

**TECHNIQUES FOR IMPROVING CREATIVITY AND PERFORMANCE OF ELECTRICAL AND
ELECTRONIC GRADUATES IN THE WORKPLACE IN KWARA STATE**

BY

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CERTIFICATION

I ASONIBARE IDOWU STEPHEN Matric No. 2007/1/27986BT an undergraduate student of the Department of Industrial and Technology Education certify that the work embodied in this project is original and has not been submitted in part or full for any other diploma or degree of this or any other institution.

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APROVED PAGE

This project has been read and approved as meeting the requirement for the award of B.Tech Degree in Industrial and Technology Education of the Department of Industrial and Technology Education, School of Science and Science Education, Federal University of Technology, Minna.

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DEDICATION

This project is dedicated to the Almighty God who made it possible for me to complete project successfully. I also want to dedicate this project to my parent Mr. and Mrs. Asonibare and my siblings, Taye and Kehinde.

ACKNOWLEDGEMENT

All I have to say is, thank you lord.

I give my greatest appreciation to the Almighty God and His son Jesus Christ for His Love, care, provision, strength and grace given to reach this level of academic attainment.

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ABSTRACT

This study was designed to suggest the techniques for improving creativity and performance of electrical and electronic graduates in the work-place in kwara state. To obtain pertinent data for this study, four research questions and two null hypotheses tested at 0.05 level of significance were formulated on level of graduate creativity and performance in the Electrical and Electronic workplace, the factors affecting graduate creativity and performance in the workplace, the effect of graduate creativity and performance on individual worker in the workplace, strategies for improving graduate's creativity and performance in the workplace. Four research questions with 49 items was used to collect the data for the study from a total population of 35 respondent comprised of 5 graduates (Group 1) and 30 apprentices (group 2) selected at random from the Ilorin the capital of kwara state. The result of their responses was analyzes using frequency count, statistical mean, standard deviation and t-test. From the analysis it was reveals that graduates as natural being are creative but the non-conducive environment, stereo-typed curriculum and government attitude together with graduate belief of creativity as natural traits and rejection of local product in the society had paralyzed the great trait in graduate to an inactive level. Base on these findings, it was recommended that; government should provide incentives for graduates, make creative adventure a compulsory requirement for employment and promotion, fund creativity development in schools.

CHAPTER I

INTRODUCTION

Background of the study

The rapid growth of developing countries like Nigeria depends on the growth and optimum concentration of government on two major aspects. These aspects are Technology and Education, which if properly utilized and harnessed will help in changing Nigerians Industries from mainly assemblers to being fully productive which will in-turn improve the economic status of the country as well as the standard of life of the Nigeria people. Also it was discovered by National Space Researcher and Development Agency (NASRDA, 2004) that the only alternative to achieving these aims was the concept of technological development. It was this quest for technological development that lead the Nigeria governments to embark on the establishment of University of Technology, Polytechnics, Colleges of Technology and Technical Colleges. Through the scheme of Scholarship Board, Government sent young men and women to Overseas to obtain Certificates in Technical Education, while the existing local school were as expanded. This was because, formal education and training was discovered to be the main channel for the acquisition of technology. Which according to Aina (1987) are the main avenues by which most industrialize nations achieve their greatness today

According to Wikipedia (2012), technology is the application of scientific knowledge for practical purposes in order to solve problems, achieve goals or perform specific functions. The rate by which scientific knowledge is enhanced depends so much on the background knowledge of individual which is usually governed by technical education. According to Spinelli (2001), Worthington (1996) and Prvan (2002) research findings, Technical Education Graduates (Electrical and Electronic Teachers, Electricians among others) do not seem to perform as expected in the work place due to the following reasons:

1. Insufficient knowledge, competent or skill attain during their In-services training.
2. Inadequate materials to work on,
3. Lack of creativities among graduates.

According to Masaudu, the executive director of National Board for Technical Education (NBTE) (2010) when talking about challenges of technical education, he said that “the capital problem of insufficient facilities was solved through oil exploration in 1990s thereby facilities are being supplied for the required training of technical teachers but with these, the problem of incompetent graduate still persist. And to solve this problem government focused on the production of Technical Teachers Training Programme (TTTP) which also has not justify its purpose”, Masaudu also said that “it’s better said that the country had no technical teachers at all, since those that were available are very negligible compared to the number required. This was in line with the statement of Clement (2010), at the National Council of Education, where emphasised, ”the shortage of technical teachers in technical schools and trades centres was one of the major problem facing technical education in Nigeria at all levels”. Idoko also suggested that “every state in Nigeria should have at list one Institution that run advance craft courses to raise more technical teachers”. This was implemented and teachers were increasingly being produced.

Furthermore, according to Rashid (2004) at National Council of Education, while looking at the definition, purpose and role of Technology/Technical Education in National Development which include training people to produced middle skill workers for industries and other economic sector in Nigeria. It was discovered that the rate of determining whether technical education achieve its aim depends on the effectiveness and quality of their graduate in the workplace. Because according to concise dictionary “graduate refers to somebody who has successfully completed a degree, course or high school

Thus, Nuru (2007) indicated that national policy on education express high hope on what technical education should achieve, especially through their graduate. Which according to May (2006) said that the programme has not fully achieved his purpose up till now, even though technical education graduates were being produced year after year. And even with these production of technical education graduates Nigeria is still buying already made technologies (foreign products), and even still we depend on foreign experts in carrying out major industrial operations. Therefore, various authors tend to find out the cause of such inadequacy. Oranu (2010) and Edukugho (2004): expressed that “the high expectations are not being achieved and the situations are blamed on inadequate number of technical teachers available”. Yang, 2008: blame it on the poor obsolete condition of infrastructural facilities and equipment.

Therefore, if competent technical education graduates are to be produced, “Then the time has come for the available technical teachers and the curriculum developers to ensure that the technical teacher trainees and others, should be trained not only as intermediate product in the hand of others (as employee), but also has finished product that can re-invest his human capital (skills) and knowledge” (Ben, 1999). Which is also inline by Obasanjo (2006) statement, which says that the economic is down to provide new facilities and equipment and if the country is to keep pace with the ever advancing world of new technologies, there must be training and retraining for technical teachers. This however depend on personal creativity of those available graduates which involve ability to use what is available in terms of facilities and materials to bring about what is needed in term of skills, and make use of the little they have to go a long way. Because the problem of insufficient and less competent graduates, as well as inadequate/obsolete facilities have already been ascertained. In other words, if learner’s creative minds are to be fostered, then the role of graduates performance and creativity in that process has to be central, because graduates

remain the major key to open learner creative potential for proper development both in formal or informal education setting. But, because “Technical teachers assumed that, productive thinking, problem solving skills and creative thinking require no educational intervention and that such skill will developed automatically as learners study more subject maters, this explains why, we have so far succeeded in producing graduates who cannot cater for themselves in the absent of paid employment” (Bennell 1996). And he further explained why we produced graduates who are so circumscribed in their knowledge and training.

Therefore, when the graduates are made aware of how creativity and performance improvement task is related to their acquired skilled and competence, their methods of delivery their work will become progressive, validated and generalized enough to cater equally for the learners with different behavioural disposition, it will thus help to increase their competent delivery of their work, which will in-turn leads to production of young school leavers (graduates) who can grow up to be self-reliant and productive in the absence of paid employment.

Bearing the word of Torrance (1970s) in mind that, “we cannot certainly say that one is fully functioning mentally, if the abilities involved in creative thinking remain undeveloped or paralyzed; which he further said that the creative abilities involved; ⁽¹⁾ becoming aware of the problems, ⁽²⁾thinking of possible solution and ⁽³⁾testing them”.

It then becomes necessary that graduates in Kwara state Technical Colleges must be awakened or reinforced in the concept of creativity and performance improvement task required for effective delivery of their duties. And the extent to which this ideas is presented and applied in delivery of their duties will certainly make the different between the ordinary and exemplary performance, between leaders and trailers, between the best and the rest of electrical and electronics graduates, which on his own, is integral to technological

development of the nation, particularly, because it's the basis for the so called computer and information technology which is the main channel for country's economic development today.

