

**BUSINESS ENTERPRISE SKILLS REQUIRED FOR WORK FORCE DEVELOPMENT
BY ELECTRICAL AND ELECTRONIC TECHNOLOGY STUDENTS IN MINNA,
NIGER STATE**

BY

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2016/1/62385TI

**DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION
SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION
FEDERAL UNIVERSITY OF TECHNOLOGY MINNA, NIGER STATE**

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**A PROJECT SUBMITTED TO THE DEPARTMENT OF SCIENCE EDUCATION,
SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION, FEDERAL UNIVERSITY
OF TECHNOLOGY, MINNA, NIGERIA, IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE AWARD OF BACHELOR OF TECHNOLOGY (B.Tech)
IN SCIENCE EDUCATION**

APRIL, 2023

DECLARATION

I..... Matric No:
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 university.

Name & Matric No.

Signature & Date

CERTIFICATION

The thesis titled: “**Business Enterprise Skills Required for Work Force Development by Electrical and Electronic Technology Students in Minna, Niger State**” by YUSUF, Muktar Garba (2016/1/62385TI) meets the regulations governing the award of degree of Master of Technology of the Federal University of Technology, Minna and it is approved for its contribution to knowledge and literary presentation.

Dr. T. M. Saba
Supervisor

Signature & Date

Dr. T. M. Saba
Head of Department

Signature & Date

External Supervisor

Signature & Date

DEDICATION

This project is dedicated to Almighty Allah, the most merciful, the most beneficent, the most gracious, the omnipresent and omniscient.

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All thanks and adoration is due to almighty Allah (SWT) who gave me health, strength, wisdom and ability to carry out this research work successfully, may peace and blessing of Allah be upon the Prophet (S.A.W).

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ABSTRACT

The study assessed business enterprise skill required for work force development by electrical and electronic technology students in Minna, Niger State. Three research questions and three null hypotheses were answered and tested respectively at 0.05 level of significance. Related literature were reviewed. The study adopted descriptive survey research design. The targeted population for this study consisted of the Electrical and Electronic Technologist and students in Minna metropolis. Area sampling technique was used to select 100 students from the Department of Industrial and Technology Education Department and 200 electrical/electronic technologist in Minna. A structured questionnaire was developed by the researcher and used for data collection, the instrument was face validated and pilot tested before it was used for data collection. Cronbach Alpha reliability method was used to determine the internal consistency of the items and a reliability coefficient of 0.76 was obtained. Data collected was analyzed using Statistical Package for Social Sciences (SPSS) version 23 and t-test was used for analysis. The result revealed that all the items with the mean range from 3.00-3.43 agreed on the creative and innovation skills required for work force development in electrical and electronic business based on the decision. The result revealed that all the items agreed with the mean range from 2.56-3.39 on the work related disposition and attitude skills required for work force development in electrical and electronic business based on the decision. Based on these findings it was recommended that electrical and electronic graduates should be trained on how to use various techniques for creating and evolving new ideas. It was also recommended that the graduates should understand the necessary work related disposition and attitude in every organization so to perform better

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CHAPTER ONE

INTRODUCTION

1.0

1.1 Background to the Study

Technical and vocational education training (TVET) provides students through training with the relevant and adequate knowledge, skills and attribute for employment under the guidelines of a teacher in related occupations. The place of skill acquisition in technical education cannot be over emphasized and to achieve these objectives, too many trades are learnt in technical colleges (Nwachukwu *et al.*, 2016). Ede *et al.* (2014) identified that students undertaking technical education programmes are trained in auto-mechanics, wood-work, plumbing, computer craft, mechanical trades and electrical and electronics works among others. Electrical and electronics trade is vital in the production of workforce with understanding in diverse skills in the design, development, production, management and utilization of trending electrical and electronics devices and circuits.

Akinduro (2016) opined that electrical and electronic trade focuses on the application and understanding of principles and technological process inherent in the application and production of electrical and electronic products and system in order to improve the quality of life. In view of the National Board for Technical Education programme (NBTE, 2012) electrical and electronics offers trade in; Appliance maintenance and repairs Electrical installation and maintenance works, Instrument mechanics, Radio, television (RTV) and maintenance works. Electrical and electronics trade provides technical training to meet the demands of electronic and electrical industry and the needs of the individual allowing the students to identify their career objectives (Ogwa, 2016). Electrical and electronics trade offered in higher institutions prepares an individual with job-satisfying skills requirement toward employment and self-reliance.

Skill is the ability to do something well, usually gained through training or experience. Skill acquisition in electrical and electronics trade employs measures and develops jobs geared towards making students confident and self-reliant (Ngwoke, 2014). Electrical and electronics trade is designed to prepare the students to acquire knowledge and business enterprise skills for employment and self reliance in the industry in Nigeria and Enugu State in particular. Students who undergo training in electrical and electronics as expected to possess business enterprise skills for excellence in sales of electrical and electronic machines, installation of electrical and electronic machines and equipment, maintenance of machines and equipment, winding of machines, testing and inspection of electrical and electronic devices, repair of electrical and electronic machines or gadget. Unfortunately Agada (2017) stated that graduate of electrical and electronic trade always seek for white collar job rather than seeking innovative and creative approach in establishing a business enterprise.

Adedokun (2018) assert that business enterprise skills are the basis for many business and financial decisions, which is why they are so important to employers when vetting applicants. For instance, you may consider how taking creative risks can benefit your position and the company. Individuals with strong business enterprise skills may use their intuition and experience in business to guide them when making important financial decisions. In the business world, companies and investors alike are constantly searching for business enterprise skills, such as motivation, productivity and communication in graduates. Business enterprise skills are those that help an individual identify opportunities in electrical and electronic business and use them to their advantage (Gopinath, 2016). Professionals use their enterprise skills to develop and implement business concepts, which can be especially helpful for employers. Electrical and electronic graduate with strong business enterprise skills can make the best out of any situation;

they are innovators who constantly come up with ideas and methods intended to help their business or venture to generate revenue. Electrical and electronic graduate can use business enterprise skills to spot market segments with potential for growth, with well-developed business enterprise skills, electrical and electronic graduate should be able to show employers their creativity skills to help develop business plans with high chances of long-term success (Gunter, 2014).

Creativity is an important business enterprise skill because it produces unique products and services that can stimulate a business long-term success. It's typical for a person with strong business enterprise skills to be creative and innovative, which contribute to their production. Increased productivity often leads to higher profits, making you valuable to the company. A creative individual can use their resources and expertise to solve problems. This is an important skills required for electrical and electronic business, as they often need to assess and resolve challenges for their organization or ventures to function smoothly and profitably (Govaerts *et al.*, 2016).

Further more Onadikwe (2017) asserts that the ability of having good working disposition and attitude with others is an important enterprise skill. Graduate of electrical and electronic need teamwork skills to collaborate with others in their businesses or organization. For instance, a product developer might need to work with tech support to devise solutions to a recurring product challenge. Employees who work together well are typically a valuable asset for companies. Clearly and concisely describing expectations, directions and ideas can reduce confusion and make development processes more efficient.

Leadership is a multilevel construct that involves aspects of the leader, the follower, and the relationship between them (Graen & Uhl-Bien, 2015). Organizational effectiveness has been

commonly defined as the extent to which an organization accomplishes its goals or mission (Cameron & Whetton, 2014). As a result, the effectiveness of leadership depends on the characteristics of the leader and the nature of the employees as well as the expected interactions between the leader and the followers. An organisation or a company in the life of the people is the contemporary. People have become dependent on organizations of various types for satisfaction of their needs, and their need satisfaction directly depends on the degree of effectiveness of organizations. Higher the degree of effectiveness, more satisfaction people derive from organizations (Mumford *et al.*, 2013). Therefore electrical and electronic business rely on the skilled performance of the leader to solve complex and ill-defined organizational problems and to balance the competing demands of the external and internal environments.

Olubade (2016) stated that marketing skills provides visibility for your products and converts customers choice to yours. Marketing skill is an act of communicating and collaborating with other employees. Otherwise, the lack of proper interpersonal relationships in electrical and electronic business can lead to a poor employee experience for everybody. Infact, Yair and Jonathan (2015) opined that improved employee performance led to improved company performance and companies that highly value employee performance saw almost double the revenue growth. Reaching prospects faster, target ideal audience, and increased revenue, marketing skill is very essential. Google data (2018) shows that small businesses get nearly four times higher revenue growth, when they use marketing tools such as online advertising and data analytics, compared to those that don't use them.

It is general knowledge, that Nigeria is faced with lack of business enterprise skills development among its skilled labour workforce, especially the electrical and electronic technicians,

technologist and craftsmen (Gunter, 2014). Therefore, the study assess business enterprise skill require for work force development in electrical and electronic business in Minna, Niger State.

1.2 Statement of the Problem

There have been various accusations, about the qualities of graduates produced in most technical training institutions in Nigeria. For instance, Awe (2014) observed that most graduates of technical institutions in Nigeria are not skilled enough for employment in industry and commerce. In practice, demands for adequately trained technical graduates with appropriate skills to meet workplace challenges indicate that the availability of those graduates is extremely important to employers. Despite high demand for skilled artisans, the public have noted that graduates of electrical and electronics are greatly unemployed because of inability to acquire the required skills and training required for employment or neither have the ability to establish their own business enterprise (Olaitan *et al.*, 2016). The industries in Nigeria complained that Technical and Vocational Education (TVE) graduates do not possess the required skills and training for employability and that they lack assurance in discharging their duties and obligations as required by the industry (Olaitan *et al.*, 2016). This may be attributed to insufficiency and in appropriate of educational training facilities (Olaitan *et al.*, 2016) and this stands to be a contributory factor for not improving the quality of electrical and electronic graduates.

