and physics, while girls are more likely to take language, other Art and biology. This might probably be one of the reasons for low scientific vocational interest and the choice of career in sciences based on gender.

**Objectives of the Study**

The objectives of the study were to determine:

1. The vocational interest of senior secondary school students and their career choice
2. The vocational interest of senior secondary school students and their career choice base on gender
3. If relationship exists in vocational interest and career choice of male and female senior secondary school students in Zing educational zone of Taraba State.

**Research Question**

1. What are the vocational interest and career choice of secondary school students in Zing Educational Zone Taraba State?
2. What are the vocational interest and career choice of males and females students in Zing Educational Zone Taraba State?

**Hypotheses of the study**

The following hypotheses were tested in this study.

**Ho1:** There is no significant relationship between vocational interest and career choice of senior secondary school students.

**Ho2:** There is no significant difference between vocational interests of students according to gender in Zing educational zone.

**Ho3:**There is no significant difference between Career Choice of students according to gender in Zing educational zone Taraba State.

**Methodology**

The research design of this study was descriptive survey. According to Osuala (2001) survey research design are studies that both large and small population are chosen from the population to discover the relative incidence, distribution and interrelation of sociological and psychological variables. This method was chosen to enable the researchers investigate the vocational interest of senior secondary school students towards career choice in Zing Educational Zone, Taraba State, Nigeria.

The population for this study consisted of 800 senior secondary school students (SS II and SS III) in Zing Educational Zone of Taraba State. The samples were 160 students representing 20% of the population of SSII and SS III students in public Senior Secondary Schools in Zing Educational Zone, Taraba State. A stratified random sampling technique was used to select 80 males and 80 females’ students of SS II and SS S III respectively.

The instrument used for data collection was a structured questionnaire titled “Vocational Interest and Career Choice Questionnaire” (VICCQ) adapted from Bakare (1977). The face and content validity of the instrument was determined by three experts from Taraba State University, Faculty of Education, Department of Educational Foundations. Cronbach alpha was used to determine internal consistency of the instrument which yielded 0.83 coefficients.

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The data collected were analyzed using frequency counts and percentages to answer the research questions on vocational interest and career choice. While Pearson Product Moment Correlation Coefficient and t-test were used to determine the relationship and differences between vocational interest and career choice of students.

**Research Question one:** What are the vocational interest and career choice of secondary school students in Zing Educational Zone Taraba State?

Table 1 below presents frequencies and percentages on vocational interest and career choice of students in Zing Educational Zone Taraba State

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Vocational interest | | |  | Career Choice | |
| S/N | **Variables** | Frequency | % |  | Frequency | % |
| 1. | Outdoor | 11 | 6.9 | 8 | 5.0 |
| 2. | Mechanical | 5 | 3.1 | 4 | 2.5 |
| 3. | Computational | 13 | 8.1 | 6 | 3.8 |
| 4. | Scientific | 31 | 19.4 | 23 | 14.4 |
| 5. | Persuasive | 8 | 5.0 | 5 | 3.1 |
| 6. | Artistic | 17 | 10.6 | 15 | 9.4 |
| 7. | Literary | 9 | 5.6 | 10 | 6.2 |
| 8. | Musical | 4 | 2.5 | 4 | 2.5 |
| 9. | Social | 49 | 30.6 | 56 | 35.0 |
| 10. | Clerical | 13 | 8.1 | 29 | 18.1 |
|  | Total | 160 | 100 |  | 160 | 100 |

Table 1 above showed the frequencies and percentage**s** of Vocational interest and Career Choice of secondary school students on ten clusters. The results showed that, students who go for social interest both for vocational and career choice are the highest in frequencies and percentages of (f=49 and 30.6% vocational interest) and(f=56 with 3.5% of career choice). While, science oriented students have the frequency of (f=31 and 19.4% in vocational interest) and (F-23 with 23.5% of career choice), Artistic 17 (10.6%) in vocational interest and F=15 9.5 % of career choice. while computational and clerical were having the same frequencies and percentages in vocational interest (f=13 with 8.1%) while, career choice in clerical has the second highest frequencies and percentages of (f=29 and 18.1%).The least cluster with lowest frequencies and percentages in vocational interest is musical with the lowest (f=4 and 2.5%)While the outdoor with (f=4) (2.5%).