Statement of the problem

According to Edukugho (2004), technical college graduates across the country are charged with the responsibility of producing young school leavers whom by virtue of the training they received should be practically oriented. Unfortunately reverse seem to be the case, this is evident in the inability of the graduate to cater for themselves in the absence of paid employment. They are able to be productively engaged in industry. Alam, (2003) observed that it might be emanating from the lack of creativity and incompetent in skill performance. Which if not tackled might retard the development of the desire traits in Technical College Graduates.

Lack of creativity and unsatisfied performance of graduates were researched by Alwasilah (2002), Alwasilah discovered; insufficient facilities, lack of motivation, insufficient funding, personal factors, among others to be responsible for poor skill performance among graduates of Technical Colleges. Many attempt have also been made in solving the problems stated above by Alwasilah which have not given a good result. Among them are stimulation of National interest in creative excellence and provide technical graduates and institution with techniques to increase their productivity through creativity, fight obsolescence and remain continuously relevant in a rapidly changing and increasing competitive environment, Hence this study is set to identify the techniques for improving creativity and performance of Electrical and Electronics graduates in the workplace in kwara state.

Purpose of the study

The purpose of this study was to identify the techniques for improving creativity and performance of Electrical and Electronic Graduate in the workplace in Kwara state. Specifically, the study

1. Determined the level of graduate's creativity and performance in the Electrical and Electronic workplace.
2. Determined the factors affecting Electrical and Electronic graduate's creativity and performance in the workplace.
3. Identified the effect of graduate's creativity and performance on Electrical and Electronic graduate's in the workplace.
4. Provided strategies for improving Electrical and Electronic graduate's creativity and performance in the workplace.

Significance of the study

Like all study in education, this study aims at making impact in the satisfactory delivery of electrical and electronic education graduate and administrations. The findings of this study is significant to the Graduates, Learners (apprentice), Administrators, and Society at large

Firstly, it's significant to the graduate because graduate's (usually known as teachers) will become more productive because creativity will enable them to present their originality and competency not minding the hindrances or circumstances around them. This will in turn increase their standard of living because they will not fully really on a paid job for living (e.g. teaching) but they can do something for themselves which will earn them a good standard of living

The learner's (apprentice) will also benefit from this study because creativity makes learning real rather than being abstract. Therefore they will become productive to themselves since they will be train to personally create solution to their problem and that of their environment through creative thinking instead of waiting for paid employment.

Furthermore, the curriculum planers will benefit from this study. That is, by introducing creativity and performance improving techniques into the school curriculum as a concept, it will help to facilitate the achievement and the aim of vocational and technical education programme.

Lastly the society will benefit by having an increasing number of quality and competent productive citizen whom will put up a combine effort towards national development.

Scope of the study

The study was limited to investigate the techniques for improving creativity and performance of Electrical and Electronic graduates in Ilorin the capital of Kwara State.

Assumption of the study

The following assumptions are inherent to this study:

- (1) Low attention was paid to the role of creativity in vocational training because graduates believe that creativity is a natural in-built trait and cannot be trained for.
- (2) Our graduate workplace does not portray conducive environment for creativity development and performance improving mechanism.

- (3) Government and administrators did not fully know the effect of creativity over the learner (apprentice) performance which makes them not to encourage/enforce the graduates to adopt it.

Research Questions

The following research questions were developed to guide this study.

1. What are the level of graduate's creativity and performance in the Electrical and Electronic workplace?
2. What are the factors affecting Electrical and Electronic graduate's creativity and performance in the workplace?
3. What are the effects of graduate's creativity and performance on Electrical and Electronic graduates in the workplace?
4. What are the strategies for improving Electrical and Electronic graduate's creativity and performance in the workplace?

Hypotheses

The following null hypothesis were formulated and tested at 0.05 level of significance;

1. HO₁. There is no significant different between the mean response of graduates and learners on the factors affecting Electrical and Electronic graduate's creativity and performance in the workplace.
2. HO₂. There is no significant different between the mean response of graduate and the learner's on the effect of graduate's creativity and performance on Electrical and Electronic graduate's in the workplace.

CHAPTER II

REVIEW OF RELATED LITERATURE

INTRODUCTION

In this chapter, some of the literature related to techniques for improving creativity and performance of elect/elect graduates in the work-place were critically examined under the following variables

- The concept and importance of creativity
- Electrical and Electronic Graduates performance in Nigeria
- Working facilities in technical working place in Nigeria
- Effects of graduates creativity and performance on their work
- Factors affecting graduate creativity and performance in Nigeria
- Techniques of improving graduate creativity and performance
- Summary of the literature review

The concept and importance of creativity

In order for this study to achieve its purpose, it is important to examine the meaning, people's perceptions as well as the important of the subject creativity in the workshop and national development. Creativity is something that we are all familiar with. Millions of words have been spoken and written about creativity. Yet, true knowledge about the word is still limited. This is because, most people use the word creativity quite freely without pausing to think about the process by which the act or ideas they described as creativity came about. However, there has been numbers of useful definitions. While some definition on creativity stress the part played by the imagination in generating new concepts or unusual solution,

some embrace analytical techniques based upon systematic search method. A combination of the various opinion and definition are review below.

According to Oduolowu (2001) creativity is the ability to take existing objects and combine them in different ways for new purposes. (Just like Gutenberg took the winepress and punch to produce a printing press). Therefore Oduolowu said further that, creativity is the ability to generate novels and useful ideas to make solution to everyday problems. In the same vein, simonton, (2002) sees creativity as “that thinking which result in production of idea that are both novels and worth-while, and that creativity is closely linked to innovation and generation of ideas”. Thus it can be simply put that creativity is the ability to be an originator, an inventor or creator of valuable novelties. This why Okoye, (1998) perceived and said that “creativity is the totality of highly personal knowledge and art required by an individual to create”

Therefore, from the above definition, one can conclude that through creativity, problems become a stepping stone to progress and development instead of constituting hindrances. In fact, the more fascinating things about problems for creative individuals is that, the situation itself will teach and develop the needed creativity in him. This is so because many authors: (Efiong, (1994); Ekpenyong, (1992); Okoye, (1998); among others): has already agreed that, “every man at any age has a certain amount of active creativity in him, which is enough for him to develop, mature and advance”. This is also true because Ekpenyong, (1992) has first stated that, “during the Nigeria civil war, local military equipments were either improvised or invented at the war front and made the rebel to hold against the armed force with foreign weapons for about thirty months”

Thus, given an appropriate environment conditions, individual will exhibit some appreciable level of creativity since, Watt (2002): “creativity involve the translation of our

unique gifts, talent and vision into an external reality that is both new and useful". Therefore, we must keep in mind that creativity take place unavoidable inside our personal, social and cultural boundaries. However, "there may be no one definition of creativity that everyone can agree with" as Watt (2002): has said. Yet, our definition determines the level and extent to which our creativity can go. This means, if we define our own creativity by identifying it with specific sets off values meanings, beliefs and symbols, it makes our creativity to be focused and limited. But, if we define it by focusing on how values, meanings, beliefs and symbols are formed, there will be greater chance for our creativity to become less restricted

Akinboye, J.O. (2004) while quoting from the word of torance, (1970) said that, "we cannot fully say that one is functioning mentally if, the ability involved in creative thinking remains undeveloped or paralysed", and he further said that the major ability in becoming aware of problem is thinking of possible solutions and testing them. Gerard Puccio (2001) also said that, "creativity is a motivational factor in every man to achieve his potentials. This is why, Folayan,(1998): looked back and found out from the research conducted by Robert Solow on causes of growth in US Manufacturing sector over a period of 40 years (between 1909-1949) which showed that 87.5% of the 100% growth in the output per man was attributed to technical performance and creativity. Therefore, utilization of creativity for commercial production is crucial to ingénues technology growth and its relevance to national developmental goals. This rightly put by Tonpak and Habila, (1998): that, "any genuine and self-sustainable technological development and advancement of any economy must be grassroots-oriented". That is, it must start with the production of local skills, goods and service for the consumption of the communities before progressing to a more sophisticated standard. Thus, Okoye, (1998): argue that, "creativity is indispensable in industrialization of a nation, and that, a nation which encourage creative endeavours is on her way to true industrialization, (i.e. technological development and achievement). This is because,

technology itself is the “technical means or way by which people meet their needs, solve their problems and improve their surroundings” (Concised dictionary 2012).