Electrical and electronic trade taught in higher institution are poised with potentials of equipping the students with prerequisite skills to propel them contribute meaningfully to national economic development, be self-reliant and job creators towards reduction of unemployment. Nevertheless, most electrical and electronic graduates roam the street unemployed because they cannot get employed or establish their own business due to the fact that they lack business enterprise skills which may be as a result of ill training or inadequate skill

acquisition amongst graduates of electrical and electronic. Hence there is need for assessment of business enterprise skill require for work force development in electrical and electronic business in Minna, Niger State.

1.3 Purpose of the Study

The purpose of the study is to assess business enterprise skill require for work force development in electrical and electronic business in Minna, Niger State. The objectives of the study are to determine the;

1. creativity and innovation skills require for work force development in electrical and electronic business
2. work related disposition and attitude skills require for work force development in electrical and electronic business
3. organizational effectiveness and leadership skills require for work force development in electrical and electronic business
4. marketing skills require for workforce development in electrical and electronic business

1.4 Research Questions

The following research questions were raised to guide the study.

1. What are the creative and innovation skills required for work force development in electrical and electronic business?
2. What are the work related disposition and attitude skills required for work force development in electrical and electronic business?
3. What are the organizational effectiveness and leadership skills required for work force development in electrical and electronic business?

4. What are the marketing skills required for workforce development in electrical and electronic business?

1.5 Significance of the Study

It is believed that this research finding will contribute to the upliftment of business enterprise skills in electrical and electronic business in Minna. It will be great benefit to: Professionals, Teachers, Craftmen, Students, Researchers, Curriculum planners, policy makers, Society

The study will be beneficial to professionals in electrical and electronic industry to provide solution to the issue of business enterprise skills gap but to equally intimate the industry professionals, educate professionals with recent knowledge and guidelines for reducing business enterprise skills gap in order not to cause delay and unproductive work within the industry.

The study will be beneficial to inform teachers in technical and vocational education in Nigeria to understand the positivity of training students to acquire the required skills for employment and business.

The findings of the study will be beneficial to craftmen so that they can be able to think inwardly to achieve a better business plan growth and also acquire more knowledge in their area of expertise.

The result of the study will help policy makers and curriculum planners in the consideration of all activities that are necessary areas of weaknesses in the curriculum and also to plan and develop curriculum that will provide the kind of skilled workforce needed in Nigeria for graduates of electrical and electronics.

Society will benefit from the study, when the rate of unemployment is reduced to the barest minimum.

The findings of the study when implemented would help electrical and electronic graduates to develop industry-relevant skills thereby making them ready for the job market.

The result of the study will help researchers in identifying skills needed by the industry theoretically without mapping the curriculum to industry needs..

1.6 Scope of the Study

The study is limited to business enterprise skill require for work force development in electrical and electronic business in Minna, Niger State. The study is also limited to final year students, craftsmen of electrical and electronic trade in Minna, Niger State. The study is to assess creativity and innovation skills, work related disposition and attitude skills, organizational effectiveness and leadership skills and marketing skills require for work force development in electrical and electronic business. The study will be carried out within eight weeks.

1.7 Hypotheses

The following null hypotheses will be formulated and will be tested at 0.05 level of significance.

H₀₁: There is no significant difference between mean score of students and craftsmen of electrical and electronic trade on creative and innovation skills required for work force development in electrical and electronic business

H₀₂: There is no significant difference between mean score of students and craftsmen of electrical and electronic trade on work related disposition and attitude skills required for work force development in electrical and electronic business

H03: There is no significant difference between mean score of students and craftsmen of electrical and electronic trade on organizational effectiveness and leadership skills required for work force development in electrical and electronic business

H04: There is no significant difference between mean score of students and craftsmen of electrical and electronic trade on marketing skills required for work force development in electrical and electronic business

CHAPTER TWO

2.0

LITERATURE REVIEW

2.1 Electrical and Electronic Technology

Electrical/Electronics technology is a course in technical education that equips individuals with specific skills, knowledge, and attitudes to enable them maintain, repair, and construct basic electrical/electronic systems in practice (Nweke, 2017). Basically, Electrical/electronic technology equips student with knowledge, skills and attitudes needed for performance in the field of electrical/electronics and for gainful employment (John, 2018) According to Nweke, (2017) electrical/electronic technology is an offshoot of technical education program offered in technical colleges, polytechnics, colleges of education (technical) and universities in Nigeria in order to produce technical teachers who will be able to inculcate scientific and technological knowledge to individuals. Osuala (2018) stated that technical education prepares technicians for employment opportunities by giving them training in the use of drawing

instruments, gauges, applied sciences, mathematics, common sense, initiative, analysis, and diagnosis; by training them on how to collect data, make computations, perform laboratory test and preparing report; and by providing experience in planning, repairing, supervising and controlling machines. Hence, electrical/electronics teachers in colleges of education (Technical) are expected to inculcate these skills in their students as contained in the curriculum. However, achieving this can only be done through effective teaching. Therefore, electrical/electronics technology is designed to achieve the following objectives:

- To produce qualified and competent electrical/electronic technology graduates who will be capable of teaching electrical/electronic technology subjects in the junior secondary schools.
- To produce NCE electrical/electronics technology graduates who will be able to inculcate the scientific, vocational and technological aspect of Electricity / Electronics technology, attitudes and values into the society.
- To produce qualified NCE electrical/electronic technology students who will start the so much desired revolution of vocational and technological development in Nigerian schools;
- To prepare students in electrical/electronic technology with necessary competencies to qualify them for a- two year post NCE degree program in electrical/electronic technology.
- To equip and produce qualified NCE electrical/electronics technology graduates with the right skills for engaging in industrial work life as well as for self employment (FGN, 2009).

The foregoing shows that graduates of technical education in electrical/electronics technology need to be well equipped with adequate technical and professional competencies/skills if they are to perform effectively in the workforce development of business enterprise. Hence, the focal point of this study was to investigate the business enterprise skill require for work force development in electrical and electronic business in Minna, Niger State with regard to the applied skills possessed by the graduates.

2.2 Concept of Workforce Development

Workforce according to ASTD (2012) is the significant marginal gap experienced between the industry initial competency level and the skills the industry needs to accomplish its objectives. This is a situation whereby the industry cannot fulfil its obligations to the society because they lack the skilled workers that supposed to work for the industry. It is evident to note that root problem of workforce could be traced back to education and training (Chan & Dainty 2017; Gann & Senker, 2018). The relevant curricula and the teaching methods should be reviewed and updated in other to bridge the workforce that exists.

Most of the developed and developing countries have been experiencing inadequate workforce as perceived by the employers (Ofori, 2019). Inadequate workforce in industry are identified as lack of qualified trained persons from the perspective of the employer. The gaps could be due to inadequacy in general education levels or due to inadequacy in general education levels and or due to inadequacy of technical skills. Inadequate workforce is one of the pressing issues and concerns of industries throughout the world. Researchers has shown that shortage of workforce is experienced by all the industries worldwide, it has become a global issue, ranging from

construction, manufacturing, health sector and host of others (Aring, 2018). Inadequate workforce is a problem that has been in existence for ages; it is not a new occurrence within industries and has always been a recurring problem over the ages (Aring, 2018; Ofori, 2015).

The 2010 World Economic forum report on talent mobility states that the world is facing a global demographic shock and workforce. This is a global challenge that is so great that no single stakeholder can solve alone (Ofori, 2015; Aring, 2018). Globally therefore, the issue of workforce has become a significant issue that affects industries across the universe in which no single entity can resolve the challenges alone (Ofori, 2015; Aring, 2018). Workforce has become a global issue that threatens global economic growth (Aring, 2018). The global mismatch between skills and jobs, better known as ‘workforce’ remains a prevailing issue. The construction industry is facing difficulty in hiring skilled workers, which resulted into skills shortages hampering the production output of the industry and its business performance (Whitlock, 2017; Ofori, 2015).

According to the Network Construction (2017), the shortage of craft skilled workforce has affected the construction industry in their inability to engage with the working principle of the industry in applying new technology. This however, has ever remained a big challenge to the industry in the area of technical and vocational skills, thereby causing workforce. The afore stated fact has therefore, led the construction industry to hire workforce from other countries. And this has become the norm and an annual occurrence. Thus, lack of high-quality skills has jeopardized the productivity of the construction industry (Mackenzie *et al.*, 2015). Although the workforce has been studied all over the world, such studies are relatively scarce and new in situation of some developing countries like Nigeria (Bilau *et al.*, 2015). The existence of skill gap in industry is as a result of un-skilled craft men who are not competent enough to discharge

their duties accordingly this could be attributed to the fact that education and training are not delivering the general and technical skills required for employment (Chan & Dainty, 2017).

