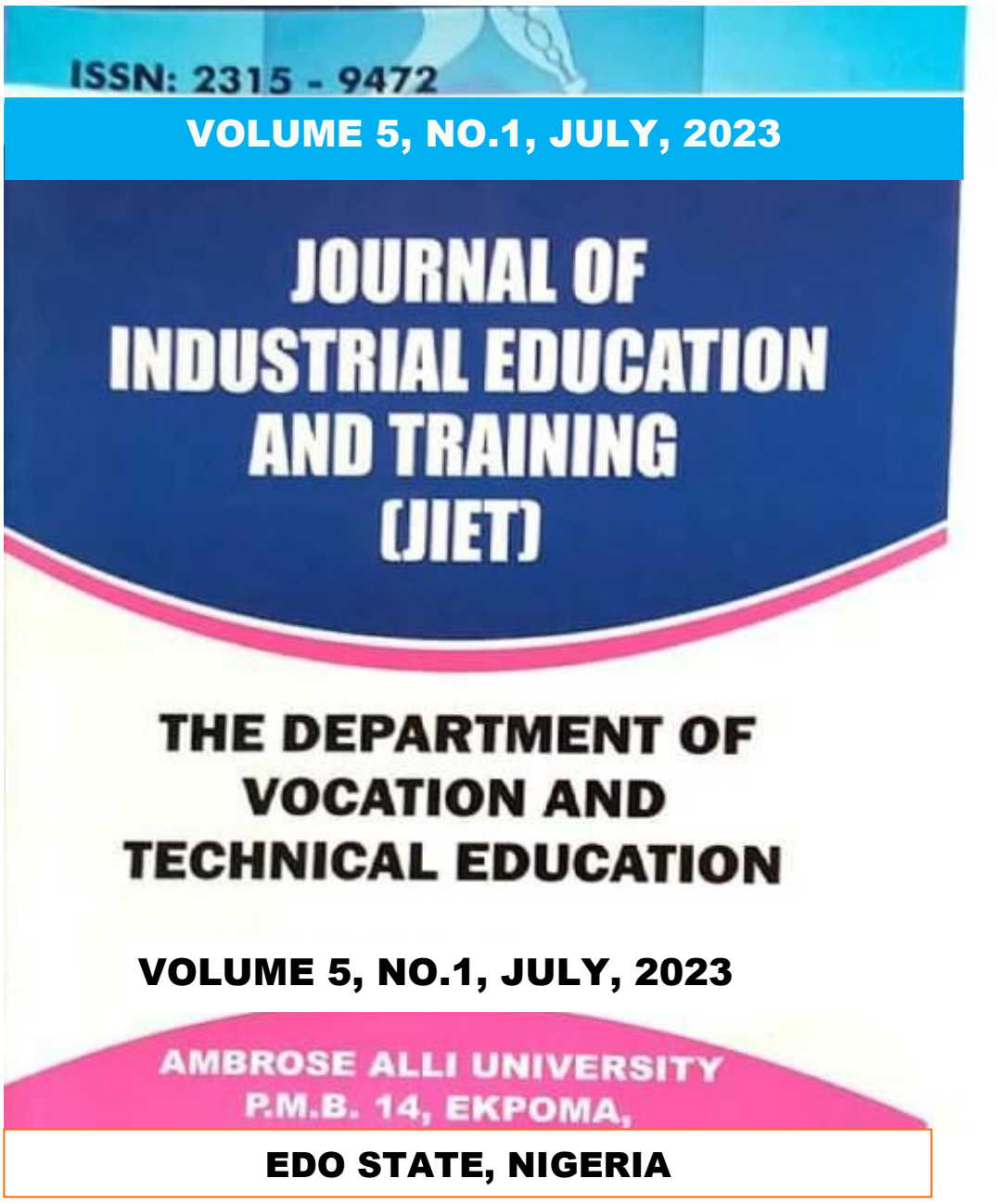

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Ekpoma, Edo State
P.M.B.14.
Email; vocat@aauekpoma.edu.ng
Phoneno: +234-803-4658291
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Re-positioning Vocational Skill Acquisition: Nexus for Youth Development and Sustainable Poverty Alleviation in Nigeria

By

Akintayo, W.L

Department of Home Economics and Hotel Management,
Tai Solarin University of Education, Ijebu-Ode,
Ogun State, Nigeria

Dr. W.L. Akintayo is an Associate Professor in the Department of Home Economics and Hotel Management,Tai Solarin University of Education, Ijebu-Ode, Ogun State, Nigeria
Email Address: akintayo2002@gmail'com. Phone #: +2348033569358

Abstract

This paper examines the importance of skill acquisition in vocational and technical education. Focus is on factors that hinder skill acquisition for job creation in vocational/technology education. It also ex-rays how proper positioning of vocational and technical education can serve as a means to eradicating the problems of joblessness, unemployment thereby ensuring sustainable economic development in Nigeria. The paper also advocates amongst others that governments at all levels – federal, state and local – in Nigeria should readdress their energies and interests towards vocational and technical education to empower graduates for self-relevance and for them to develop the needed skills for them to be employable.