**Hypothesis one**:

Ho1: There is no significant relationship between vocational interest and career choice of senior secondary school students.

**Table 2** below presents Pearson Product Moment Correlation Coefficient between Vocational Interest and Career choice of students.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variables | Mean | SD | N | r P | Remarks | |
| Vocational Interest  Career Choice | 11.7  32.1 | 4.9  12.0 | 160 | 0.7 <.05 | | Significant | |

**Key: S=Significant**

Table 1.1 above showed that, the null hypothesis was rejected. There was a significant relationship between vocational interest and career choice of senior secondary school students. This indicated that, students’ vocational interest predicted their career choice in future.

**Research Question Two**:

What is the students’ vocational interest and career choice according to gender in Zing Educational Zone Taraba State?

In answering this question two tables were provided to show the frequencies and percentages of the responses of students on ten clusters of vocational interest and career choice.

**Table 3** below Showed gender difference of students on Vocational Interest according to ten clusters.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | Outdoor | | Mechanical | | Comput | | Scientific | | Persuasive | | Artistic | | Literary | | Musical | | Social | | Clerical | | Total | |
| Gender | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | |
| Male | 4 | 5.0 | 3 | 3.80 | 6 | 7.6 | 18 | 22.50 | 8 | 10.0 | 11 | 13.80 | 3 | 3.80 | 4 | 4.50 | 20 | 25.0 | 3 | 3.80 | 80 | 50 | |
| Female | 8 | 10.0 | 8 | 10.0 | 9 | 11.20 | 13 | 16.20 | 5 | 6.20 | 10 | 12.50 | 5 | 6.20 | 1 | 1.20 | 19 | 23.80 | 2 | 2.50 | 80 | 50 | |
| Total | 12 | 15.0 | 11 | 13.80 | 15 | 18.70 | 31 | 38.90 | 13 | 16.20 | 21 | 26.30 | 8 | 10.0 | 5 | 5.70 | 39 | 48.80 | 5 | 6.30 | 160 | 100 | |

Table 3 showed vocational interest of students according to gender. Both Male and female students showed high interest in social activities with(F=20 and 25.0% for males) while females have (F=19 and 23.80 percent). But there are variations in other vocational interests.

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**Table 4** Below showed the Career Choice distribution of Students according their gender on ten clusters

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables | Outdoor | | Mechanical | | | Comp | | | Scientific | | | Persuasive | | | Artistic | | | Literary | | | Musical | | | Social | | | | Clerical | | Total | | |
| Gender | F | % | | F | % | | F | % | | F | % | | F | % | | F | % | | F | % | | F | % | | F | % | F | | % | | F | % |
| Male | 0 | 0.00 | | 4 | 5.0 | | 0 | 0.00 | | 12 | 15.0 | | 3 | 3.8 | | 6 | 7.5 | | 2 | 2.5 | | 4 | 5.0 | | 32 | 40.0 | 17 | | 21.2 | | 80 | 50 |
| Female | 2 | 2.5 | | 1 | 1.2 | | 1 | 1.2 | | 6 | 7.5 | | 4 | 5.0 | | 8 | 10.0 | | 7 | 8.8 | | 6 | 7.5 | | 31 | 38.8 | 14 | | 17.5 | | 80 | 50 |
| Total | 2 | 2.5 | | 5 | 6.2 | | 1 | 1.2 | | 18 | 22.5 | | 7 | 8.8 | | 14 | 17.5 | | 9 | 11.3 | | 10 | 12.5 | | 63 | 78.8 | 31 | | 38.31 | | 160 | 100 |

Table 4 above shows that career choice patterns vary across gender. Students who were considered as having outdoor career choice were females (2.5%) while majority of the students having mechanical career choice were Male (5.0%). About (15.0%) of the students with scientific career choice were males. While (40.0%) of the male students had social career choice, clerical were (21.2%) and the females with literary career choice and musical were 18.8% and 7.5% each respectively

**Hypotheses two**:

**Ho2:** There is no significant difference between vocational interests of students according to gender in Zing educational zone.

**Table 5:** Below presents t-test between Vocational Interest of students according to gender

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | N | Mean SD | Df | Cal t-value | Crit.-t Remarks |
| Male  Female | 80  80 | 54.53 5.28  52.02 6.59 | 159 | 2.02\* | 1.96 Rejected |

**\*Significant :<0.05**

Table 5 above showed that, the calculated t-value 2.02 is greater than the critical t-value 1.96. Therefore the hypothesis is rejected; meaning there was a significant difference in vocational interest between male and female students at 0.05 level of significance.