Manson *et al.* (2019) concluded that, based on employers' feedback from the construction industry, workforce is prominent within the following skills, personal skills, numeracy, literacy, IT skills, generic skills and vocational and job specific skills. The identified skills are needed for employment at the workplace. General education is comprised of some skills to include generic skills which is one of the courses that has been embedded into the curriculum of TVET both in the developed and developing countries in order to serve as bases for training. The in-ability of technical college students in Nigeria in area of sciences, technology, engineering and maths (STEM) has become a major challenge. The in-ability of students to comprehend and apply those subjects has created a workforce among the workforce. The industry has complained about some skills identified to include cognitive and non-cognitive skills, numeracy, leadership, communication and host of other skills among the craft workers (Jayaram & Engmann, 2017, Lututala, 2016) in which the students does not perform well, which has resulted into workforce.

Employers perceive that workforce is when employees or the existing workers possess inadequate skills in meeting the business aspirations of the industry, this is termed internal skill gaps or where new employees come out to be qualified but absolutely, they are not qualified (El-Sabaa's, 2017). According to Strietska (2018), workforces can be likened to the qualitative inequality between the supply and demand of the labour market. In other forms, workforce could be the difference in skills required by the industry and the skill possessed by the employee. It could also be when skills levels are lower than those required to do their present job, this is assumed to be a manifestation of a workforce (Sutherland & Lodge, 2018). It could be distinction within skills needed for a work and those skills acquired by eventual worker. It is an

extent to which employers observe their workers' present skills as insufficient to meet present business goals (Hogarth *et al.*, 2019). There are two major types of skill gaps that are prominent, first, the internal workforce. It is a workforce where few of the workers in an organisation are not experts on their current post (Hogarth *et al.*, 2019), while, the second is the latent workforces; this is a situation where the industry lacks professional ethics and it is reflected among the low level workers in which their competencies are queried (Hogarth *et al.*, 2019).

Inadequate workforce affects most of the developed countries like China, U.S.A, UK, Australia, Canada, Northern Ireland, Germany to mention a few. Germany complained about effects of workforce as it has caused unemployment, low productivity. The above gaps created difficulty in filling millions available jobs as employers could not find qualified workers needed (Zwick, 2017). This gap equally restrains business growth worldwide. In similar vein, other countries like UK, Canada, and Sweden have complained about the effects of workforce on the economy of their countries. The effects of workforce were reported by Mina and Gaghadi (2015) adopting evidence from UK national employment survey (2003), he reported the effect of workforce as having side effect on the industry, in postponing new production of the industry, likewise gaps created serve as a barrier to introducing new work practices.

However, previous work from Northern Ireland sectorial studies (Benneth & McGuinness, 2019), also reported the extent to which the performance of the firms is being constrained as a result of unfilled vacancies which has an adverse effect on the firms by reducing the output per worker level. Workforce mostly occurs within the firm and occurs due to effect of skill shortages which originates before the recruitment of the workforce. The U.S. manufacturing company conducted a research on workforce, the findings show that it was not only the deficiency on part of the skilled workers are responsible for the gap, other factors were equally responsible for the

gap (Weaver and Osterman, 2013). In that vein, Hogarth & Wilson, (2015), conducted a survey research to reveal that occupation in connection with skills shortage records vacancies in area of artisans' and professionals, with twenty two percent of the total employee recording skills shortage in area of hybrid skills (a mixture of two or more skills). Hogarth *et al.* (2014) similarly revealed, that, many establishments reporting workforce, spell out their challenges in terms of skills need for their establishment, most industry required the artisans to have amalgamation of two or more skills are required for work.

Interestingly, most construction industries, workforces were numerous and complicated depending on the area of which the case study was undertaking. Challenges in connection with skills have been labelled skill gaps, the study shows that the major causes of workforce include, failure to budget for staff development, deficiency on part on the skilled workers to be conversant with new working practices and problems of employing and retaining of the workforce. Boyd and Wild (2019) attest to the education and training offered to the technical college graduates, which are not adequate for professionals in construction education. This profession requires a detailed curriculum for imparting knowledge and skills required for employment in the industry. Pitt (2015) queried the curriculum used in teaching the graduates of technical colleges whether it is relevant to the need of the industry in terms of skills need.

Training and retraining of the workforce will contribute to closing the skills gap, as training and retraining all refer to the process of imparting skills on the workforce (Bokini, 2015). The training could be inform of classroom training as recommended by (Solomon *et al.*, 2012), trade group training by (Solomon *et al.*, 2012), apprenticeship training recommended by (Zou *et al.*, 2018) on the job training as recommended by (Awe, 2016) and coaching and mentoring by

(Umar, 2015; Ugwuja, 2015; Odesola and Idoro, 2014), as they all contribute to combating the workforce gap.

2.3 Concept of Skill

Skill is defined as the ability to competently perform a particular task assigned (United Kingdom Commission Employer Skills Survey, 2012) or to perform a specified task at a certain level of expertise (Shah and Burke, 2013; Trendle, 2018). Similarly, a skill can be described as the capability to carry out job assigned to a level of competence and this can be built upon through learning (OECD, 2016). Within the electrical and electronic industry, skill therefore is an activity involving knowledge, judgement, accuracy and mastery, all of which are acquire as a result of long training and practice in a workplace (Oduami, 2014; Awe, 2018). The concept of skill has been defined differently by writers in different forms. Skills could also be looked into from another perspective as being expert in area of specialisation (Wood, 2016), having competence (Boyatzis *et al*, 2017; Olaitan *et al*, 2017) dexterity and knowledge of the workforce (Awe, 2018; Mangham and Silver, 2018). In the same vein, due to some school of knowledge skill, is a special ability to perform duties, majorly acquired through formal or informal training (Tether *et al*, 2015). Definition of skill according to some school of thought should entail the ability of the skilled artisan to work in various section of the industry or the workplace independently (Spenner, 2015; Olaitan *et al.*, 2017). It could be termed as capability to carry out jobs perfectly without supervision. Overwhelmingly, a skill, and various types of skills within the literature are linked to an activity or a job (Clarke and Winch, 2015). As skill is linked with a particular task, a person who does not have skill is unlikely to be able to carry out a given job or will be less productive than somebody who possesses the skill. Skills are often linked and have some alliance with qualifications (Mawer & Jackson, 2015; Sattinger, 2012; Cappelli, 2014) and acquisition

through formal education and training which is adequate in quality and quantity. Electrical and electronic skills and training needs are continually changing. These alongside with the introduction of new business processes, organizing production and technical and vocational innovation which require the construction workforce to be more highly skilled in their various areas of expertise (Spenner, 2015; Mackenzie *et al.*, 2017; Forde and MacKenzie, 2017).

In today's workforce, where changes and increasing competitions are obvious, it is important for policy makers in education to design and implement programs that would provide students with adequate competencies to perform in the enterprise. Whereas the cost of developing human capital is increasing, institutions of education such as Colleges of Education (Technical), Universities, polytechnics and monotechnics need to ensure that they produce graduates who would not only have technical skills but also non-technical skills that are applied in nature. Studies have shown that applied skills in technical education can provide students with the opportunity to practice their technical profession to solve problems and improve their lives, and experiences (Ballard and Daniel, 2016). Therefore, in the current trend, technical skills are very topical in measuring the levels of development and advancements of nations and societies (Geisinger, 2016). Unfortunately, according to World Bank (2015) graduates of leading Technical and vocational education in Nigeria do not meet the expectations of industrial employers despite their high standard certificates. Findings in Uwameiye (2015); Babatunde (2016) have shown that Colleges of Education (Technical) in the Southeastern and Southwestern States are inadequately equipped regarding training facilities, teaching staff and libraries for the implementation of NCCE minimum standards. Consequently, the graduates of these colleges were discriminated against employment due to lack of adequate knowledge and technical skills and competencies requirements for new appointments in industries.

2.4 Creativity and Innovation

Creativity and innovation are defined as the activities of generating and implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations” (Eurostat, 2015).

A product innovation is the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics. Product innovations can utilise new knowledge or technologies, or can be based on new uses or combinations of existing knowledge or technologies. Product and/or service innovation entails activities such as design, research and development, acquisition of patents, technology licenses, trademarks, and tooling-up and industrial engineering.

A process innovation is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software. Process innovations can be intended to decrease unit costs of production or delivery, to increase quality, or to produce or deliver new or significantly improved products.

A marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing. Marketing innovations are aimed at better addressing customer needs, opening up new markets, or newly positioning a firm’s product on the market, with the objective of increasing the firm’s sales.

An organisational innovation is the implementation of a new organisational method in the firm's business practices, workplace organisation or external relations. Organisational innovations can be intended to increase a firm's performance by reducing administrative costs or transaction costs, improving workplace satisfaction (and thus labour productivity), gaining access to non-tradable assets (such as non-codified external knowledge) or reducing costs of supplies.

Official surveys of innovation across the OECD (2017) reveal large and systematic differences in the propensity of firms to innovate and the intensity of their innovation activity. It must be acknowledged however, that there are limitations to the use of these surveys to analyse skills. The principal limitations are that such surveys collect only very aggregate data on skills and there may not be a direct linkage between the type of innovation activity and level of innovation expenditure undertaken by an industry on the one hand, and the employment of people and skills within the industry on the other. This arises because some innovation activities, such as design or patenting, may be funded by one industry, say manufacturing, but their undertaking may be outsourced to another industry, say Business services, which includes industrial design consultancy and legal firms. Although these complex input-output relations make it difficult to infer the skills and occupations involved in innovation in a specific industry, the official surveys do provide a clear insight into the breadth of skills required for innovation at an economy-wide level. A key part of the direct production workforce is trade and technician occupations. They play a critical role in incremental innovation given that their training and function in the workforce entails the generation, design, installation, commissioning, adaptation, maintenance and diffusion of new and existing technologies.