Key words: Vocational/technical education, youth, poverty alleviation, sustainable development

Introduction

Poverty is a situation of grave deficiency or absence of resources and provisions necessary for a living within the least standard convenient for the human self-esteem and well-being. The dangers that poverty portends are multifaceted and it is the bane against the survival of human race. It pollutes the environment in different ways (Gbenedio, 2013).According to Akhuemonkhan and Raimi (2016), those who are poor and hungry tend to be lawless and will always make efforts, which they don't mind will destroy the environment, in order to survive. These poor and hungry people, who tend to cut down trees and constitute public nuisance, can go to the extent of destroying or vandalizing social amenities (Akhuemonkhan& Raimi, 2016).

Studies have it that the oil boom of the 70s - 80s have turned out to be oil doom as the boom has resulted in the reckless neglect of other sectors of the economy and the consequent economic depression and increasing poverty level in the country (Maigida, 2014). This implies that the rich

mineral and human resources of the country are neglected, under-developed and under-utilized because of the mono-economy of the oil industry. Furthermore, Eke and Egbenu(2011) reported thatpeople are no more encouraged to develop their skills and channel same towards productive activities such that the agricultural and other sectors of the economy virtually disappeared as oil took the front seat and the result has been great want and deprivation in the face of plenty.

According to Dun (2009), for the large scale poverty, which is currently being witnessed around the world, to be reduced, there is the need to tap into the energy, skills, and motivation of the poor people around, who are in their millions around the world. Ogwuma (2008)opined that apoverty reduction or alleviation programme should offer a structure for the empowerment of poor people, which focuses on their freedom of choice, and encourages actionsthat will shape their lives. The method, Ogwuma (2018) explains, entails the consideration of three changes in the society; these are: a mindset change that no more sees poor people as a problem to the society and rather sees them as important partners in the reduction of poverty; a change in the link between poor people, and the official structures, thereby enabling them to take part in decisions that affect them; and, a change in official and unofficial institutions to make them more receptive to the desires, and actualities of poor people.

For Nigeria to be economically and politically stable, the level of poverty must be reduced drastically or completely eradicated from our society. The World Bank (2010) posited that over one billion people in developing countries wallow in abject poverty. This could be regarded as an adversity, despair, lack of dignity and self-drawback to the necessary things for a good life. To achieve poverty alleviation among the youth in today's world, vocational/technical education in the form of skill acquisition remains the most reliable instrument.

It is well-known that beneficial training in gaining the right skill has massively contributed to technological distinction and economic self-dependence of the developed nations. This is why Ezaji and Okorie (2008) stressed the prominence of skill acquisition in national growth and posited with emphasis that Nigeria's socioeconomic challenges will be severely truncated if people get the right vocational trainings in skills, raw materials, devices and tools. It is only with trained men that resources could be controlled, deployed and converted into products. Countries like America, Britain, Germany and Japan have reformed drug addicts, school dropouts and several homeless citizens with valuable skill acquisition programmes.

As expressed by Alhoun and Atton (2012), when groups of unemployed people acquire sellable skills through vocational programmes, the society gains a lot from them as they become beneficial to the entire society. Obviously, acquiring skills is imperative in the prevention of social ills such as armed robbery, banditry, kidnapping, amongst others and it prevents youths from becoming social misfits. This is because these skilled youths become profitably employed through the vocational training they've acquired.

In Nigeria, the recent development involving the unemployment of a great number of people in the country has caused a lot of concern for all stakeholders. In particular, a situation where 75% of the country's university, polytechnics and other graduates wander around in both urban and rural parts of the country seeking a means of livelihood seems to heighten the necessity for vocational/technical education. Some other class of people in the unemployment cesspool are many civil servants and previously privately employed individuals, who have been declared either redundant or forced out of job because of years of service. As a result, many of these individuals described above have been forced to return to their homes, whereas, according to Sonaike (2009), Larry and Renald (2011), a small number who have some savings to take out of, still dawdle around in the towns.