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Male students obtained significantly higher scores on vocational interest with the mean of (54.53), while, female respondents have the mean of (52.02).It shows that male students have more realistic vocational interest than female students.

**Hypothesis Three**

**Ho3:**There is no significant difference between Career Choice of students according to gender in Zing educational zone Taraba State

**Table 6:** Below present’s t-test between Career Choices of students according to gender

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | N | Mean SD | Df | Cal t-value | Crit.-t Remarks |
| Female  Male | 80  80 | 54.02 5.95  57.85 6.59 | 159 | 2.91\* | 1.96 Rejected |

\*Significant :<0.05

Table 6 above showed that, the calculated t-value 2.91 is greater than the critical t-value 1.96. Therefore the hypothesis is rejected; rejecting it signifies that there was a significant difference in Career Choice between male and female students at 0.05 level of significance. Male students obtained significantly higher scores on Career Choice with the mean of (54.02), while, female respondents have57.85.It is an indication that male students have more realistic Career Choice than female students.

**Discussion**

The finding in table one revealed that social interest both for vocational and career choice are the highest in frequencies and percentages of (f=49 and 30.6% vocational interest) and (f=56 with 3.5% of career choice). While, science oriented students have the frequency of (f=31 and 19.4% in vocational interest) and (F-23 with 23.5% of career choice), Artistic 17 (10.6%) in vocational interest and F=15 9.5 % of career choice. The least cluster with lowest frequencies and percentages in vocational interest is musical with the lowest (f=4 and 2.5%) While the outdoor with (f=4) (2.5%). This is in line with the findings of Abdullahi and Atsua (2014) who revealed vocational interest preferences of students in areas of social, science, artistic, computational, mechanical and outdoor while occupational choice preferences of students were in the areas of social, clerical and science.

The result of hypotheses one showed a significant relationship between vocational interest and career choice of students. This result is in consonant with the finding of Abdullahi and Atsua (2014) who revealed that there was a significant relationship between vocational interest and career choice of students in ten (10) vocational interest areas.

Testing the second hypothesis (H2) of this study, the result of the t-test showed a significant difference between vocational interest according to gender.

This result in line with the findings of Oluwatimilehin (2011) who said that significant difference were recorded in the vocational interest of males and females, where males were disposed towards Law, Journalism, Agriculture, Business and Architecture than females also, Ipaye(1986) who observed that, male were significantly more interested in outdoor, medical and persuasive careers than females while females were more interested in computational, artistic, literary and clerical activities.

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Hypothesis three revealed that there was a significant difference in Career Choice between male and female students. It is an indication that male students have more realistic Career Choice than female students. This finding is in agreement with Mburza (2002) who found similar trend among secondary school students.

**Conclusion**

The study concluded that, vocational interest of senior secondary school students has direct significant relationship with career choice of the students and there are relationships between vocational interest, career choice and gender of senior secondary school students also it could be said that there is difference between male and female students in vocational interest and career choice in Zing education Zone in Taraba State, Nigeria.

**Recommendations**

The following recommendations were made based on the findings

1. Vocational scholars should always take into cognizant students’ vocational aspiration and career choice in decision making.
2. Female students should be encouraged by counsellors, teachers, parents to choose vocation and career of their interest, so that they can compete with their male counterparts.
3. Counsellors should use vocational inventories on students’ career choice in order to have proper placement.

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**FACTORS MILITATING AGAINST THE EFFECTIVE TEACHING OF ELECTRICAL ELECTRONICS TECHNOLOGY IN TECHNICAL COLLEGES IN GOMBE STATE**