2.5 Organisational and leadership skill

Definitions of organizational effectiveness have generated considerable debate. In one sense, organizational effectiveness has no objective reality but is a concept that exists in people's minds. However, the criteria of effectiveness most highly valued in a hierarchical organization are efficiency, timeliness, smooth functioning, and predictability (Cameron & Quinn, 2017). Organizational effectiveness has been commonly defined as the extent to which an organization accomplishes its goals or mission (Cameron & Whetton, 2015). A growing number of colleges and universities are undergoing fundamental changes in their structure, strategy, technology, and design and management practices to cope better with the following conditions: increased use of technology, collaboration, competition for scarce resources, internal conflict, and power struggles. Problems needing creative solutions are increasingly predicted to characterize cultural organizational systems in which managers find themselves. Effectively managing a system's input through output processes in such a surrounding demands competence in a number of processes and strategies, as well as a theoretical foundation. A human resource management atmosphere, blended with an emphasis on methods to improve productivity, is essential for effective organizational performance and goal achievement Vinitwatanakhun (2018). Leadership is a process by which one person influences the thoughts, attitudes and behaviours of others. Leaders set a direction for the rest of us; they help us see what lies ahead; they help us visualize what we might achieve, they encourage us and inspire us. Without leadership a group of human beings quickly degenerates into argument and conflict, because we see things in different ways and lean toward different solutions. Leadership helps to point us in the same direction and harness our efforts jointly (Mills, 2015). Mcshane (2013) defines effective leadership as the process of influencing people and providing an environment for them to achieve team or organisational objectives. He states further that

effective leadership help groups of people define their goals and find ways to achieve them. In his view they use power and persuasion to ensure that followers have the motivation and role clarity to achieve specified goals. Effective resources and achieve cooperate objectives more easily.

Many measures of performance may be more relevant to some sectors than others. When measuring organizational performance, the choice of measures should be informed by the sector and business-specific context (Page *et al.*, 2015). Measurement of organizational performance is not without its challenges. Measures based on accountancy are to some extent, open to manipulation and therefore may be difficult to compare over time, or between organizations. Many measures do not necessarily capture the quality of a product or service and where part-time work is frequent and to be comparable, measures need to take into account hours worked (Page *et al.*, 2015). Page and others developed a set of 'core' measures of organizational performance that have general application, to enable benchmarking and comparison across sectors. The 'core' set of measures include:

Productivity: Productivity could be measured using Net added value per hour worked or Net added value per worker. However, this measure will be affected by investments other than those in skills and training, for example in capital.

Profitability: Return on assets is a useful measure of profitability, and measures how well a company is using its assets to generate earnings. However, values can vary substantially between companies and between sectors and therefore for wider benchmarking purposes profit per employee may be more effective.

Quality: Manufacturing organizations could estimate quality using the Number of defects in a given number of products. More generally customer satisfaction could be used. Exactly how customer satisfaction is measured is likely to vary from organization to organization.

Innovation: Sales (N) from new or adapted products or services is a measure that could be used to benchmark innovation across sectors and which takes some account of the success of the innovation.

Staff performance: Employees' performance is appraised against preset standards. According to Avery (2012) is due largely to the widespread belief that leadership can affect the performance of organisations and that the style of leadership adopted is considered by some researchers to be particularly important in achieving organisational goals, and in working performance among subordinates. Several reasons he adds indicate that there should be a relationship between leadership and performance. The first reason he said relates to practice and that due to today's intensive, dynamic markets feature innovation based competition, price performance, rivalry, decreasing returns, and the creative destruction of existing competence, scholars and practitioners in his view are of the opinion that effective leadership behaviours can facilitate the improvement of performance when organisations face these new challenges (Avery, 2012).

Understanding the effects of leadership on performance Zhu *et al.*, (2015) perceived the importance because leaders in their view is viewed by researchers as one of the key driving forces for improving a firm's performance ; effective leadership to them is seen as a potent source of management development and sustained competitive advantage for organisational performance improvement. In view of this relationships Avery (2012) presents the views of (Avolio 2017; Lado *et al* 2016; Rowe, 2017) who state that transactional leadership helps

organisations achieve their current objectives more efficiently by linking job performance to valued rewards and by ensuring that employees have the resources needed to get the job done. Visionary leaders Avery states creates a strategic vision of some factors, communicate that vision through framing and use of metaphor, model the vision by acting consistently, and build commitment towards the vision. Zhu *et al* (2015) suggest that visionary leadership will result in high levels of cohesion, commitment, trust, motivation, and hence performance in the organisational environments.

According to Mehra *et al.* (2015) when some organizations seek efficient ways to enable them to out perform others, a long' standing approach is to focus on the effects of leadership. This is because team leaders are believed to play a pivotal role in shaping collective norms, helping teams cope with their environments and coordinating collective action. These leaders centered perspective has provided valuable insights into the relationship between leadership and team performance. (Avery 2018).

Leadership means the process of influencing people, so that their efforts are oriented toward achieving the goals of the organization. Leadership is the process of guiding others' behavior towards achieving the stated objectives. Orientation in this case implies encouraging people to act in a certain way or pursuing a particular course of action. (Academi of Management Review, 2017). The question is "Who is the leader?" and the most acceptable answer can be: "The leader is defined as any person who influences individuals and groups within the organization, helps them in defining objectives and guides them towards achieving these goals" (Nahavandi, 2015). The perception of the leader in many successful companies consists of three elements on which other elements can be raised. According to Nahavandi (2015) the most important qualities of a leader are:

Honesty and integrity

The word "honesty" comes from Latin which means quality or honesty: while the word integrity comes from the word meaning the whole. These are the terms that are almost always being identified as the most important qualities for the leader. This shows that almost all managers and professionals have great respect for leaders who do not engage in macro gaming and who have professional confidence, integrity and are serious. These leaders do not make promises that they do not keep and do not break them when they have said the word.

Competence and credibility

These are leadership qualities associated with the right experience in an industry, practical business intelligence, intelligence and dynamism are highly valued. There is almost no doubt that followers do not react positively to leaders who believe they have these qualities and are able to make important and difficult decisions and follow their ideas up to implementation.

• Inspiration and motivation

Shaded as the most important qualities of a good leader by many MBA students are the willingness to tackle their successors as intelligent at a rebellious one who will greatly contribute to each organization if given the encouragement, opportunities, and right reward. To be more precise we would say that this quality is actually a consequence of understanding how to not demote people.

Visional / direction for the future

To be visionary you have to be creative, innovative and adaptable to the combined change with a high capacity to learn. This too, implies the ability to make bold decisions when followers are not safe, swinging or suspicious. People will react to these skills in the same way as they have done for centuries, because they still want to show the way to the future from the leader they trust.

Good communication skills

These attributes are desirable skills for a leader. This complexity of skills and competences includes the ability to listen actively, knowing to have heart and mind appeal, the ability to build relationships with the employee, communicate with each person directly and personally and with the ability to walk, talk and lead by example.

Equality / Parity

This is the attribute of leaders who treat their followers with justice, equality and respect and do not create favorite groups. They do not prejudice people from ethnicity, race, gender, sexual orientation, or physical abilities. Where they have to make judgments on other people, they make them based on the character of the people, values, skills, performance at work, and other tangible or visible contributions they make to the organization.

The sense of humor

Humorous people are generally the best to work together and laughter is one of the best work antistressors. Humor can be used in almost all situations to ease tension and labor conflicts. Humor is also associated with reactive and innovative skills in contrast to this, humorous people often have excessive ego, are able to listen to others and are toxic to some extent.

2.5 Work Related Disposition and Attitude Skills

Work related skills are skills meant for an occupation in which the skilled worker has competency in his area of discipline or related profession which require the use of tools, in technical or engineering field (Medina, 2010). Work related skills issues relating to the use of equipment's and tools meant for work and related issues are linked with work related skills. This could be learnt in educational training institutions and non-formal settings (Handler & Healy, 2015). Tracking employee work related disposition and attitude effectiveness is a key objective of any HR department. To ensure that there is adequate return on investment in training of new and current employees, the organization has to establish key performance indicators (KPI). KPI if created and tracked properly serve as a benchmark for measuring the progress of employees towards a set of broader based goals or objectives (Lilly, 2016). However, most organizations are faced with the challenges of developing a good KPI. Lilly (2016) suggests that quality key performance indicators for tracking employee effectiveness should include:

- measurable and quantifiable indicators
- competency based indicators
- linked to proficiency indicators
- mapped to organizational and employee goals indicators.

Hakala (2018) explains that performance measurement uses the following indicators of performance.

Quantity: This indicator places emphasis on the number of units produced, processed or sold against the set standard i.e. the number of units to be produced, processed or sold.

Quality: The quality of work performed can be measured by several means. The percentage of work output that must be redone or is rejected is one such indicator. In a sales environment, the percentage of inquiries converted to sales is an indicator of salesmanship quality.