One peculiar characteristic that this group of people has is that 95% of them lack the ability to carry out any practiced work of any varied nature. This set of people constitutes a nuisance to the well-being of the society. Many have died out of frustration because they are unable to find a means of livelihood to maintain their families while some others have turned to a life of crime to make ends meet. This development is bad for both the individual and the society at large.

In the recent past, various Nigerian governments have shown some level of concern to this menace called unemployment. They have established a few poverty alleviation programmes such as the Better Life for Rural Women, Family Support Programmes, the creation of the Directorate for Food, Roads and Rural Infrastructure to mention a few. The most recent of such programmes is Poverty Alleviation Programme (PAP). But as laudable and well-planned as these programmes were, they still beg the question that to what extent did they solve the problem of Nigerians? According to Momoh (2014), what agitated the some Nigerians about the current programme (PAP) is its failure to address the life-long sustenance of the beneficiaries' immediate needs. What would guarantee life-long sustenance is skill acquisition which the programme failed to address. Therefore, there is a need for a redirection of the present programme.

The role of Vocational and Technical Education has been identified as a possible vehicle that will leads to some degree in solving some of the nation's social ills. For instance, Oranu (2017) argued that in the progress of the human race, vocational and technical education has been a constant and perceptible element. Vocational education has been a part of the basis of man's inventive and reform-driven development. He further observed that in the United States of America, for example, the development of vocational education paralleled the growth of the economy, hence the absorption of vocational education into the public curriculum. Osisioma (2013) reported that in Switzerland, vocational education is considered to be in the concern of the overall good of the nation while the states were admonished to make occupational instruction available for youths in schools as well as for youths and adults, who have been out of schools.

Vocational education becomes a panacea to our situation in Nigeria now, since the present economic situation does not allow for establishment of new industries. The only solution for the jobless in the society seems to be equipping them with the type of skills that will ensure that they grow into self-employed individuals. Agbebi (2014) in his opinion contended that the central tenet of vocational education is often expressed by the phrase "to fit for useful employment".

Vocational and technical education, if well positioned, would be the apparatus for the growth of the country's economy. Nigerians should devote time and resources to skill training, as no country can compete excellently with other countries in the current global market with poorly-educated and badly-skilled workers. The major influencers of production in the emerging global economy are identified as technology, knowledge, creativity and innovation.

In line with the above, this paper attempts to examine the importance of skill acquisition in vocational technical education for achieving youth empowerment in Nigeria. The paper focuses on factors that hinder skill acquisition for job creation in vocational/technology education. It also ex-rays how the proper positioning of vocational and technical education can serve as a means to eradicating the problems of joblessness, and unemployment thereby ensuring sustainable economic development in Nigeria. The ways forward are equally highlighted.

What is Vocational and Technical Education?

The word "vocation" denotes a high sense of feeling suitable for a specific occupation or profession. Several attempts have been made to define vocational education. Olayide and Essang (2015) stated that vocational education is an aspect of education designed for those who are

interested and can benefit from learning specific type of skills in a specific occupation cluster. Vocational education is an educational aspect which prepares individuals for sellable skills and makes one fit into the society to make effective contributions to its development (Barlow, 2015). This implies that practical skill acquisition in various areas of vocations leads to economic stimulation in a dynamic society where individuals who are vocational knowledgeable embark on production of sellable items.

Osisioma (2013) stressed that vocational education is deliberate so that it offers people the opportunity to refine themselves in their general ability, specifically about their present or future job. When people hear vocational education, they are of the belief that it is for those who cannot afford some levels of quality education. However, this assumption is wrong because the reality is that everyone needs to acquire prized hands-on skills. On the long run, these skills can act as means of livelihood though income generation. The general scope of vocational education is to make people appreciate the world of work and make them functional members of the society by using their skills for gainful employment.

In Nigeria, too much emphasis has been placed on university education and its certificates, which sadly has shrunk the economic opportunities for those who are more work-focused. As observed by Edwards (2010),it is not everyone that will be able to afford the dictates and financial rigours that come with getting a university degree and it is not everyone that will be academically inclined. Edwards (2010) gave examples of successful businesspersons who changed and those that are still changing as well as shaping the business world. He gave the example of Bill Gates and Steve Jobs, amongst others. These people, argued Edwards (2010), learnt skills that impacted and motivated them into creating technologies that provide solutions to the world's challenges. Schools in Nigeria need to add vocational and technical education to their curriculums so that students can develop life-long skills that will be beneficial in the future. Fageyinbo (2013) opined that the contents of vocational and technical education syllabuses in perspective should reflect planned effort to ensure that the adolescent students are able to demonstrate their mastery of certain minimum skills (at Senior Secondary School level) needed to perform tasks they will routinely confront in adult life.