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***Abstract***

*The purpose of the study was to analyse the factors militating against the effective teaching of electrical/electronic technology in technical colleges in Gombe State. Descriptive survey research design was used for the study. Three research questions and three hypotheses guided the study. Proportionate stratified random sampling was used to arrive at the total sample of 287 respondents. Data were collected using structured questionnaire, which was based on four points rating scale. Experts from Federal College of Education (Technical), Gombe, validated the instrument. The reliability coefficient of the instrument was computed to be 0.92 using Cronbach Alpha formula for determining internal consistency. The data collected were analyzed using arithmetic mean, standard deviation, and t-test to test the hypotheses. The findings revealed among others that inadequacy of training facilities, and nonchalant attitudes of the students towards the study of electrical/electronic cause setback to the effective teaching of the course. All the null-hypotheses were accepted. Recommendations were made which includes the following among others that all stakeholders should contribute in proving training facilities; refresher courses like train- the- trainer programme, seminars and workshops for teachers of electrical/electronic should be organized periodically to ensure effective teaching of the trade and paying visits to industries and well equipped organizations is a very important way that could enable the students to pick up interest in the study of the trade. During excursions, they see, touch, and ask questions and even practice. From excursions, students may see projects that they may wish to construct or improve upon.*

**Introduction**

Teaching of electrical/electronic trade is a form of education geared towards acquisition of needed competences for gainful living in the society. For balanced education, such competences should spread through the cognitive, affective and psychomotor domains. According to Effiong, (2007) the drawback of teaching and learning have been connected with scarcity of proficient teachers, shortage of teaching and learning materials, ineffective monitoring and supervision, overdependence on theoretical curriculum, nonchalant attitude of teachers and students, and use of unstable teaching methods. Uwaifo, (2010) added that over the years, teaching and learning of trade courses in Technical colleges have been met with challenges as evidenced in high examination failures and low quality of college products.

Technical Vocational Education (TVE) is an education that provides the development   
of qualitative skills, knowledge and attitudes that will make the individuals resourceful and productive. To achieve these goals of practical skill acquisition which will empower the individuals to become self-reliant, Federal Polytechnics, Colleges of Education (Technical) and Universities of Science and Technology were established at both federal and state levels (Zumuk, 2006).

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However, parents, stakeholders, employers are disturbed with the failing objective of Technical Colleges education programme, particularly in electrical/electronic trade as graduates of such programme are not performing in the world of work (ITF, 2011). Lingering of such graduates in our society is what is mostly observed, as against furthering education or establishing workshops for self-employment. This is because students offering the trade as major subject do not receive the proper training to make them become self-employed or employed in relevant industries.

A close analysis of the situation shows that, the poor performance of electrical/electronic students could be attributed to the problems associated with teaching of the subject that makes its complete success impossible. In recent years, government has been committed in allocating adequate funds to Technical Colleges for the supply of training facilities in various trades including electrical/electronic trade (Cyril. 2012). Yet, Technical Colleges are running their programmes under poor learning situation, ranging from dilapidated workshops, obsolete training equipment, inconsistent power supply, to lack of training consumable materials, lack of qualified personnel, materials to mention a few. Attempt therefore was made by the researcher to take a good look, investigate and analyse the factors militating against the effective teaching of electrical/electronic technology in technical colleges in Gombe State, with the view of coming up with a lasting solutions to the problems that could be beneficial to the teachers, students, schools involved as well as the state and the nation at large.

**Statement of the Problem**

One of the objectives of technical education is to provide the technical knowledge and vocational skills necessary for agricultural, commercial and economic development. This will in turn prepare the youths for self-reliance. Cyril (2012) observed that, most technical teachers in Nigeria could not teach the skills of their subject area and the effect of this on their students is inability to learn the trade. Similarly, Aminu (2011) observed that Technical Colleges are to some extent equipped with training facilities for various trades, yet the graduates from technical Colleges could not perform up to expectation in the world of work.

Most Technical and Vocational Education graduates in Gombe state and the few privileged ones that further their education in Technical Education fields could not establish their own enterprise because of their limited practical skills in their respective field of study (electrical/electronic trade inclusive) The interest of this study therefore, is to analyse the Factors Militating against the Effective Teaching of electrical/electronic in Gombe State Technical Colleges, specifically at the secondary school level for optimum performance.

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**Purpose of the Study**

The major purpose of the study is to analyse the factors militating against the effective teaching of electrical/electronic in technical colleges in Gombe state. Specifically the study wishes to:

1. Determine the level of adequacy of electrical/electronic training facilities in Gombe State Technical Colleges.
2. Determine the extent to which the available training facilities are used in teaching electrical/electronic in the Technical Colleges.
3. Determine the attitudes of students towards the study of electrical/electronic.