Timeliness: This indicator measures how fast work is performed or how fast services are provided. For example, in a service industry, the average customer's downtime is a good indicator of timeliness, while in a manufacturing outfit, it might be the number of units produced per hour.

Cost-Effectiveness: The cost of work performed should be used as a measure of performance only if the employee has some degree of control over costs.

Absenteeism/Tardiness: An employee is obviously not performing when he or she is not at work. Other employees' performance may be adversely impacted by absences, too.

Creativity: It can be difficult to quantify creativity as a performance indicator, but in many white-collar jobs, it is vitally important. Supervisors and employees should keep track of creative work examples and attempt to quantify them.

Adherence to Policy: This may seem to be the opposite of creativity, but it is merely a boundary on creativity. Deviations from policy indicate an employee whose performance goals are not well aligned with those of the company.

Gossip and Other Personal Habits: This indicator may not seem performance-related to the employee, but some personal habits, like gossip, can detract from job performance and interfere with the performance of others. The specific behaviours should be defined, and goals should be set for reducing their frequency.

Personal Appearance/Grooming: Most people know how to dress for work, but in many organizations, there is at least one employee who needs to be told. Examples of inappropriate appearance and grooming should be spelled out, their effects upon the employee's performance and that of others explained, and corrective actions defined.

2.6 Marketing Skills

Marketing Skills sales or marketing competences include the capability to determine the products that will sell very well in the market, ability to successfully forecast a venture, determine availability of materials for production purposes and strength of competitors in the market. Entrepreneurship marketing skill also involves being able to determine customer's market needs or demands.

Market Competition Skills: Competition competences involve the following abilities

- (a) Funding capital to start a business
- (b) Know how to recruit or lay off an employee successfully
- (c) Being able to determine employee salaries and incentives in advance
- (d) Knowledge of building accommodation for the business at hand
- (e) Assessing equipment or machines required adequately

Electrical installation and maintenance work graduates need the above stated entrepreneurial skills to adapt to the changing society in creating self-reliant jobs or being employed in recognized institutions. Entrepreneurship education is thus important in raising entrepreneurs that can contribute to sustainable economic development.

2.7 Theoretical Framework

Constructivism Theory

The Learning theory guides this study. The act of human beings generating intelligence and interpretation, from a discussion between humans, their understanding and their opinions generated by them is known as constructivism theory. (Billet, 1996).

Learning theories that have dominated vocational technical education have been (behaviourism) which is the learning gained through the acquired stimulus response pairs, studying in order to transform messages received, and training as a system of developing know-how (constructivism) (Rockmore, 2015; Fosnot, 2015, Mayer, 2016), not until recently, connectivism and humanism learning theories are gaining dominance (Eraut, 2017; Siemens, 2015), nevertheless, constructivism learning theory is adopted for this study.

Constructivism is a theory describing how learning takes place, the training, education, ability, skill and the experience of the trainee should be put into consideration as it plays a prominent part and it contributes to the learning techniques, this background contributes to shaping the knowledge the learner creates, as well as the truth the learner discover and attain, during the learning process as it progresses (Von Glasersfeld, 1989; Wertsch, 1997). In this paradigm, the student should be seriously engaged in the studying process of learning, it is not for the students to be passive when it is the duty of the teacher to disseminate the lecture. It is mandatory for teachers in social constructivism to conform to the task and responsibilities of facilitators in disseminating instruction to the learners (Bauersfeld, 1995). The difference is that the teacher gives a lecture that covers the theme of discussion, while the coordinator assists the trainee to discover how much he assimilates and grasp the subject matter. The focus of discussion on the subject matter shifted from the teacher and even the theme, and is shifted towards the trainee (Brownstein, 2001; Gamoran, *et al.*, 2018). Therefore, the role of a teacher is distinct and

differs from that of a learning facilitator. The facilitator supports the learner while the instructor provides solution according to the syllabus set. A coordinator prepares a guideline and provide clues for the trainee in order to resolve the problem. The educator mostly takes the responsibility, gives a lecture and a facilitator is in continuous lecturing with the learner (Rhodes and Bellary, 2017).

Learning to the social constructivist is a social process (Floden, 1994; McMahon, 1997). This means that learning does not only take place in our minds, but, that training takes place when individuals are involved in sociable engagements. To the social constructivist training equally transpires between the instructors and the learners (Holt and Willard-Holt, 2017). In order for the trainee to deduce meaning to the task in hand, it requires the personal and fair opinion, culture, skill and experience of the instructor. Learners make a comparison of their own findings compared to the teacher and their co-mates in getting another interpretation of the truth, trying to make an inference or before arriving at a conclusion (Kukla, 2017).

Model constructed by social constructivist relay the usefulness of affair between trainee and the teacher in the process of learning. In most constructivist model, collaboration is allowed between trainees, directly contradicted to conventional competitive way, so that they can both share the truth in their findings (Duffy and Jonassen, 2016). The act of mentoring is good for the learners (Archee and Duijn 1995; Brown *et al.*, 1989).

Constructivist model has been found useful in craft apprenticeship, this is where learning brings the learners into real life of performing usual procedure through exercise and sociable discussion similar to that evident, and that is rewarding (Ackerman, 1996). In the constructivist teaching method, training is best practiced by applying hands-on-approach, students master by practice, conduct experiments and awaits the completion, based on their outcome (Guthrie *et al.* 2017).

This is in consonance with the ethics and principles of vocational technical education training stipulated by the City and Guilds of London (Ogwo and Oranu, 2015).

Guthrie *et al.* (2017) in their comparison of three instructional methods found hands-on-approach as the best method of giving instruction to the craft workers in technical education. Different educators have asked questions concerning the efficiency of constructivist system of approach towards instructional design and its application to instruction for those who know nothing about the theme been discussed (Kirschner, *et al.*, 2015; Mayer, 2017). Looking from the constructivist perspective they argue that learning by doing is the best way to enhance learning, other critics argued that there is little or no evidence to back up the constructivist statement (Kirschner, Sweller and Clark 2015; Mayer, 2017). Mayer in its own finding proposed that pupils should participate actively in the process of studying and that the teachers should support accordingly applying guiding principle. In the constructivist classroom, questions were given to learners to resolve, learners therefore were divided into groups, to find solution to the problem and present their finding to a group of people (Carbonell, 2017). Other forms of learning that adopts the constructivist model are cooperative learning, hands on activities, discovery learning, and differentiated instruction are elements that characterise constructivist model of teaching (White-Clark, 2018). The act of learning by doing is well supported by the constructivist learning theory and it has been common practice in vocations and professions for centuries. Pragmatism is interdisciplinary in nature and has the advantages of constructing, emphasizing cognitive process, therefore, agreed with constructivist belief about how students learn best, which is hands on, learning-by-doing (Johnson *et al.*, 2018)

Behaviourism theory

This learning theory is majorly covering the observable and measurable characteristics of human performance. The stimulus response association is responsible for the outward behaviour which the learner displays. This calls for investigations, as behaviourist learning theory is concerned about the behaviour of the learner (Bush, 2015). Therefore, their focus is based on learning as affected by changes in behaviour. Behaviour mostly is directed by stimuli. Selection of one's response depends on initial behaviour and primary drives that exist instantly at the behaviour of a human being (Parkay and Hass, 2017). Behaviourist asserts that the only behaviour that is essential for study is the one that can be observed directly, because it is actions that are measured not thoughts nor emotions. Behaviourism operates on the principle of stimulus response, this is glaring due to interaction between stimulus and response, rather behaviourist agreed that all behaviour is learned way of doing things.

From educational perspective, behaviourism is adopted by applying the system of rewards and punishments in the course of learning. Students who are well behaved are rewarded by the educators while those who are not complying with the rules and regulations were punished. The effects of reward in education is of very paramount importance to the learners. The originators of behaviourists approach to learning, Watson and Skinner view learning from the principles of Ivan Pavlov, who posited that the gastro intestinal system and the reaction with saliva and abdomen operation is based upon the reflexive in the involuntary system. To establish that, and to see if external stimulant is effective during the exercise, each time he is given food to the dog he used for the experiment, he rang a bell when he gave food to the experiment dogs. He observed that the dog salivates directly before they were given food, he noticed that even as the bell was rung, the sound of the bell alone initiates the salivation of the dog, this is referred to as control stimulant (Rescorla, 2016). This gives an idea of stages of classical conditioning.

Solitarily, food is equals to salivation, stimulant plus food will bring salivation which is conditioned stimulus and bell alone produces salivation which is equal to conditioned response (Rescorla, 2016).

Behaviourist techniques is equally applied in education to promote behaviour. It is used to promote reward and it acts like a positive reinforcement due to the behaviour of the student. It equally acts as a negative reinforcement, here it applies punishment on never do well students whose attitudes and behaviour are very bad (Peel, 2015)

2.8 Review of Related Empirical Studies

A study was conducted by Robinson (2015), on graduates of Agricultural education and Food and Natural Resources Education to investigate their employability skills on graduation. The study highlighted 67 employability skills and ranked them in order of importance based on their mean scores. Findings revealed that all the 67 employability skills were considered as very important to the graduates for employability. The study also revealed that some of the graduates perceived themselves as being more competent in the 67 employability skills than most others.