Therefore, through creativity, “the more technology human invents, the more they are able to combine those technologies to make new ones” Evans D (2002) Said further that, if creativity is thus so important, let us therefore be thinking that Nigerians who can creatively solve their problem rather than concentrating in the “inadequate of unavailability of special materials, low funding of industrial sectors, lack of belief, vision, confidence and commitment which has been the cause of stagnation in Nigerians technological development, even though she has an huge human and material resources (Folayan, (1998): Tonpang and Habila, (1998)).

Graduate performance in Nigeria

Are university graduates in Nigeria adequately educated? This question is hotly debated by the public and the press. It is a question of particular concern to graduates who are seeking employment and to employers who consider hiring them.

Graduates complain of high levels of unemployment. The situation is of such concern that hundreds of unemployed university graduates mounted a demonstration in front of the presidential offices (Aso Rock) on October 18, 2000. They demanded that government provide them with jobs. Employers complain that graduates are poorly prepared for work. They believe that academic standards have fallen considerably over the past decade and that a university degree is no longer a guarantee of communication skills or technical competence. As a result, university graduates are commonly viewed as “half baked.” Stories and jokes abound in Nigeria regarding the supposed shortcomings of university graduates. Yet empirical information and reports are rare.

In regard to the short coming of graduates many question are been raised, among them are: What is the real situation of graduates? Is graduate unemployment a serious problem? How do employers assess the qualifications of current degree-holders? How well do graduates perform when they are able to obtain employment? These concerns have prompt different researcher (Enemuoh (2001), Bolaji, 2004, among others) to seek answer to the questions.

Regarding the levels of graduate preparedness for productive employment, Bolaji (2004) typified that the answers will be critical for understanding Nigeria's longer term prospects for economic growth based on the skills and productivity of its work force. The study was conducted during June - August 2004. It is based on an analysis of available labour statistics and extensive interviews with managers from 55 public enterprises, private firms, professional associations and nongovernmental organizations. The study analysis of labor statistics indicates that the unemployment rate for university graduates may be around 25 percent and that their prospects for employment have worsened over time. In addition, the share of graduates going into the public sector has fallen drastically.

It is a known fact that education is the instrument for economic empowerment and development of sustainable economy. No wonder, one of the national education goals is "the acquisition of appropriate skills and the development of mental, physical and social abilities and competencies as equipment for the individual to live and contribute to the development of the society" (FRN, 2004 pg 8). Nwangwu (2007) opined that what children learn, retain and practice after leaving school has direct impact on the nation's competencies and skills. What is learnt both formally and informally thus determines the individual's ability to contribute to national development. According to Aghenta (2006), trained or educated human resources constitute manpower and personnel that bring about national development. It

therefore means that the quality of education received by the graduates determines the level of development of any nation

There has been a public outcry on the continual decline in the standards of education in the country especially as indicated in public examination and the performance of graduates that are inadequate for employment. For instance, Federal Ministry of Education (2006) reported that an average of 13.8 percent and 20.72 percent of candidates who sat for the West African Senior School Certificate Examination (WASSCE) and the National Examination Council (NECO) between 2000 and 2006 had five credits (including Mathematics and English) respectively. Employers of labour also complain about low performance of graduates from the nations institutions of higher learning.

A number of factors determine the level of performance in the school system Akinboye (2004) especially the quality of the input and school process variables. Among them are

- Personal factors: willingness and unwillingness of individuals
- Environmental factors: effect of the surrounding or condition in which an individual found himself.
- Degree of instructor competent.

Ochuba (2008) opined that goals of education can only be achieved with a well organized school system that would ensure that all aspects of school life are well articulated and effectively co-ordinated. For the education industry to carry out its functions of developing quality human capital, there is need for checks and balances by regular and effective supervision and inspection. Wilcox (2000) defined inspection as the process of assessing the quality and/or performance of institutions, services, programmes and projects by those (inspectors) who are not directly involved in them and who are usually specially appointed to fulfil these responsibilities. The federal inspectorate service of the Federal

Ministry of Education is directly responsible for quality control and maintenance of standards in institutions below the tertiary level.

Decree No 16 of 20th August, 2002 outlined its objectives to include:

- * To maintain minimum standards in education practice nationwide.
- * To operate common system of education practice nationwide.
- * To introduce classroom innovation
- * To achieve quality education in Nigeria

Unfortunately, the inspectorate services both at the state and federal levels have not lived up to expectation. This is because the inspectorate service is plagued by a number of issues and challenges. A study carried out by Ogunu (2001) revealed that inadequate number of inspectors; inadequate funds for inspection, lack of transportation among others were some of the problems encountered by inspectors. He also noted that 88% of the respondents reported that inadequate number of inspectors was a serious constraint to school inspection.

Compounding the problems of inadequate number of inspectors is the low quality of personnel recruited into the inspectorate. Ogunu's study aforementioned shows that only 15 inspectors in Edo State Inspectorate Department are to visit 1008 primary and 145 secondary schools in the state, and only 6 of the 15 inspectors had degree in education and none had specialized training in educational supervision/inspection. This inadequacy may be due to lack of policy on the recruitment and deployment of inspectors. Meanwhile, there is need to have the right quality of inspectors for effective discharge of their duties. Wasanga (2004) reiterated that inspectors, in order to carry out their duties, should be graduates who have good academic qualifications; specialized skills and well established staff development programmes to enable them keep pace with the changes in the education sector.

Working facilities in technical working place in Nigeria

Odusanya 1999 observed that “technical graduates can only be functional through the application of adequate working facilities” this means, no technical graduates can be functional without effective/adequate working facilities. Also Warner (2004) argues that “the quality of education that our children received is directly related to the availability of physical facilities or over-all atmosphere in which learning take place”.

However, these facilities are the major problem of technical programme today. For instance, national policies of education, 2004 section 6, sub-section 50 (1) state that “the federal government is aware of the limited facilities existing in technical education system. Which also include technical workshop. Okorie 1988 in his own view also argue that instructional facilities on injunctions with industrial development in the country are grossly inadequate”

Therefore, if this problem existing so long ago and yet, no improvement till date, It then calls for alternative. The only alternative now is the creativity and outstanding performance of our technical graduates which involved using available to get what is/are needed. Meanwhile Salovey P (2006) reported that “all technology does not just existed neither were they bought from anywhere, but they were developed and improved through continuous practise with available resources”.

Therefore, let our gradute be a thinking graduate and not circumscribed in, nor remain in the problem but should design solution, invent, originate, improvise and develop the needed technology for ourselves. This also, will motivate government to fund technology, because, it can see that innovation can bring about buoyant economy.

Effect of graduate creativity and performance on their work

According to Oduolowu (2001): “all wealth is created by mans labour and his labour is guided by his education and the acquired scientific (technical/vocational) skill” and these also are fostered by creative effort and performance of his dedicated instructors. Also Egan 1992: young people learn most rapidly when their imaginations are engaged and their instructors teach most effectively when they are able to see their subject matters from their pupil point of view. Therefore, this shows that when graduate are creative, they are best able to put the manipulative aspect of their duties into the right perspective for the effective delivery of their duties and for the apprentice whose imagination will also in turn fully engaged through the graduate creativity, performance and improvisation effort.

Moreover, Okoye (1998): described creativity as the abilities required in an individual to create solution to problems (problem solving). In the same vein, Ekpenyong, 1992: was able to find out in an experimental research that: apprentice taught under problem solving conditions shows substantial gains in both the practical and theoretical production of ideas on test of ideas quantity over the control group and work done under problem solving conditions turn out to have high degree of creativity and improve performance in it. It therefore follows the same trends with Fafunwa (1992): statement that “the graduate creativity and effective performance is the key to the country development, entire educational programme and apprentice performance” also, since a man can not rise above the knowledge of his teacher, Fafunwa further said that “the only way to know how good your product is, is to ask the consumers”

Furthermore Bolaji, (2004): said that, “graduates is the spark that fixed the whole development process, the key man in the drive for progress” and also according to Walt 2002 “creativity and effective performance is the commitment to make progress”. Therefore to

effectively improve an under developing country, the graduates has to be creative and effective in performance. This is because the aim of under developing country is to mainly improve in the aspect of education which serve as the major building block of under develop countries and technical education according to Tonpak and Habila 1998; NPE, 1981; Kuta, 1997 is to create young men and women who are capable of doing new things (i.e make progress). Not those who will be simply repeating what others generations have done. These are people who are creative inventive and discovers. Thus, the graduates have to be creative and outstanding in performance, if they taught also will be creative. Because Fafunwa 1992 had said that, to know how good your product is, ask the consumer.