**Research Questions**

The study answered the following research questions. These are as follows;

1. How adequate are electrical/electronic training facilities in the technical colleges?
2. How effective are the available facilities utilized in teaching electrical/electronic in the technical colleges of the state?
3. What are the general attitudes of the students towards the study of electrical/electronic?

**Hypotheses of the Study**

The following null hypotheses were formulated and tested at 0.05 level of significance to guide the study.

**Ho1:** There is no significant difference between the mean responses of the students and teachers on the adequacy of electrical/electronic training facilities in the technical colleges.

**H02:** There is no significant difference between the mean responses of the students and teachers on the effective utilization of training facilities in teaching electrical/electronic in the technical colleges.

**HO3:** There is no significant difference between the mean responses of the students and the teachers on the general attitudes of students towards the study of electrical/electronic.

**Significance of the Study**

The study was carried out with the hope of assisting Technical Education policy makers, implementers and curriculum developers in recognising the factors that militate against the effective teaching of electrical/electronic in Gombe State Technical Colleges. It is the expectation of the researchers that the ministry of education, (educational planners) will utilize the findings, recommendations, and possible solutions when planning educational activities in the state. It is the researchers hope that electrical/electronic teachers and those in training will benefit from the study by finding it easy to identify their problems and to know how well to tackle them. It is also the hope of the researchers that students who will carry out research on a similar topic will also benefit from the findings of this study.

**Methodology**

A descriptive survey research design was used for this study; this design has been considered for this study because it deals with the investigation of opinion or experience of students and teachers based on series of questions administered. Sambo (2003) stated that the Survey design is suitable because the study seek to ascertain the condition which prevails in the areas selected and because the samples have similar characteristics to the larger population. The opinions of the respondents (sample) were compared to enable the researchers obtain accurate information that answered the research questions. In this study, the population comprised of 920 students and 93 teachers making the total of 1013 in the six government science and technical colleges of Gombe state. The breakdown of this is shown in table 1;

The sample size of the study was 260 students and 27 teachers which give the total of 287 respondents, Determined statistically using Yaro Yamane formula for finite population. A structured questionnaire containing twenty one (21) items statements designed using four points rating scale ranging from Strongly Agreed to Strongly Disagree was used for data collection. The instrument was validated by three experts from the Federal College of Education (Technical) Gombe. All comments, suggestions, and recommendations were considered before the final draft of the questionnaire. The reliability coefficient of the instrument was computed to be 0.92 using Cronbach Alpha formula for determining internal consistency. It was pilot tested on 12 respondents that did not form part of the study. Three research assistants were trained by the researcher in administering and collection of the instrument. The arithmetic mean (X) and Standard Deviation (SD) was used to answer the research questions (using real limits of numbers) and t -test was used to test the hypotheses formulated.

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**Research Question 1:** How adequate are electrical/electronic training facilities in the technical colleges?

**Table 3:** Mean responses of the respondents on adequacy of electrical/electronic training facilities in technical colleges.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S/N | Item Statement | X1 | SD1 | X2 | SD2 | Remark |
|  | There are enough space in the workshop to accommodate all students during practical. | 3.54 | 0.79 | 3.63 | 0.73 | Agree |
|  | There are auxiliary areas such as store, office, toilets etc in your workshop | 1.89 | 0.73 | 1.93 | 0.90 | Disagree |
|  | There are enough furniture such as chairs, tables and desks in your workshop | 1.95 | 0.74 | 2.00 | 0.98 | Disagree |
|  | There are safety signs and posters available and in your workshop | 2.11 | 0.77 | 2.41 | 1.13 | Disagree |
|  | There are safety equipment such as fire extinguisher adequately installed in your workshop. | 1.87 | 0.85 | 1.74 | 0.97 | Disagree |
|  | There are safety guards and wears such as hand gloves in your workshop. | 1.91 | 1.03 | 1.78 | 0.92 | Disagree |
|  | There are electrical machines such as AC generator and motors, alternators, etc in your workshop. | 2.35 | 1.06 | 2.44 | 1.16 | Disagree |
|  | There are enough electrical materials and accessories such as resistors, capacitors, lamp holder, sockets etc in your workshop. | 2.24 | 0.97 | 2.26 | 1.04 | Disagree |
|  | There are enough hand tools such as screw drivers, pliers, ginlets etc in your workshop.  ***Umar, A.K., Adaam, G. A, Samuel, O. & Garba, E. Y.*** | 2.43 | 1.00 | 2.41 | 1.10 | Disagree |
|  | Grand Mean | 2.25 | 0.88 | 2.29 | 0.99 | Disagree |

Table 3, shows items on adequacy of electrical/electronic training facilities in technical colleges. An examination of these responses indicates that majority of the respondents have disagreed with the items statement presented. This is because their grand mean responses range from 2.25 to 2.29, which falls below the cutoff point of 2.5, with a corresponding standard deviation of 0.88 to 0.99. However, item 1 has been agreed upon by the respondents.