Hoo (2009) conducted a study on Employers perception/preference for foreign trained graduates. The purpose of the study was to examine (i) whether employers prefer foreign trained graduates (FG) vis-a-avis local graduates (LG) and graduate from local twinning program (TG) and (ii) whether there is a significant difference in the overall performance perception (OPP) of these 3 groups of graduates over different time frames. Data was collected from Human Resources Managers and Administrative Managers of Public listed companies as well as from small and medium Enterprises in the northern region of Malaysia, using an on-line survey. Findings from the study revealed that employers perceived foreign trained graduates to be superior in terms of

employability skills such as communication skills (verbal & written), confidence / self wage, computer / IT skills; creative / inoperative skills; and analytical skills and flexibility / adaptability compared to their local counterparts. In terms of overall performance perception (OPP), foreign graduates too were deemed superior.

A study on employers' perception of the preparation of agricultural and extension education graduates for job in the enterprise was conducted by Graham, (2003). The main purpose of the study was to determine the knowledge, skills and abilities desired by employers at entry-levels from graduates of the department of Agricultural and Extension Education. Findings of the study have revealed that the level of preparation of AEED graduates with regard to their knowledge, skills and abilities in technical competencies was low.

Hassan *et al.* (2010) conducted a study on the importance of employability skills from employers' perspective. The respondents consisted of 180 employers in various fields of engineering in Peninsular, Malaysia. Findings have shown that the employers have considered employability skills as fundamental requirements for graduates. The study also showed no significant difference between the size of company and employability skills. It was recommended based on the study that authorities of educational institution should enhance the employability skills of the students either through the professional development of lecturers, curriculum and co-curriculum.

Ismail *et al.* (2010) conducted a study on employers' perception of the skills possessed by graduates in Malaysian service sector and their performances at work. A total 749 employers in the Service sector were involved in the study. Findings have shown that the respondents gave moderate scores to all the graduates with regard to the skills they possessed and their performances at work.

Haskel *et al.* (2013) showed that more productive UK firms hired more skilled workers. Their finding showed that skills were positively related to total factor productivity (TFP) and the skill gap between the top- and bottom-performing firms explained some 8% of the productivity gap. Similarly, Lynch and Black (2015) found in the US, that an extra year of education raised productivity by between 4.9 and 8.5% in the manufacturing sector and between 5.9 and 12.7% in the services sector. Other research has suggested that a more highly skilled workforce can bring other benefits such as enhancing company survival. Reid (2017) opined that a more skilled UK workforce was related to a greater commercial orientation and strategic awareness and propensity to innovate and to retain competitive advantage.

An OECD study looked at innovation in UK SMEs and found that higher qualification levels of both managers and staff boosted innovation (Albaladejo and Romijn, 2014). Higher training expenditure per employee was also associated with higher technological complexity and originality. Perhaps, some of the most influential work in this area has focused on the investment in skills and training and the association between skills and productivity. A clear connection between higher skills and higher productivity has been identified particularly at the intermediate skills level. The studies found that the higher average levels of labour productivity in firms in continental Europe were closely related to the greater skills and knowledge of their workforces. Within manufacturing firms, lower skills levels in the UK were found to have a negative effect directly on labour productivity and on the types of machinery chosen (Keep, Mayhew and Corney, 2017). There is evidence that skill levels are associated with innovation performance.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Research Design

This research adopted a survey research design, where survey research design is one of the important area of measurement in applied research. The broad area of survey research encompasses any measurement procedures that involved asking questions from respondents.

A survey research design according to Aliyu (2016) is a descriptive study which uses sample of an investigation to document, describe and explain what is in non-existence on the present status of phenomena being investigated. He further stated that in survey study, views and facts are collected through questionnaire, interviews, among others, analyzed and used for answering research question. The survey research design is suitable for this study since data is collected through questionnaire from electrical and electronics experts in Niger state on business enterprise skills require for work force development by electrical and electronic technology students.

3.2 Area of study

The study is carried out in Niger state, majorly areas where electricians are located.

Technical institutions were also considered due to the fact that there are electrical expertise who have more knowledge and skills on business enterprise and its relation. Also, they are easily accessible to the researcher.

3.3 Population of the Study

The targeted population for this study consisted of the Electrical and Electronic Technologist and students in Minna metropolis. Minna is a developing urban settlement, various Electrical/electronic technologist are not registered with appropriate body. Therefore assessible population will be used, while 500 level students of Technology Education in Federal University of Technology Minna was used for the study.

3.4 Sample and Sampling Techniques

An area sampling method was employed. Area sampling is a procedure in which the unit of analysis in the population that is distributed over some geographical areas, is grouped into clusters and a sample of the cluster serves as a basis for sampling rather than a sample of individual. Area sampling technique was used to select 100 students from the Department of Industrial and Technology Education Department and 200 electrical/electronic technologist in Minna. This technique will be used to involve both male and female students.

Table 3.1: Sample Size distribution

S/N	Respondent	Population
1	ITE dept	100
2	Electrical/electronic Technologist	200
	Total	300

3.5 Instrument for Data Collection

A Research instrument was designed titled ” Business Enterprise Skill Require For Work Force Development In Electrical And Electronic Business In Minna, Niger State”. Questionnaire will

be used for data collection using four modified likert rating scale and it's contains two sections as well as the same scaling for all sections.

3.6 Validation of the Instrument

After drafting the instrument it was validated by two lecturers in the Department of Industrial and Technology Education, Federal University of Technology Minna, Niger state to ensure face to face validity of the instrument. As well as the validate of this study and their comments will be used to readjust the instrument.

3.7 Reliability of the Instrument

The reliability of the instrument was determined by selecting 20 students apart from the selected sample consisting of male and female to determine the reliability of the instrument. Cronbach alpha was used to determine the reliability. A result of 0.76 reliability co-efficient was obtained.

3.8 Administration of the Instrument

An introductory letter was requested from the department and was submitted to various department to seek for permission to administer the instrument to the respondent. After some days, permission will be granted to administer the instrument. The instruments was administered to all respondent within three days. After permission is sorted, copies of the questionnaire was directly administered to the respondents with the help of research assistant to be filled and data was collected to ensure that all copies was retrieved.

3.9 Method of Data Analysis

The data collected was analyzed using Mean and Standard deviations to analyze the research questions, while independent t-test was used to analyze the formulated hypotheses. The software used in analyzing is SPSS version 23.

3.10 Decision Rule

In order to determine the level of acceptance or rejection of any items, a mean score of 2.50 was used. Therefore any item with a mean responses of 2.50 and above was accepted and any item with a response of 2.49 and below will be rejected.

The mean of each item was computed by multiplying the frequency of each response mode with appropriate nominal value and divided by the sum obtained under each item with the number of the respondent to an item.

CHAPTER FOUR

4.0

RESULTS AND DISCUSSION

4.1 Results

Research question one

What are the creative and innovation skills required for work force development in electrical and electronic business?

Analysis of research question one is presented in Table 4.1.

Table 4.1: Mean and standard deviation of respondents on the creative and innovation skills required for work force development in electrical and electronic business

S/N	ITEMS	\bar{X}_1 n ₁ =100	\bar{X}_2 n ₂ =200	\bar{X}_T N=300	SD	Decision
1	Use various techniques for creating and evolving new ideas(such as brainstorming)	3.00	3.29	3.15	0.56	Agreed
2	Use all available concepts to create or conceive and perceive novel and useful ideas	2.88	3.98	3.43	0.57	Agreed
3	Elaborate, refine, analyse and evaluate ideas to improve one's own creative efforts	2.97	3.02	3.00	0.62	Agreed
4	Develop, implement and communicate new ideas to others	2.87	3.93	3.40	0.69	Agreed
5	Be open and responsive to diversity	3.00	3.60	3.30	0.69	Agreed
6	Incorporate group input and feedback into the work	3.03	3.63	3.33	0.68	Agreed
7	Understand the practical limits for adopting new ideas	3.94	2.70	3.32	0.63	Agreed
8	Treat failure as an opportunity to learn and improve	3.00	3.54	3.27	0.64	Agreed

Key: \bar{X}_1 = Mean response of Students, \bar{X}_2 = Mean response of Electrical/Electronic Technologist, n₁ = No of Students, n₂ = No of Electrical/Electronic Technologist, \bar{X}_T = Average mean response

Table 4.1 shows the responses of respondents on the creative and innovation skills required for work force development in electrical and electronic business. The result revealed that all the items with the mean range from 3.00-3.43 agreed on the creative and innovation skills required for work force development in electrical and electronic business based on the decision. The standard deviations (SD) of all items are within the ranges from 0.56 to 0.69, each of these values was less than 1.96 which indicated that respondents were not too far from the mean and from one another in their responses on the creative and innovation skills required for work force development in electrical and electronic business. This indicated most of the respondents agreed

on the creative and innovation skills required for work force development in electrical and electronic business.

Research Question Two

What are the work related disposition and attitude skills required for work force development in electrical and electronic business?