In addition to these Eneumo, (2001) said that “the federal government, school administration and the general public are demanding greater evidence of what apprentice have learnt upon completing a course of study (vocation) than merely displaying a series of achieving grades “because grades according to Bichano, do not necessarily reflect a apprentice ability to actually demonstrate a mastery of skill and knowledge”. Yet, these young people (whose creative potentials as observed by Okoye (1998) remain active at any age) have been identified with the average mind through which about 10,000 ideas flows daily. It takes the creative mind of graduates to tap the positive layers of those ideas and transform them into tangible building blocks for the goods of individual and our nation.

Therefore, if our technical institution will be producing army (graduates) of creative populace who will be able to weave their body of knowledge (technology) into life, that means, who will come out of school as well as integrate whole, well package as if it were creative by provided for the needs of the society. That is why Lord Ashby noted in the 60s that “an apprentice who can weave his technology into the fabric of the society can claim to have a liberal education”. Thus, the graduates has to be creative enough to base the learning process on what will enable the apprentice to observe closely and explain thoughtfully those

things they see and do, that will enable them to believe their ideas and opinions to have value and worth.

From the above one can conclude that the graduates should be held accountable for apprentice learning. To achieve this, his personal creativity and effective performance must be diligently employed in order to:

- (I) determine the performance requirement of the job for which the apprentice are being trained
- (II) identify the skills and knowledge require to meet job standard
- (III) Specified the terminal behavioural [performance of apprentice upon completion of the course
- (IV) List the instructional techniques which are to be used in attaining specific course objectives.
- (V) Select/improvise appropriate instructional materials.
- (VI) Prepare suitable test that measure the expected behavioural outcome of apprentices.

If this is effectively done, the result will be that the apprentices will becomes very good in practical work as well as in theory, their creativity will also develop and their performance will be gear up, learning become more real to them rather than being in abstract. They will demonstrate very large thinking ability to conceptualize ideas and transform them into reality. They will develop ability to think faster of possible solutions to complex problems. They will focus in providing solution to their personal and societal problems and also they will be able to easily cope with occupational know-how in the industry.

Factors affecting graduates creativity and performance

The place of graduates creativity and performance in the workplace has generally received low attention in the school curriculum and Nigerian industrial development and most Nigerian authorities in education tends to play down its important when discussing educational matters. This apparent lack of interest according to Gerard Puccio, (2004) “may have result from the erroneous belief that, creativity and performance is a product of nature and not of nurture”.

Further more, Watt, (2002), identifies the following factors as affecting graduates creativity and performance.

- (i) Demand of quick production results: if your opinions are true, produce us an instance proof” they say to the creative person in other to demoralize him, Which will in turn tell on his performance.
- (ii) Stress: it drains energy which could be creatively used to enhance good performance. This is even bad for one’s health.
- (iii) Fear of criticism: okoye,(1998) has this to say that “a creative and highly performing person in engineering usually falls into the description from around him: he is too ambitious; he is hungry for power; he want to be the head of the department; he is to know”. Just as mashow said as quote by Okoye, (1998) that “ a creative and highly performing person is in conventional, bit queer, unrealistic, indiscipline, inexact, unscientific, childish irresponsible, wild crafty, speculative, uncritical, irregular and emotional “all this may suppress or kill the originality in the man.
- (iv) Too-hectic/sterile environment: that does not provide quite time for reflection and introspection nor feed the senses.

- (v) Lack of confidence: Gilmer according to Okoye, (1998): also said “give us then from college and university men who distrust the obvious, men who doubt the method past, men who conceptualize the future, men who have the boldness and imagination to pioneer in the development of new device and techniques”. This shows that the main thing that hinders creativity thinking is our belief that we are not creative/cannot be creative. If you tell yourself, I am a creative person, then you will believe and act in the same way, but if you say otherwise, your action will also go that way.
- (vi) Belief: when we are always against information which contradicts our beliefs and end up in our own reality tunnel, we cannot because; having strong belief in something will not only limit our response options but causes us to limit the way we perceive.
- (vii) Fear: fear of self-expression and of the judgment of others can severely limit one's creativity and performance.
- (viii) Self-criticism: negative thinking and self-criticisms are also limiting factors of an individual's creativity and performance.
- (ix) Ego: having a strong ego identity with particular beliefs exacerbates this situation and can lead to aggressive defending of it to the detriment of ourselves, creativity, performance and society.
- (x) Routines: routines or set ways of performing tasks have their uses. But, allowing them to become too entrenched in one's life causes one to limit the range of responses available and can lead to the development of anathema of creativity and performance and bureaucratic minds.

Barriers to creativity in Nigeria

When deliberate creative endeavours are considered, the major enemy in the realization of defined outcomes is a barrier to the realization of the outcome. If such barriers are not removed, they can frustrate the individual trying to get things done. Certain obstacles tend to hinder individuals, groups and organizations from being creative and highly performing. Such obstacles constitute the barriers to creativity and performance. The barriers are seen in four different ways;

- 1) Personal barriers;
- 2) Cultural barriers,
- 3) Emotional barriers and
- 4) Perception barriers.

Personal barriers

- 1) Being too busy; and
- 2) Having no time to relax so that the mind can pause and focus deeply on issues.

Cultural barriers

- 1) The taboo- "Do it as we have always done it, so as to get result we have always got!" (This is seriously anti-creativity).
- 2) Desire to conform to societal patterns.

Emotional barriers

- 1) Fear of making mistakes; and
- 2) The believe that one is not creative.

Perceptual barriers

- 1) Failure to use all senses; and
- 2) Narrowing one's point of view too much.

Graduates need to take into consideration these barriers, in introducing creativity into the curriculum of school system. Possible ways of dealing with the aforementioned barriers should be given, so that apprentices will not be hampered by them.

Techniques of improving graduate creativity and performance

Walt, 2002 said “people who work inside their boundaries base their decisions on what they know or have experienced in the past. They progress in methodical stage with each step thought out. But people who think creatively, look first at what might be and then at how to get there. They are the visionary and the innovators. They progress in leaps and bounds. “This means that, if our purpose for vocational and technical education is progress oriented and if technical school leavers (graduates) must be part of that progress, then we must be concerned with how our graduates can work outside their boundaries and improve their creativity and performance

The first major step in becoming a creative graduate is to ask yourself – what can I do to overcome my obstacle. This is why Von Fancey, according to Okoye, 1998 described “anything (objects or action) that will give us a fresh view points as creativity stimulate. He also identified the following stimulants in accordance with that provided by Walt 2002.

- (i) Understand and accept that you are a creative person and that you are capable of being even more creative.
- (ii) Nurture and learn to listen to your inner voice your intuition. Be open to a wide variety of possible solutions or alternative solutions as they occur.

- (iii) Don't be afraid of failing with any given avenue of exploration even a negative result can lead to a new ideas or new possibility
- (iv) Keep a journal of some kind of record of ideas as they occur to you so that they don't lost
- (v) Let the apprentice have a free hand in solving a particular problem. Do not mark them down if they use an alternative view point that leads to the same solution
- (vi) Encourage apprentices of engineering to set up their own family lab, so that they are not aware of the absolvent equipment in the school shops and labs
- (vii) Apprentice and graduate project/work should be base on the need of the society. E.g. burglar alarm, inter-cums, incubators, smoke-detector, frying machine, among others. By using locally available materials.
- (viii) Let the apprentice and graduate go to the engineering village near-by where they can be fully introduced to practical requirement of the industries or for productive life.
- (ix) Creativity is developmental: commit yourself to developing your creative ability. It is a life time project.
- (x) Graduates welfare should be taking more seriously and staff development should not also be toiled with.
- (xi) Be on the look for special traits or attribute among the technical graduate and reward accordingly
- (xii) Technical graduates need to be trained and retrained. Renew their mind.
- (xiii) Organized practical brainstorming, brain-writing and morphological analysis etc. Section. (knut 1996).
- (xiv) Always generate large amount of ideas
- (xv) Award given should be organized yearly by the government for every creative endeavour.