**Research Question 2:** How effective are the available training facilities utilized in teaching electrical/electronic in technical colleges?

**Table 4:** Mean responses of the respondents on utilization of training facilities in technical colleges.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S/N | Item Statement | X1 | SD1 | X2 | SD2 | Remark |
|  | Teachers have access to the training facilities when needed. | 2.95 | 1.10 | 2.74 | 1.04 | Agree |
|  | Students have access to the training facilities for practical in the absence of their teacher. | 2.27 | 1.12 | 2.33 | 1.02 | Disagree |
|  | Training facilities goes round for all students during practical. | 2.03 | 0.79 | 2.33 | 1.09 | Disagree |
|  | Students are appointed and guided on how to monitor practical tasks effectively | 2.27 | 1.01 | 2.37 | 1.13 | Disagree |
|  | Students are allowed to work as a team during practical. | 2.32 | 1.14 | 2.15 | 1.01 | Disagree |
|  | All practical tasks are carried out in the workshop | 2.39 | 1.06 | 2.37 | 1.02 | Disagree |
|  | Practical activities are always in accordance with the instruction given. | 2.85 | 1.12 | 2.52 | 0.92 | Agree |
|  | Grand Mean | 2.44 | 1.08 | 2.40 | 1.03 | Disagree |

The analysis presented in table 4 above, indicated that the respondents agreed with item statement (10 and 16) since it falls within the limit of agreement, while on the other hand they disagreed with all other items, since the grand mean (2.40 – 2.44) fall within the limit of disagreement, with a corresponding standard deviation of 1.03 – 1.05.

**Research Question 3:** What are the general attitudes of the students towards the study of electrical/electronic?

**Table 5:** Mean responses of the respondents on the general attitudes of students towards the study of electrical/electronic.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S/N | Item Statement | X1 | SD1 | X2 | SD2 | Remark |
|  | Students are always punctual to electrical/electronic class. | 1.97 | 1.01 | 2.26 | 0.80 | Disagree |
|  | Students organizes tutorials on course content | 1.68 | 0.82 | 2.07 | 0.60 | Disagree |
|  | Students of electrical/electronic always keep updates on technological advancements on electrical/electronic. | 1.96 | 0.98 | 1..89 | 0.83 | Disagree |
|  | Students are interested in conducting electrical/electronic practical themselves. | 2.94 | 1.03 | 2.67 | 1.16 | Agree |
| ***Umar, A.K., Adaam, G. A, Samuel, O. & Garba, E. Y.*** | Students always do their assignments and willingly submit them for their teachers assessment and evaluation. | 2.13 | 1.03 | 1.93 | 0.66 | Disagree |
|  | Grand Mean | 2.14 | 0.97 | 2.16 | 0.81 | Disagree |

Table 5, shows the items on the general attitudes of the students towards the study of electrical/electronic. From the table, it can be seen that the respondents have agreed with item 26, since it falls within the limit of agreement, while on the other hand, they disagreed with all other items since the grand mean is (2.14 - 2.16) falls within the limit of disagreement, with a corresponding standard deviation of 0.97 - 0.81

**Hypothesis 1 (1-101):** There is no significant difference between the mean responses of students and teachers on instructional materials as it affect adequacy of electrical/electronic training facilities in the Technical Colleges.