Analysis of research question one is presented in Table 4.2

Table 4.2: Mean and standard deviation of respondents on the work related disposition and attitude skills required for work force development in electrical and electronic business

S/N	ITEMS	\bar{X}_1 n ₁ =100	\bar{X}_2 n ₂ =200	\bar{X}_T N=300	SD	Decision
1.	Skills in Timeliness i.e how fast work is performed or how fast services are provided	3.35	2.80	3.08	0.64	Agreed
2.	Skills in Cost-Effectiveness	3.60	3.00	3.30	0.51	Agreed
3.	Punctual to work place	3.02	3.40	3.21	0.78	Agreed
4.	Adherence to Policy	3.04	2.15	2.60	0.78	Agreed
5.	Respect to others workers	2.39	2.72	2.56	0.63	Agreed
6.	Taking instruction from others	2.62	3.65	3.14	0.68	Agreed
7.	Team work spirit	3.62	3.15	3.39	0.60	Agreed
8.	Commitment to the job	2.65	2.56	2.61	0.66	Agreed
9.	Approach every situation positively	3.63	3.15	3.39	0.56	Agreed
10.	Innovative ideas and finding new ways	3.65	2.15	2.90	0.78	Agreed
11.	Helpfulness with others	3.35	2.70	3.03	0.63	Agreed

Key: \bar{X}_1 = Mean response of Students, \bar{X}_2 = Mean response of Electrical/Electronic Technologist, n₁ = No of Students, n₂ = No of Electrical/Electronic Technologist, \bar{X}_T = Average mean response

Table 4.2 shows the responses of respondents on the work related disposition and attitude skills required for work force development in electrical and electronic business. The result revealed that all the items agreed with the mean range from 2.56-3.39 on the work related disposition and attitude skills required for work force development in electrical and electronic business based on the decision. The standard deviations (SD) of all items are within the ranges from 0.51 to 0.78, each of these values was less than 1.96 which indicated that respondents were not too far from the mean and from one another in their responses on the work related disposition and attitude

skills required for work force development in electrical and electronic business. This indicated most of the respondents agreed on the work related disposition and attitude skills required for work force development in electrical and electronic business.

Research Question Three

What are the organizational effectiveness and leadership skills required for work force development in electrical and electronic business?

Table 4.3: Mean and standard deviation of respondents on the organizational effectiveness and leadership skills required for work force development in electrical and electronic business

S/N	ITEM	\bar{X}_1 n ₁ =100	\bar{X}_2 n ₂ =200	\bar{X}_T N=300	SD	Decision
1	Ability to keep promises	2.96	3.02	3.00	0.55	Agreed
2	Ability in competency	2.98	3.03	3.01	0.57	Agreed
3	Ability is Credibility	3.00	3.03	3.02	0.54	Agreed
4	Attention to result	2.98	3.03	3.01	0.65	Agreed
5	Accountability	3.01	3.02	3.01	0.61	Agreed
6	Constructive trust	3.01	3.03	3.02	0.60	Agreed
7	Ability to lead by example	3.32	3.64	3.48	0.63	Agreed
8	Having good sense of humor	2.04	2.00	2.02	0.64	Disagreed
9	Increasing delegation and responsibility	3.04	3.35	3.20	0.64	Agreed
10	Use interpersonal and problem-solving skills to influence and guide others toward a goal	3.32	3.54	3.43	0.39	Agreed
11	Involve strength of others to accomplish a common goal	3.21	3.02	3.12	0.69	Agreed
12	Inspire others to attain their best by example	3.01	3.04	3.03	0.71	Agreed

Key: \bar{X}_1 = Mean response of Students, \bar{X}_2 = Mean response of Electrical/Electronic Technologist, n₁ = No of Students, n₂ = No of Electrical/Electronic Technologist, \bar{X}_T = Average mean response

Table 4.3 shows the responses of respondents on the organizational effectiveness and leadership skills required for work force development in electrical and electronic business. The result revealed that all the items agreed with the mean range from 3.00-3.43 except item 8 that disagreed with mean 0.64 the organizational effectiveness and leadership skills required for work force development in electrical and electronic business based on the decision. The

standard deviations (SD) of all items are within the ranges from 0.39 to 0.71, each of these values was less than 1.96 which indicated that respondents were not too far from the mean and from one another in their responses on the organizational effectiveness and leadership skills required for work force development in electrical and electronic business. This indicated most of the respondents agreed on the organizational effectiveness and leadership skills required for work force development in electrical and electronic business.

Research Question Four

What are the marketing skills required for work force development in electrical and electronic business?

Table 4.4: Mean and standard deviation of respondents on the marketing skills required for work force development in electrical and electronic business

S/N	ITEMS	\bar{X}_I n ₁ =100	\bar{X}_2 n ₂ =200	\bar{X}_T N=300	SD	Decision
1	Understand your customers	3.35	3.22	3.29	0.55	Agreed
2	Think creatively to identify	3.23	3.41	3.32	0.57	Agreed
3	New approaches	2.96	3.22	3.09	0.63	Agreed
4	Communicate effectively in writing	3.81	3.55	3.68	0.70	Agreed
5	Communicate effectively in oral	3.84	3.12	3.98	0.70	Agreed
6	Shift one's view easily	3.70	3.13	3.92	1.06	Agreed
7	Conceive new things	3.34	3.26	3.30	0.71	Agreed
8	Generate new ideas	3.12	3.33	3.23	0.59	Agreed
9	Uniqueness in creativity	2.73	3.41	3.07	0.58	Agreed
10	Creativity and problem-solving	3.04	3.01	3.03	0.45	Agreed
11	Attention to detail	3.11	3.28	3.20	0.42	Agreed

Key: \bar{X}_I = Mean response of Students, \bar{X}_2 = Mean response of Electrical/Electronic Technologist, n₁ = No of Students, n₂ = No of Electrical/Electronic Technologist, \bar{X}_T = Average mean response

Table 4.4 shows the responses of respondents on the marketing skills required for work force development in electrical and electronic business. The result revealed that all the items agreed with the mean range from 3.03-3.98 on the marketing skills required for work force

development in electrical and electronic business based on the decision. The standard deviations (SD) of all items are within the ranges from 0.42 to 0.71, each of these values was less than 1.96 which indicated that respondents were not too far from the mean and from one another in their responses on the marketing skills required for work force development in electrical and electronic business. This indicated most of the respondents agreed on the marketing skills required for work force development in electrical and electronic business.

4.2 Hypotheses Testing

Hypothesis One

There is no significant difference between mean score of students and craftsmen of electrical and electronic trade on creative and innovation skills required for work force development in electrical and electronic business

Table 4.5: t-test analysis on the creative and innovation skills required for work force development in electrical and electronic business

Variables	N	Mean	SD	T	df	p-value
Students	100	3.55	0.70		298	
Craftmen	200	3.39	0.73	0.77		0.52

Table 4.5 shows the comparison of t-test of the mean rating of the responses of the respondents on the creative and innovation skills required for work force development in electrical and electronic business. The results revealed that the mean and standard deviation of students are 3.55 and 0.70 while the mean and standard deviation of Electrical/electronic Technologist are 3.39 and 0.73 respectively. Since the p-value (0.52) is greater than 0.05, the result revealed that there was no significant difference between mean score of students and craftsmen of electrical and electronic trade on creative and innovation skills required for work force development in electrical and electronic business. Therefore, the null hypothesis was accepted.

Hypothesis Two

There is no significant difference between mean score of students and craftsmen of electrical and electronic trade on work related disposition and attitude skills required for work force development in electrical and electronic business.

Analysis of hypothesis two is presented in Table 4.8.

Table 4.6: t-test analysis on work related disposition and attitude skills required for work force development in electrical and electronic business

Variables	N	Mean	SD	t	df	p-value
Students	100	3.71	0.75	0.83	298	0.69
Craftmen	200	3.49	0.68			

Table 4.6 shows the comparison of t-test of the mean rating of the responses of the respondents as regards to the task in non- formal training of satellite system installation in Niger State. The results revealed that the mean and standard deviation of students are 3.71 and 0.75 while the mean and standard deviation of craftsmen are 3.49 and 0.68 respectively. Since the p-value (0.69) is greater than 0.05, hence there was no significant difference between mean score of students and craftsmen of electrical and electronic trade on work related disposition and attitude skills required for work force development in electrical and electronic business. Therefore, the null hypothesis was accepted.

Hypothesis Three

There is no significant difference between mean score of students and craftsmen of electrical and electronic trade on organizational effectiveness and leadership skills required for work force development in electrical and electronic business.

Table 4.7: t-test analysis of the activities carried out in non- formal training of solar system installation in Niger State

Variables	N	Mean	SD	Z	Df	p-value
Trainers	99	3.53	0.68	0.24	298	0.61
Trainees	243	3.23	0.54			

Table 4.7 shows the comparison of t-test of the mean rating of the responses of respondents on the organizational effectiveness and leadership skills required for work force development in electrical and electronic business. The results revealed that the mean and standard deviation of students are 3.53 and 0.68 while the mean and standard of craftsmen are 3.23 and 0.54 respectively. Since p-value (0.61) is greater than a value (0.05), the result shows that there was no significant difference between mean score of students and craftsmen of electrical and electronic trade on organizational effectiveness and leadership skills required for work force development in electrical and electronic business. Therefore, the null hypothesis was accepted.

Hypothesis Four

There is no significant difference between mean score of students and craftsmen of electrical and electronic trade on marketing skills required for work force development in electrical and electronic business.

Analysis of hypothesis four is presented in Table 4.9

Table 4.8: t-test analysis of the on marketing skills required for work force development in electrical and electronic business

Variables	N	Mean	SD	T	Df	p-value
Students	100	3.21	0.67	0.43	298	0.74
craftmen	200	3.41	0.46			

Table 4.8 shows the comparison of z-test of the mean rating of the responses of students and craftsmen on marketing skills required for work force development in electrical and electronic business. The results revealed that the mean and standard deviation of students are 3.21 and 0.67 while the mean and standard of craftsmen are 3.41 and 0.46 respectively. Since p-value (0.74) is greater than alpha value (0.05), on this basis, there was no significant difference between mean score of students and craftsmen of electrical and electronic trade on marketing skills required for work force development in electrical and electronic business. Therefore, the null hypothesis was accepted.