- (xvi) Creative adventure should be made a compulsory criterion for graduate promotion.
- (xvii) Graduates should be exposed to more difficult situation, that takes only creative adventure to scale through.
- (xviii) Ban should be place on importation of goods so that graduate can think deep on how to produce the society needs.

Summary of the literature reviewed

The literature reviewed in this study revealed that for a sustainable national development, the federal, state and local government and the entire society depends on technical education and most importantly technical graduates. It was also reviewed that if technical graduate will achieved its purpose, creativity and outstanding performance must be introduced as part of technical education programme and that graduate's creativity for effective dissemination of practical skill must be improved.

The literature reviewed also showed that simple way to have a national technological advancement up to international standard may be to begin with skill acquisition in technical institution to develop indigenous technology with the graduate, whom are to be context central in creative and effective performance. The factors affecting

the graduate personal creativity as well as how it can be improved were adequate reviewed. Among the problem reviewed are: Personal barriers; Cultural barriers; Emotional barriers and Perception barriers. And the possible solutions reviewed are: Understand and accept that you a creative person and that you are capable of being even more creative; Nurture and learn to listen to your inner voice your intuition. Be open to a wide variety of possible solutions or alternative solution as they occur; Don't be afraid of failing with any given avenue of exploration even a negative result can lead to a new ideas or new possibility; Keep a journal of some kind of record of ideas as they occur to you so that they don't lost, Among others

CHAPTER III

METHODOLOGY

This chapter described the design of study, area of study, population for the study, description of the instrument, method of data collection and the techniques of data analysis.

Design of the study

The study used a survey research design due to the nature of information required for the investigation. This method involved the formulation of questionnaires to determine the opinion, preferences, attitude and perception of people (graduates and apprentice) on techniques for improving the creativity and performance in graduates for effective delivery of their duties in Kwara state. Survey description according to Olaitan (1999) is the study in which the entire population or representative sample of the entire population is studied by collecting and analyzing data's from the group through the use of questionnaire

Area of the study

The study covers the following area in Ilorin the capital of Kwara State; Tanke, Gaa-Akanbi, Taiwo, Adewole, and Oke-Odo.

Population of the study

The target population of this study was 35. The total population is made up of 5 graduates of electrical maintenance / radio / television / electronics who have five and above years of work experience and 30 apprentices who have been in the programme for more than two years in all the selected area in Ilorin the capital of Kwara State. Since the population is small, no sampling was used. Hence the population was used.

Table 1:
Showing the relationship between Area in Ilorin Kwara State and the Number of Electrical and Electronic Graduates and Apprentice

S/N	Area in Ilorin Kwara State	Number of Electrical and Electronic Graduates	Number of Electrical and Electronic Apprentice
1	Tanke,	1	6
2	Gaa-Akanbi	1	6
3	Taiwo	1	6
4	Adewole	1	6
5	Oke-Odo	1	6
	TOTAL	5	30

Instrument for data collection

The instrument used for this study was a structures questionnaire developed by the researcher. The questionnaire was divided into four sections;

Section A contain personal data, Section B contain (10) items which sought for information on the level of graduate's creativity and performance in the Electrical and Electronic workplace. Section C contain (14) items which deals with the factors affecting Electrical and Electronic graduate's creativity and performance in the workplace. Section D contain (15) item which deal with the effect of graduate's creativity and performance on Electrical and Electronic graduate's in the workplace. Section E contains (10) items was arranged to identify the strategies for improving Electrical and Electronic graduate's creativity and performance in the workplace.

Validation of the instrument

The instrument was validated by the project supervisor and two other lecturer of the Industrial and Technology Education Department who made suggestion on the sequence and relevance as well as suitability to answer the research question and the hypothesis formulated to guide the study.

Method of administration of instrument

The research was administered by the researcher himself. The researcher went to the selected area in Ilorin Kwara State to administer the questionnaire personally. The questionnaire was also collected by the researcher and through assistant from the respondents

Method of Data Analysis

Data collection was analyzed by using mean, standard deviation were used to answer the research question while t-test was used to test the hypotheses at point 0.05 level of significant. A modified (four points) liker-type scale was used to analyse the data as shown below.

Strongly agree	(S.A)	=	4
Agree	(A.)	=	3
Disagree	(D.)	=	2
Strongly	(S.D.)	=	1

The formular below was used to calculate the mean

$$\bar{X} = \frac{\sum FX}{F}$$

\sum = sum of normal value option

\bar{X} = mean

F = frequency

$$\text{therefore the mean value} = \frac{4 + 3 + 2 + 1}{4}$$

$$= \frac{10}{4}$$

= 2.5

Decision rule

To determine the acceptance level, a mean score of 2.5 was being taken as the cut off point. That is, any response with a mean of 2.5 and above is considered agreed while response from 2.49 and below were considered disagreed.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

This chapter present the analysis of the data collected for this study. The presentation and the analysis were organised according to the research questions and hypotheses. Also presented in this chapter are findings of the study and the discussion of findings.

RESEARCH QUESTION 1

What are the level of graduate's creativity and performance in the Electrical and Electronic workplace?

Table 1:

Mean responses of graduates and apprentice on the level of graduate's creativity and performance in the Electrical and Electronic workplace.

S/N	ITEMS	\bar{X}_1	\bar{X}_2	\bar{X}_t	Remarks
1	Electrical and Electronic graduates did not know creativity as a concept but only as natural trait possessed by some people.	1.47	3.33	2.40	Disagree
2	Electrical and Electronic graduates did not know much about creativity	1.64	1.78	1.71	Disagree
3	Graduate cannot improvised even simple device and instructional materials during delivery of their duties	2.57	2.11	2.34	Disagree
4	Graduate creativity and performance have been paralyzed due to inactive level in work	3.36	1.89	2.63	Agree
5	Graduate are not aware of the extent of creativity ideas and abilities in them. Because they never tried it	1.96	2.33	2.13	Disagree
6	Graduate creativity is limited only to coping / reproducing other people work.	2.36	3.00	2.68	Agree
7	Graduate creativity is limited only to workplace situations only because; it has never been used to solve societal problems	2.21	2.38	2.30	Disagree
8	There is no sign at all that electrical and electronics graduates are or can be creative	2.50	2.38	2.44	Disagree
9	Graduate creativity level cannot be measured because, it is not demonstrated	2.07	2.26	2.35	Disagree
10	Because graduate are too lazy, they see creative effort as time wasting and a non worthwhile adventure and energy directed in that way is in wrong direction	1.71	2.13	1.92	Disagree

Key:	\bar{X}_1	=	Mean score of graduates.
	\bar{X}_2	=	mean score of apprentice.
	\bar{X}_t	=	average mean score of bath graduates and apprentice.
	F_1	=	frequency/number of graduates
	F_2	=	frequency/number of apprentice.
	SD_1	=	standard deviation of graduates.
	SD_2	=	standard deviation of apprentice
	SD_t	=	average standard deviation of both graduates and apprentice

The table 1 above revealed that both groups of respondent disagreed with all items 1,2,3,5,7,8,9 and 10 with the mean score ranging from 1.92 - 2.44. While both groups agreed only with item 4 and 6 with means score of 2.63 and 2.68 respectively.

RESEARCH QUESTION 2

What are the factors affecting Electrical and Electronic graduate's creativity and performance in the workplace?

Table 2:

Mean responses of graduates and apprentice on the factors affecting Electrical and Electronic graduate's creativity and performance in the workplace.