In a similar vein, the National Policy on Education (2014) explained that technical education is the facet of education that leads to the acquisition of applied and practical skills as well as rudimentary scientific understanding. Technical education involves the exchange and mastery of

rules, methods, procedures, skills and usages peculiar to a specific discipline and which results in achievement of goals which are central to education. The term "technical education" is normally applied to those disciplines which involve high component of psychomotor skills. The purpose of which is to provide experts and specialists in rules, methods, procedures, skills and usage peculiar to particular vocation.

Hence, it could obviously be said that a nexus exists between vocational and technical education. According to Olaitan (2016) Vocational and Technical Education (VTE) is the form of education that emphasizes the advancement of occupational skills needed in planning for a profession. Narayan (2012) viewed Vocational and Technical Education (VTE) as the kind of learning that provides the necessary abilities, understanding and outlook essential for effectiveness in specific occupations. While Oranu (2017) regarded Vocational and Technical Education (VTE) as a medium of providing youths with work in various industries, businesses and other enterprises by showing to them to experiences that provide them with the manipulative, cognitive and attitudinal skills that make them to be suitable for the job or career.

Poverty as a Concept

The concept of poverty is not the same for all individuals; hence this has made it to be a complex phenomenon. It has been defined in different ways by different people. According to the Cambridge International Dictionary of English (1995), poverty is a condition of being extremely poor. Osakwe (2013) posited that poverty is a lingering and devastating condition that results from multiple opposing risk factors, which distresses the mind, body, and soul. It is considered as an anomaly, adversity, deficiency and lack of basic amenities of life for human existence. To be poor, according to Alhoun and Atton (2012), means that the individual is deficient of social and economic goods and services based on assumed norms of the society one lives in. Poverty could also be described as lack of or having inadequate resources to cope with life expectations. According to Newcomb and Kenny (2012), six types of poverty can be identified; namely: situational, generational, absolute, relative, urban, and rural.

Absolute poverty implies a condition characterized by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information(UNESCO-UNEVOC (2017). Relative poverty according to Osakwe, (2014) occurs when a person in a society cannot meet a minimum level of living standards, compared to others in

the same time and place. It is expressed from the social perspective that is living standards compared to the economic standards of population living in surroundings (Akwara, Enwuchola, Adekunle and Udaw, 2013).Situational poverty as viewed by Kehinde and Adewumi (2015) isa temporary type of poverty which occurs based on occurrence of an adverse event like environmental disaster, job loss and severe health problem while generational poverty is said by Ejeka (2016) to be the type of poverty that is handed over to individual and families from one generation to the one. It occurs in families where at least two generations have been born into poverty. Families living in this type of poverty are not equipped with the tools to move out of their situation *(*Akhuemonkhan and Raimi, 2016). According to Ogbonaya and Ekereobong (2015) rural poverty occurs in rural areas with population below 50,000 where there are less job opportunities, less access to services, less support for people with disabilities and quality education opportunities while Awonuga, (2018) expressed that urban poverty occurs in the metropolitan areas with population over 50,000 where the inhabitants are faced with some major challenges such as limited access to health and education, inadequate housing and services, violent and unhealthy environment because of overcrowding, little or no social protection mechanism.

The rural poverty rate is growing and has exceeded the urban rate every year since data collection began in the 1960s. The difference between the two poverty rates has averaged about 5 percent for the last 30 years, with urban rates near 10-15 percent and rural rates near 15-20 percent (Ejeka, 2016)).

Concept of Development and Sustainable Development (SD)

The term “development” according to Sonaike (2009) involves the accomplishment of self-satisfaction and personal goals by individual beings; it is the ability to participate actively in organizing and reorganizing the individual’s own affairs, their environment and matters that affect their daily lives. Thus, it is a behaviour of the mind and an attitude to life in which aperson accepts to a greater degree that he is the controller of his own fortunes and can personally participate and interfere in the social engineering of his community.

Sustainable development is anoutline of economic growth in which the use of resources are targeted at meeting human needs while preserving the environment so that these needs can be met both presently and in the future by generations yet unborn (Larry and Renald, 2011).According to Ogwuma (2008), the term “sustainable development” was coined by the Brundtland Commission to

mean "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". The import of this definition as regards the topic of this paper is that as long as the country Nigeria exists, sustainable development should be driven by the youths, who are the hub of every society.On the other hand, Newcomb and Kenny (2012) view sustainable development "as the ability to meet the needs of the present while contributing to the future generations' needs". One can therefore conclude that sustainable development concerns itself with the capacity of natural systems and the social challenges faced by humanity and it has three constituent parts; environmental, economic and socio-political sustainability.