4.3 Summary of Major Findings

1. Most of the respondents agreed on the creative and innovation skills required for work force development in electrical and electronic business.
2. Most of the respondents agreed on the work related disposition and attitude skills required for work force development in electrical and electronic business.
3. Most of the respondents agreed on the organizational effectiveness and leadership skills required for work force development in electrical and electronic business.
4. Most of the respondents agreed on the marketing skills required for work force development in electrical and electronic business
5. There was no significant difference between mean score of students and craftsmen of electrical and electronic trade on creative and innovation skills required for work force development in electrical and electronic business
6. There was no significant difference between mean score of students and craftsmen of electrical and electronic trade on work related disposition and attitude skills required for work force development in electrical and electronic business

7. There was no significant difference between mean score of students and craftsmen of electrical and electronic trade on organizational effectiveness and leadership skills required for work force development in electrical and electronic business.
8. There was no significant difference between mean score of students and craftsmen of electrical and electronic trade on marketing skills required for work force development in electrical and electronic business.

4.4 Discussion of the Findings

The findings on the creative and innovation skills required for work force development in electrical and electronic business revealed that Most of the respondents agreed on the creative and innovation skills required for work force development in electrical and electronic business. The findings is inline with the study of Robinson (2015) on graduates of Agricultural education and Food and Natural Resources Education to investigate their employability skills on graduation. The study highlighted 67 employability skills and ranked them in order of importance based on their mean scores. Findings revealed that all the 67 employability skills were considered as very important to the graduates for employability. The study also revealed that some of the graduates perceived themselves as being more competent in the 67 employability skills than most others.

The findings on the work related disposition and attitude skills required for work force development in electrical and electronic business revealed that most of the respondents agreed on the work related disposition and attitude skills required for work force development in electrical and electronic business. The findings of the study agreed with Lilly (2016) who reported that tracking employee work related disposition and attitude effectiveness is a key objective of any HR department. To ensure that there is adequate return on investment in training of new and

current employees, the organization has to establish key performance indicators (KPI). KPI if created and tracked properly serve as a benchmark for measuring the progress of employees towards a set of broader based goals or objectives.

The findings on the organizational effectiveness and leadership skills required for work force development in electrical and electronic business revealed that most of the respondents agreed on the organizational effectiveness and leadership skills required for work force development in electrical and electronic business. The result support the view of Mills (2015) who stated that leadership helps to point us in the same direction and harness our efforts jointly. Mcshane (2013) revealed that effective leadership as the process of influencing people and providing an environment for them to achieve team or organisational objectives. He states further that effective leadership help groups of people define their goals and find ways to achieve them. In his view they use power and persuasion to ensure that followers have the motivation and role clarity to achieve specified goals. Effective resources and achieve cooperate objectives more easily

The findings on the marketing skills required for work force development in electrical and electronic business revealed that most of the respondents agreed on the marketing skills required for work force development in electrical and electronic business. The findings of the study corroborate with the study of Hassan *et al.* (2010) conducted a study on the importance of employability skills from employers' perspective. The study also showed no significant difference between the size of company and employability skills. It was recommended based on the study that authorities of educational institution should enhance the employability skills of the students either through the professional development of lecturers, curriculum and co-curriculum.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study assess business enterprise skill require for work force development in electrical and electronic business in Minna, Niger State. Four objectives were formulated to guide the study,

and four research questions were raised to guide the study. Four hypotheses were formulated at level of 0.05 significance. The study revealed that Most of the respondents agreed on the creative and innovation skills required for work force development in electrical and electronic business and also most of the respondents agreed on the work related disposition and attitude skills required for work force development in electrical and electronic business. It was also revealed that most of the respondents agreed on the organizational effectiveness and leadership skills required for work force development in electrical and electronic business. The study also shows that most of the respondents agreed on the marketing skills required for work force development in electrical and electronic business.

5.2 Recommendations

1. The electrical and electronic graduates should be trained on how to use various techniques for creating and evolving new ideas.
2. The graduates should understand the necessary work related disposition and attitude in every organization so to perform better
3. The management of any organization must be able to use interpersonal and problem-solving skills to influence and guide others toward a goal
4. The business enterprise should trained the electrical and electronic graduates on the marketing skills needed for effective performance

5.3 Suggestion for Further Studies

1. Assessment of business enterprise skills require for work force development by electrical and electronic technology student in Kwara State

2. Impact of business enterprise skills of electrical and electronic technology student in the Labour Market, North Central.

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APPENDIX A

REQUEST FOR VALIDATION OF RESEARCH INSTRUMENT

Dear Sir,

I am a student of Federal University of Technology, Minna in the Department of Industrial and Technology Education. I am currently carrying out a study titled: **BUSINESS ENTERPRISE**

SKILLS REQUIRE FOR WORK FORCE DEVELOPMENT BY ELECTRICAL AND ELECTRONIC TECHNOLOGY STUDENTS IN MINNA, NIGER STATE.

I therefore request that you validate the attached instruments (questionnaire). Please check the questionnaire against the specific research question to ascertain their conformity, meaningfulness and logical sequence based on the content covered. I also request that you check the suitability and clarity of the questionnaire with a view of identifying relevant information(s) vital to the study but not reflected. Kindly remove all ambiguous or irrelevant statements so that instrument will be easily understood.

Thanks.

Validated by:

Name: _____

Sign: _____

Date: _____

**QUESTIONNAIRE FOR BUSINESS ENTERPRISE SKILLS REQUIRE FOR WORK
FORCE DEVELOPMENT BY ELECTRICAL AND ELECTRONIC TECHNOLOGY
STUDENTS IN MINNA, NIGER STATE**

**DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION
FEDERAL UNIVERSITY OF TECHNOLOGY MINNA, NIGER STATE**

SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION

Dear respondent, This Questionnaire is designed to obtain information on Business enterprise skills require for work force development by electrical and electronic technology students in Minna, Niger State. Please, kindly assist by filling the necessary information where appropriate. Any information obtained will be held in strict confidence and will be used solely for the purpose of this academic study.

SECTION A

PERSONAL DATA

Technologists:

Student:

Note; A four point scale is used to indicate your opinion, tick the option which best describe your agreement as shown below.

Highly Required = HR, Moderately Required = MR, Required= R, Not Required= NR

SECTION B

Respond options for this section are:

Highly Required = HR, Moderately Required = MR, Required= R, Not Required= NR

RESEARCH QUESTION ONE

What are the creative and innovation skills required for work force development in electrical and electronic business?

S/N	ITEMS	HR	MR	R	NR
1	Use various techniques for creating and evolving new ideas(such as brainstorming)				
2	Use all available concepts to create or conceive and perceive novel and useful ideas				
3	Elaborate, refine, analyse and evaluate ideas to improve one's own creative efforts				
4	Develop, implement and communicate new ideas to others				
5	Be open and responsive to diversity				
6	Incorporate group input and feedback into the work				
7	Understand the practical limits for adopting new ideas				
8	Treat failure as an opportunity to learn and improve				

SECTION C

Respond options for this section are:

Highly Required = HR, Moderately Required = MR, Required= R, Not Required= NR

RESEARCH QUESTION TWO

What are the work related disposition and attitude skills required for work force development in electrical and electronic business?

S/N	ITEM	HR	MR	R	NR
1	Skills in Timeliness i.e how fast work is performed or how fast services are provided				
2	Skills in Cost-Effectiveness				
3	Punctual to work place				
4	Adherence to Policy				

5	Respect to others workers				
6	Taking instruction from others				
7	Team work spirit				
8	Commitment to the job				
9	Approach every situation positively				
10	Innovative ideas and finding new ways				
11	Helpfulness with others				

SECTION D

Respond options for this section are:

Highly Required = HR, Moderately Required = MR, Required= R, Not Required= NR

RESEARCH QUESTION THREE

What are the organizational effectiveness and leadership skills required for work force development in electrical and electronic business?

S/N	ITEMS	HR	MR	R	NR
1	Ability to keep promises				
2	Ability in competency				
3	Ability is Credibility				
4	Attention to result				
5	Accountability				
6	Constructive trust				
7	Ability to lead by example				
8	Having good sense of humour				
9	Increasing delegation and responsibility				
10	Use interpersonal and problem-solving skills to influence and guide others toward a goal				
11	Involve strength of others to accomplish a common goal				
12	Inspire others to attain their best by example				

SECTION E

Respond options for this section are:

Highly Required = HR, Moderately Required = MR, Required= R, Not Required= NR

RESEARCH QUESTION FOUR

What are the marketing skills required for work force development in electrical and electronic business?

S/N	ITEMS	HR	MR	R	NR
1	Understand your customers				
2	Think creatively to identify				
3	New approaches				
4	Communicate effectively in writing				
5	Communicate effectively in oral				
6	Shift one's view easily				
7	Conceive new things				
8	Generate new ideas				
9	Uniqueness in creativity				
10	Creativity and problem-solving				
11	Attention to detail				