S/N	ITEMS	\bar{X}_1	\bar{X}_2	\bar{X}_t	Remarks
11	Graduates believe that creativity cannot be developed because it is a natural trait in some people.	2.28	2.78	2.53	Agree
12	Graduate fear that creativity ideas will be rejected by others who are less creative	2.21	2.44	2.33	Disagree
13	Non-electronic graduate employed to do the work of electronics graduate cannot be creative.	3.36	2.56	2.96	Agree
14	No encouragement for creative ideas from the government and general public	3.13	2.44	2.79	Agree
15	No conducive environment for creativity development	3.00	2.89	2.95	Agree
16	Graduate are engage doing many work without enough time to relax for creativity thinking.	2.70	1.89	2.30	Disagree
17	Graduate are so addicted to procedure and daily routine that they cannot think of alternatives	2.00	1.33	1.67	Disagree
18	Graduate believe that, no new thing can be created than what already existed	2.35	2.22	2.29	Disagree
19	The local raw materials necessary for creative ideas and effective performance are not available	1.35	1.30	2.33	Disagree
20	Technical education curriculum does not give room for creativity development	2.57	2.67	2.62	Agree
21	The government and general public demands for quick production of result which discourage creative idea and outstanding performance	2.07	2.67	2.37	Disagree
22	There are no special treatments or motivation for creative adventures	3.00	2.33	2.67	Agree
23	Local products developed by creative and competent graduate are regarded as inferior in the society	3.00	2.78	2.89	Agree
24	Graduate and people generally have the primitive believe that we cannot be creative	2.21	3.11	2.66	Agree

Table 2 above reveal that both graduates and apprentice agree with items 11, 13-15, 20 and 22-24 while they disagree with items 12, 16-19 and 21 with mean score of 1.67 – 2.37 range. This shows that the belief of graduates together with lack of motivation from Government affect teachers creativity.

RESEARCH QUESTION 3

What are the effects of graduate's creativity and performance on Electrical and Electronic graduates in the workplace?

Table 3:

Mean responses of both graduates and apprentice on the effects of graduate's creativity and performance on Electrical and Electronic graduates in the workplace.

S/N	ITEMS	\bar{X}_1	\bar{X}_2	\bar{X}_t	Remarks
25	graduates will be effective in the delivery of their duties	3.21	3.14	3.18	Agree
26	Graduate will be well known as expert in that field	3.21	2.25	2.73	Agree
27	Graduate will have lot of work at hand due to their high knowledge of creativity and outstanding performance	3.21	1.88	2.55	Agree
28	Apprentice will perform better in theoretical and practical test.	3.57	2.75	3.16	Agree
29	Apprentice will become expert of their field in a short time.	3.21	2.75	3.16	Agree
30	Learning will become more real to apprentice instead of being abstract.	3.27	2.38	2.83	Agree
31	Apprentice will develop very large thinking ability to conceptualized ideas and transform them into reality	3.21	2.33	2.70	Agree
32	It will develop the trait of self-dependent in the apprentice instead of waiting for employment	2.08	2.86	2.47	Disagree
33	There will be no tangible different on apprentice performance.	2.43	2.88	2.66	Agree
34	Because creative work and demands more time, energy, commitment and much stress apprentice may develop hatred in the course	3.21	2.78	3.00	Agree
35	apprentice with creative graduate will perform better in their field than other those their graduate are not creative	3.43	2.63	3.03	Agree
36	apprentice will develop ability to think fast on possible solutions in complex problems	3.43	2.89	3.16	Agree
37	Enable apprentice to be focused in providing solution to their personal and societal problems	3.43	2.13	2.78	Agree
38	Learning will become too difficult and expensive for apprentice	2.50	2.78	2.62	Agree
39	Apprentice will easily cope with occupational know-how in the industry.	3.29	3.00	3.15	Agree

Table 3 revealed that both graduates and apprentice agree with all the items with mean score ranges from 2.55-3.18 and disagree with item 32 with mean score of 2.47

RESEARCH QUESTION 4

What are the strategies for improving Electrical and Electronic graduate's creativity and performance in the workplace?

Table 4:

Mean responses of both graduates and apprentice on the strategies for improving Electrical and Electronic graduate's creativity and performance in the workplace.

S/N	ITEMS	\bar{X}_1	\bar{X}_2	\bar{X}_t	Remarks
40	Graduate must believe in their ability to solve immediate problems and that they are creative	3.57	3.38	3.00	Agree
41	Graduate should be made aware that creativity is not only a natural in-built but also a concept which can be taught and developed	2.43	3.00	2.72	Agree
42	Government and society should encourage creativity development by motivating every creativity endeavor manifested in teachers	3.21	2.11	2.66	Agree
43	Graduate should engage in creative exercise like brainstorm and in workshop and seminars to explore new methods and idea.	2.93	2.37	2.65	Agree
44	Graduate should be retained in the manipulative aspect of their course	3.57	2.78	3.18	Agree
45	Graduate should be exposed to more difficult situation that takes only creative adventure to scale through	2.50	2.78	2.64	Agree
46	Let us forget creativity because our country is far behind the adventure to scale through	1.21	2.63	1.92	Disagree
47	Graduate should be held responsible for their apprentice performance after learning and most creative graduate should be given award	2.64	2.67	2.66	Agree
48	Creative adventure should be made a compulsory criterion for Graduates promotion	2.92	2.29	2.61	Agree
49	Necessary resources for creative works should be made available for graduates.	3.71	2.63	3.17	Agree

Table 4 shows that all the items were accepted by both group of respondents except item 46, with mean score of 1.92.

Hypotheses 1

HO₁. There is no significant different between the mean response of graduates and learners on the factors affecting Electrical and Electronic graduate's creativity and performance in the workplace.

Table 5:
t-test of the group responses in relation to the factors affecting Electrical and Electronic graduate's creativity and performance in the workplace.

S/N	ITEMS	\bar{X}_t	SD ₁	SD ₂	SD _t	t _{cal}	Remarks
1	Graduates believe that creativity cannot be developed because it is a natural trait in some people.	2.53	1.12	2.92	1.02	-1.86	Accepted
2	Graduates fear that creative ideas will be rejected by others who are less creative.	2.33	0.04	0.68	0.79	-1.14	Accepted
3	Non-electronic Graduates employed to do electronic work cannot be creative.	2.96	0.50	0.49	0.50	5.76	Rejected
4	No encouragement for creative ideas from the government and general public.	2.79	0.82	1.42	1.12	1.86	Accepted
5	No conducive environment for creativity development.	2.96	0.00	0.87	0.44	0.48	Accepted
6	Graduates are engage doing many work without enough time to relax for creative thinking.	2.30	0.57	0.87	0.72	3.43	Rejected
7	Graduates are so addicted to procedure and daily routine that they can not think alternatives.	1.67	0.00	1.39	0.70	1.83	Accepted
8	Graduates believe that no new things can be created than what already existed.	2.29	0.46	0.59	0.53	0.80	Accepted
9	The local raw material necessary for creative ideas and practices are not available.	2.33	0.54	0.94	0.74	-7.69	Accepted
10	Technical education curriculum does not give room for creative development.	2.62	0.48	0.82	0.65	-0.45	Accepted
11	The government and general public demands for quick production of result in order to discourage creative ideas.	2.37	0.69	0.07	0.68	1.58	Accepted
12	There are no special treatments or motivation for creative adventures	2.67	0.58	1.05	0.82	-1.20	Accepted
13	Local products developed by creative individual are regarded as inferior in the society.	2.89	0.00	1.03	0.51	0.81	Accepted
14	Graduates and people generally have the primitive believe that we cannot be creative.	2.66	0.40	0.87	0.64	-3.90	Accepted

The table 5 shows that the hypothesis was accepted for item 11, 12, 14, 15, 17-24 with t-score below 1.98 on which the hypothesis was tested. However the hypothesis was rejected for items 13 and 16 with t-score above the t-test value of 1.98

Hypothesis 2

HO₂. There is no significant different between the mean response of graduate and the learner's on the effect of graduate's creativity and performance on Electrical and Electronic graduate's in the workplace

Table 6:
t-test on the group responses in relation to the effect of graduate's creativity and performance on Electrical and Electronic graduate's in the workplace