**Table 6:** T-test of significant difference between the mean responses of the technical students and technical teachers on the availability of electrical/electronic training facilities in technical colleges.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | X | SD | N | t-cal | t-critical |
|  | Technical students | 2.25 | 0.88 | 260 |  |  |
|  |  |  |  |  | -0.20 | 1.96 |
|  | Technical teachers | 2.29 | 0.99 | 27 |  |  |

**Table 7:** T-test of significant difference between the mean responses of the technical students and technical teachers on the effective utilization of training facilities in teaching electrical/electronic.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | X | SD | N | t-cal | t-critical |
|  | Technical students | 2.44 | 1.05 | 260 |  |  |
|  |  |  |  |  | 0.19 | 1.96 |
|  | Technical teachers | 2.40 | 1.03 | 27 |  |  |

Table 7 above shows that t-cal (0.19) is less than the t-critical (1.96). Therefore, the null hypothesis (H02) is accepted. This implies that no significant difference exists among the hypothesis 3 (H03): There is no significant between the mean responses of students and teachers on the general attitudes of students towards the study of electrical/electronic.

**Table 8:** T-test of significant difference between the mean responses of the technical students and technical teachers on the general attitudes of students towards the study of electrical/electronic.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | X | SD | N | t-cal | t-critical |
|  | Technical students | 2.14 | 0.97 | 260 |  |  |
|  |  |  |  |  | -0.12 | 1.96 |
|  | Technical teachers | 2.16 | 0.81 | 27 |  |  |

Table 8 above show that t-cal (-0.12) is less than the t-critical (1.96). Therefore, the null hypothesis (H03) is accepted. This implies that no significant difference exists among the mean scores of technical students and technical teachers on the general attitudes of students towards the study of electrical/electronic.

**Discussion of Findings**

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The data in table 3 showed that the respondents disagreed in eight (8) item statements out of the nine (9) item statements on the adequacy of electrical/electronic training facilities in the technical colleges. This is because the individual mean point of the item is below the cut-off point of the study, which is 2.5. This finding is in line with the views of (Penny and Fox, 1997 and Bybee and Loucks-Horsley, 2000) who stated that most of the technical colleges in Nigeria have been forced to perform below standard due to purported none availability and utter neglect of the required facilities in the workshops for effective training.

Bandung (2008) opined that most of the workshops in the technical schools suffer from inadequate supply of modern safety equipment and materials, and lack of giving priority to safety first. He further stated that industrial technical programme would not be implemented without observing safety. Nnoli, (2001) stated that the extent of the deterioration of educational structures such as physical plants, and infrastructural facilities, where these educational structures are available, is amazing and that in many schools, the non availability of these facilities is more striking than their condition. Hence, these support the previously mentioned result.

The data presented in table 4 indicated that the respondents agreed with only two (2) item statements (10 and 16) and disagreed with others of the seven (7) item statements presented on the effective utilization of training facilities in teaching electrical/electronic in technical colleges. This is perhaps why Aminu (2012) observed that students lack practical know how in their chosen field of study after graduating from technical college.

The data presented in table 5 indicated that the respondents agreed with only one item statement (20) and disagreed with others of the five-item statement presented on the general attitudes of students towards the study of electrical/electronic. This is in line with the submissions of Ayeduso (2004) who outlined that nonchalant attitude; lack of seriousness on the part of some students in learning technological skills constitutes a serious problem. Because of this problem, it will not be easy to bring about any required change in the learner. The society does not accord respect or recognition to the graduates of Technical Education. The impression is that this type of education is meant for the dropout and under-achievers (Hosea and Gandu 2014). According to Amoor (2009), most parents do not encourage or guide their wards to take a course in technical education programme in the provision of training facilities in Gombe State Technical Colleges, which leads to focusing more on theoretical teaching. Facilities management is therefore, an integral part of the school to give meaning to the teaching and learning process.

**Recommendations**

In view of this these findings, the following recommendations were made;

1. To address the inadequacy of training facilities for effective teaching and training of electrical/electronic trade, all stakeholders (Ministry of Education, Parents and Teachers Association, immediate community etc) should contribute in providing training facilities. **In** addition, students should be encouraged to possess their own basic hand tools.
2. Heads of department of electrical/electronic in the various Technical Colleges should liaise with their school authority to develop a means of introducing consultancy services, so that students will have the opportunity to be trained on functional projects. Moreover, funds generated through such should he used for procuring consumable materials for further training of students.
3. Ministry of education should, as a matter of urgency should be organizing periodic refresher courses like train the trainer programme, seminars and workshops for Teachers of electrical/electronic during vacation, under the supervision of the supervisory body. School administrators on their own part should encourage teachers to put more efforts towards the effective teaching of the trade in order to achieve its set goals and objectives

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