S/N	ITEMS	\bar{X}_t	SD ₁	SD ₂	SD _t	t _{cal}	Remarks
1	graduates will be effective in the delivery of their duties	3.18	0.04	0.56	0.48	0.45	Accepted
2	Graduate will be well known as expert in that field	2.73	0.04	0.94	0.67	3.83	Rejected
3	Graduate will have lot of work at hand due to his high knowledge of creativity and outstanding performance	2.55	0.04	0.93	0.67	5.36	Rejected
4	Apprentice will perform better in theoretical and practical test.	3.16	0.48	0.62	0.55	4.80	Rejected
5	Apprentice creativity will developed drastically	3.16	0.40	0.62	0.55	2.73	Rejected
6	Apprentice will become expert of their field in a short time.	2.83	0.88	0.46	0.67	5.80	Rejected
7	Learning will become more real to apprentice instead of being abstract.	2.70	0.43	0.47	0.45	6.69	Rejected
8	Apprentice will develop very large thinking ability to conceptualized ideas and transform them into reality	2.47	1.40	0.87	1.14	-3.35	Accepted
9	It will develop the trait of self-dependent in the apprentice instead of waiting for employment	2.66	0.82	0.87	0.85	-1.84	Accepted
10	There will be no tangible different on apprentice performance.	3.00	0.40	0.42	0.41	3.66	Rejected
11	Because creative work and demands more time, energy, commitment and much stress apprentice may develop hatred in the course	3.03	0.48	1.62	0.55	4.69	Rejected
12	apprentice with creative graduate will perform better in their field than other those their graduate are not creative	3.16	0.48	0.74	0.61	-3.17	Accepted
13	apprentice will be willing to attend classes	2.78	0.48	0.57	0.53	8.23	Rejected
14	apprentice will develop ability to think fast on possible solutions in complex problems	2.62	0.94	1.13	1.04	-3.20	Accepted
15	Enable apprentice to be focused in providing solution to their personal and societal problems	3.15	0.43	1.05	0.74	1.04	Accepted

The above table 6 shows that hypothesis was accepted for only items 25, 32, 33, 36, 38 and 39 with the t-score below 1.98 but the hypothesis was rejected for the remaining items whose t-score value is above is above t-value of 1.98 on which the hypothesis was tested.

Findings

This section present the summary of findings of the study based on the data collected and analyzed from the research questions and the hypotheses that guided the study.

1. Finding related to the level of graduate's creativity and performance in the Electrical and Electronic workplace.

- i. Graduates as natural being, possesses some appreciable level of creativity and they are aware of what can be done through it.
- ii. Graduate creativity is not suppose to be limited to classroom situation only but should seek to solve societal problems.

2. Finding related to the factors affecting Electrical and Electronic graduate's creativity and performance in the workplace.

- i. Graduates belief that creativity is a natural trait which prevents them from developing it to a respectful level.
- ii. Non-electronic graduates are employed to do the work of electronics.
- iii. Graduates are not naturally addicted to procedure or daily routine and also there are enough local raw materials for creative practices but, technical education curriculum do not give adequate room for creativity practice and development
- iv. Graduates are not too busy and believe in creating new things but the environment nis not conducive and there is no encouragement from the government.
- v. Local products of creativity may not faced outright rejection by colleagues but are considered inferior in the market.

3. Finding related to the effects of graduate's creativity and performance on Electrical and Electronic graduates in the workplace.

- i. graduates will be effective in the delivery of their duties
- ii. Graduate will be well known as expert in that field
- iii. Graduate will have lot of work at hand due to their high knowledge of creativity and outstanding performance
- iv. Graduates Apprentice will perform better in theoretical and practical test.

4. Finding related to strategies for improving Electrical and Electronic graduate's creativity and performance in the workplace.

- i. Graduates perspective of creativity should be corrected.
- ii. We are not too far behind the advanced world we only need a little more creative work.
- iii. Government, administration and the public at large can encourage creativity development.
- iv. Creativity adventure must be a compulsory criterion for teachers promotion.
- v. Graduate can be exposed to difficult situation.

Discussion of major findings

The purpose of the study is to provide valuable techniques for improving creativity and performance of Electrical and Electronic graduates in the work-place in Kwara state. The process involves determination of present level of the graduates and factors affecting graduates creativity in order to effectively achieve the purpose of the study. Therefore four research question and two null hypotheses were formulated which led to the findings stated above. These findings are hereby discussed according to the research questions.

The table 1 above presents 10 items of questionnaire which was designed purposely to ascertain the level of graduate's creativity and performance in the Electrical and Electronic

workplace. It was thus revealed from items 1,2,5,8, and 9 which both group of respondent disagreed with that, graduate as natural beings possess appreciable level of creativity adequate for the effectiveness in delivery of their duties and technical productivity. These finding agreed with the finding of rogers, (1959) and Efong, (1994) that every man at any age has a certain amount of active creativity in him which is enough for him to develop, mature and advance. However, because the respondents agree with items 4, and 6 with mean score of 2.63 shows that graduate creativity have being paralyzed because it is not engaged due to graduate attitude of copying and reproducing other people creative work and that graduates creativity is limited to their working environment only (item 7). This is also in accordance with the saying that “he who lives by imitating others will die a photocopy”

On the factors affecting Electrical and Electronic graduate’s creativity and performance in the workplace. It was revealed in table 2 that, both teachers and students agreed with items 1,4,5,10,12,13 and 14 but disagree with items 6,7,8 and 9. This shows that although, graduates belief about creativity as a natural trait prevents them from developing their creativity to a profitable level but, they are naturally addicted to procedure and daily routine, they are not too busy, they believe in creating new things and raw material are readily available for creative practices. Only that technical education curriculum does not give adequate room for creativity adventure and government has over the years refused to encourage or give incentive to incentive to ignite creativity Endeavour. This is why Okoye (1998) agreed with Roger, (1959), Efiong (1992) that, “every man has certain amount of creative creativity which is enough for him to develop, mature and advance but added that, he must be given a proper balance of physical and emotional health and environment. It was further revealed in table 2 here that, non-electronic graduates employed to do the work of electronic graduate cannot be creative (item 3) since “wrong peg put in the right hole is always a waste effort (unanimous). Lastly it was shown that local products (of creativity) are

considered inferior in the market. This has indeed become a desperate scenario to creativity because Tongpak and Habila, (1998) has said that “ any genuine and self-sustainable technology development and advancement of any economy must be grassroots orient” i.e. it must start with the production of local skills, goods and services for the consumption of the local community before progressing to a more advanced and sophisticated standard.

Referring to the effects of graduate’s creativity and performance on Electrical and Electronic graduates in the workplace, both apprentice and graduates agreed with all items on table 3 except item 8 which also was tactfully included by the researcher to find out the actual extent to which graduate creativity can affect their work or performance. These table therefore showed that the students of creative electronics graduates will be very good in practical and theoretical work and they will be confident to practice their work outside their working environment and they will able to cope with the occupational know-how in the industry. No wonder why Akinyemi (1992) says that “teachers are the spark that fixed the whole development process, the key man in the drive for progress” and that “his creativity is the door in the entire educational programme” (Fafunwa, 1992). However, because graduate only disagreed with item 9 with mean score of 2.43 shows that apprentice cannot hate electronics because of creativity involves since actually there is no adventure that does not require exercise of the brain. Instead, they become more proud of themselves.

In table 4 it was revealed on the above subject that before teachers creativity can be improved their believe about and perspective of creativity must be put in the right direction. This is according to Watt, (2002) when he says that, men are always capable of doing what they believe they can do. With a ground mean of 3.03 it shows that both graduates and [apprentice agreed with the ways of improving graduate creativity as provided by researcher.

Hence creativity adventure must be a compulsory criteria for teaches promotion, creative work exhibition and seminar must be on terminal basis instead of annually conducted one, government, administrators and the general public should encourage creativity development since we are not too far behind the advance world in terms of modern technology we only needs to be more creative for true is the saying that once you know your problem it is half solved.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary of the study

This study was designed to provide the techniques for improving creativity and performance of Electrical and Electronic graduates in the work-place in kwara state. The rationale for the study was justified by the background provided. Related literatures were reviewed for the study under the following subheadings to ascertain the validity of the problem and the expected outcome through previous works and observations. The variable include: levels of graduate creativity, factors affecting graduates creativity, effect of graduate creativity on their work/performance and the suggested techniques for improving graduate creativity for effective delivery of their duties.

Appropriate statistical tools were used to analyze the data collected from the respondent. Questionnaire was adopted as instrument for data collected and analyzed for each of the research question. Four research questions were formulated from the specific purpose to guide the study.

It was revealed that graduates are naturally creative but that their creativity had been paralyzed by non-conducive environment, lack of government encouragement, feelings of products inferiority and the non-engagement of their own creativity together with graduates' belief that creativity cannot be developed or matured.

Also, on the final note, it was revealed that, graduates creativity has great influence on apprentice acquisition of practical skill and the way of improving such important trait in graduates (for nearest future national economic independence through advance technology

aid by creative populace) as suggested by the researcher was appropriate as they all agreed with average mean of 3.03.

Implication of the study

The implication of this study has implications for electronics graduates and apprentice, curriculum planners, state ministry of education and the nation as a whole.

The Graduate can use the finding to encourage and thrust themselves into dynamic creative adventures which will in turn develop apprentice creativity and rebuild the confidence of the general in teachers, and that the teachers will become more productive to themselves as well.

The apprentice can emulate their tutor (graduate) creativity and become self-reliant and job giver instead of being job seeker after school.

Both the curriculum planner and the government (state ministry of education) can use the finding of the study and include creativity as a concept and graduation requirement in technical schools or colleges

The implication of the study to the nation is that, the government can enforce creative development in schools and colleges to produce army of creative populace and safe herself in the wants of creative and technology expert.

Conclusions

The researcher arrived at the following conclusion from the study.

Graduates as natural being possess active creativity in them to transform their gift and talent into reality and national blessing. Apprentice are potentially creative but await their tutor (Graduate) commitment to creatively trap hundred of thousand of ideas in them for self

actualization. Government and the general public do not encourage creativity development. We have enough local raw materials for indigenous technology growth we only need to be more creative and we will catch up with the advance world of technology.

Recommendations

Based on the findings of this study, the following recommendations are made:

- i. Government and stakeholders should provide adequate encouragement/incentives for graduates to engage in worth-while creative adventures that will enhance the production of self-reliance technical school graduates which was the government aim at the start of technical colleges.
- ii. Government and stakeholders should ensure that any incentive provided for Graduates is not collected as ordinary benevolence from government and creative adventures should be made compulsory criteria for Graduate promotion through terminal evaluation.
- iii. Importation of foreign goods should be stopped completely so that we can be forced to use our local products of creativity and improve on them.
- iv. Government should generously fund creativity development in school if it will actually materialize.
- v. Graduates can diligently develop alternative for creativity development and sell it to the government. This will motivate the government to turn a new leaf and forget the fear of waste resources.

Suggestion for further research

- (i) Strategies of enhancing local consumption of local products in kwara state.
- (ii) Strategies to enhance creativity in higher institution of technology
- (iii) An investigation into the causes and cost of non-implementation of research findings from schools, in the state.
- (iv) An investigation into why local goods and products are considered inferior in kwara state markets.

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APPENDIX I

APPENDIX II

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION

ELECTRICAL AND ELECTRONIC TECHNOLOGY OPTION

QUESTIONNAIRE ON:

**TECHNIQUES FOR IMPROVING CREATIVITY AND PERFORMANCE OF
ELECTRICAL AND ELECTRONIC GRADUATES IN THE WORK-PLACE
IN KWARA STATE**

SECTION A

PERSONAL DATA

Please kindly provide the information required below. All information and responses supplied to the items of this questionnaire will be used particularly for the purpose of this research work and will be treated as confidential. Your prompt and honest response will be duly appreciated.

- i. Name of School/Industry.....
- ii. Department/Section.....
- iii. Years of graduate experience.....
- iv. Area of graduate specialization.....
- v. Level/year's of apprentice.....
- vi. Sex: Male Female

SECTION B

QUESTIONNAIRES

Please indicate the option that appeal to you by ticking the appropriate box.

Key to response options	SA	=	Strongly Agreed
	A	=	Agreed
	D	=	Disagreed
	SD	=	Strongly Disagreed

RESEARCH QUESTION I

What is the level of graduate creativity and performance in the Electrical and Electronic workplace?

S/N	ITEMS	SA	A	D	SD
1	Electrical and Electronic graduates did not know creativity as a concept but only as natural trait possessed by some people.				
2	Electrical and Electronic graduates did not know much about creativity				
3	Graduate cannot improvised even simple device and instructional materials during delivery of their duties				
4	Graduate creativity and performance have been paralysed due to inactive level in work				
5	Graduate are not aware of the extent of creativity ideas and abilities in them. Because they never tried it				
6	Graduate creativity is limited only to coping / reproducing other people work.				
7	Graduate creativity is limited only to workplace situations only because; it has never been used to solve societal problems				
8	There is no sign at all that electrical and electronics graduates are or can be creative				
9	Graduate creativity level cannot be measured because, it is not demonstrated				
10	Because graduate are too lazy, they see creative effort as time wasting and a non worthwhile adventure and energy directed in that way is in wrong direction				

SECTION C

RESEARCH QUESTION 2

What is the factors affecting graduate creativity and performance in the workplace?

S/N	ITEMS	SA	A	D	SD
1	Graduates believe that creativity cannot be developed because it is a natural trait in some people.				
2	Graduate fear that creativity ideas will be rejected by others who are less creative				
3	Non-electronic graduate employed to do the work of electronics graduate cannot be creative.				
4	No encouragement for creative ideas from the government and general public				
5	No conducive environment for creativity development				
6	Graduate are engage doing many work without enough time to relax for creativity thinking.				
7	Graduate are so addicted to procedure and daily routine that they cannot think of alternatives				
8	Graduate believe that, no new thing can be created than what already existed				
9	The local raw materials necessary for creative ideas and effective performance are not available				
10	Technical education curriculum does not give room for creativity development				
11	The government and general public demands for quick production of result which discourage creative idea and outstanding performance				
12	There are no special treatments or motivation for creative adventures				
13	Local products developed by creative and competent graduate are regarded as inferior in the society				
14	Graduate and people generally have the primitive believe that we cannot be creative				

SECTION D

RESEARCH QUESTION 3

How can the effect of graduate creativity and performance on individual worker in the workplace be identified?

S/N	ITEMS	SA	A	D	SD
1	graduates will be effective in the delivery of their duties				
2	Graduate will be well known as expert in that field				
3	Graduate will have lot of work at hand due to their high knowledge of creativity and outstanding performance				
4	Apprentice will perform better in theoretical and practical test.				
5	Apprentice will become expert of their field in a short time.				
6	Learning will become more real to apprentice instead of being abstract.				
7	Apprentice will develop very large thinking ability to conceptualized ideas and transform them into reality				
8	It will develop the trait of self-dependent in the apprentice instead of waiting for employment				
9	There will be no tangible different on apprentice performance.				
10	Because creative work and demands more time, energy, commitment and much stress apprentice may develop hatred in the course				
11	apprentice with creative graduate will perform better in their field than other those their graduate are not creative				
12	apprentice will develop ability to think fast on possible solutions in complex problems				
13	Enable apprentice to be focused in providing solution to their personal and societal problems				
14	Learning will become too difficult and expensive for apprentice				
15	Apprentice will easily cope with occupational know-how in the industry.				

SECTION E

RESEARCH QUESTION 4

What are the strategies for improving graduate's creativity and performance in the workplace?

S/N	ITEMS	SA	A	D	SD
1	Graduate must believe in their ability to solve immediate problems and that they are creative				
2	Graduate should be made aware that creativity is not only a natural in-built but also a concept which can be taught and developed				
3	Government and society should encourage creativity development by motivating every creativity endeavor manifested in teachers				
4	Graduate should engage in creative exercise like brainstorm and in workshop and seminars to explore new methods and idea.				
5	Graduate should be retained in the manipulative aspect of their course				
6	Graduate should be exposed to more difficult situation that takes only creative adventure to scale through				
7	Let us forget creativity because our country is far behind the adventure to scale through				
8	Graduate should be held responsible for their apprentice performance after learning and most creative graduate should be given award				
9	Creative adventure should be made a compulsory criterion for Graduates promotion				
10	Necessary resources for creative works should be made available for graduates.				

APPENDIX III
FORMULA USED FOR DATA ANALYSIS

Mean(\bar{X})

$$\bar{X} = \frac{\sum fx}{n}$$

Where	\bar{X}	=	mean response of each item
	F	=	frequency of respondents
	\sum	=	sum of
	X	=	Rating scale/Nominal value of options
	N	=	total number of respondents

Standard deviation

$$S.D = \sqrt{\sum f(X - \bar{X})^2 / N}$$

Where:	N	=	Total respondents sum
	F	=	frequency
	\bar{X}	=	scores squad
	X	=	Nominal value of options
—	S.D	=	Standard deviation
	\sum	=	sum of