Importance of Skill Acquisition

The importance of skill acquisition could be summarized in the aims of technical education as enclosed in the National Policy on Education (2008). Its aim includes among others, the provision of necessary skills in agricultural, industrial, saleable and financial development; the application of scientific knowledge to the advancement and solution of environmental difficulties; and the imparting of necessary skills to men and women resulting to the production of skilled craftsmen, technicians and other personnel, who will be resourceful and self-reliant.

Skill acquisition promotes national stability, security of life and property and balanced economic development by engaging the citizens in meaningful occupational exploration and activities in areas such as production, manufacturing, construction, machine operations, service jobs, etc. By its job creation advantages, it enhances the dignity of human by making him self-sufficient and to live above poverty level. Skill acquisition as manpower development prepares one for a gainful employment and minimizes unnecessary dependence. Furthermore, sellable skills in entrepreneurial activities promote co-operative activities and better resource management through a culture of maintenance which reduces wastes and abandonment of repairable goods and equipment and thus creates a healthy economic system.

Maigida (2014) observed that, for sustainable poverty alleviation, the training of entrepreneurs and artisans should be given serious attention. Training prepares one for a living through self-employment and makes one much more easily employable. Skill acquisition leads to rural and urban industrialization and discourages the craze for urban migration and reduces the high cost of living through production of goods and services in abundance. Idleness and consequent social and health problems as opine by Larry and Renald (2011) would be minimized if people, the

youths and the deprived are mobilized to engage in productive ventures which will help them build up sustainable economic base.

In schools, the joy of labour should be inculcated in the pupils by encouraging them to be hardworking, creative and self-fulfilling through respect for labour (Osisioma, 2013).According to Olaitan (2016) when the culture of hard work is inculcated in youths early in life, certificate racketeering, forgery and production of "illiterate graduates" would be reduced along with their un-dignifying consequences. Besides, the unnecessary scramble for political seats as easy means of accumulating wealth will be minimized. Political skills will be for good governance, transparency, accountability and payment of workers' salaries as and when due.

Problems Militating against Acquiring Skills for Sustainable Economic Development

A number of problems militate against acquiring skills for sustainable economic venture. According to Ogwuma (2018), these are as summarized below:

1. Lack of Government Commitment

Usually government is expected to play a leading role in fiscal expansion of her nation. Good number of laudable government programmes and policies collapsed midway because of poor planning, ineffective monitoring and evaluation and lack of political will to enforce/ensure programme implementation(Gberevbie, Duruji & Ogundeji, 2014).The poverty alleviation and eradication programmes of the past two governments in Nigeria are yet to provide necessary skills for sustainable poverty reduction.

2. Dearth of Qualified Trained Teachers

Many industrialized nations like Japan, China and America have committed their huge resources in training teachers and entrepreneurs to acquire skills in relevant areas of the economy. Uya (2014) opine that in Nigeria, most educational establishments do not qualified teachers that can teach vocational and technical subjects which has played a significant role in ensuring that their students enjoy applied learning. Uya (2014) stressed that many technical colleges, trade centres, polytechnics and universities are more like glorified secondary schools when it comes to assessing the level of competence of their teachers.

3. Inadequate Funding

Fund is one of the major requirements for execution of programmes, especially in VTE. Studies have shown that inadequacy and misappropriation of fund has been a serious challenge to Nigerian educational sector (Moller, 2016).However, this has resulted in non availability of facilities, dearth cum poor quality of teachers leading to low quality of instruction as well as poor academic performance of the students. Conversely, the US, Britain, China, Singapore and Japan nurtured and sustained their VTE by allocating substantial amount of their national budget to TVET programmes (World Bank, 2010 and Barlow, 2015).

4. Inadequate Amenities

Vocational education departments in schools in Nigeria have been noticed not to have the facilities or working areas to train and instruct students. Art teachers in primary and secondary schools lack the facilities needed to teach these subjects to children. According to Okoro (2013),only 40% of institutions of higher learning in Nigeria have laboratories or workspaces for technical education programmes. Most of what can be found in Nigerian institutions of educationis the items that were provided when the department was first set up and most of these equipment are now outdated. The lack of appropriate facilities makes it difficult to offer high-quality vocational education to the students. Private organisations and alumni associations should ensure they create the right atmosphere for vocational education as students will enjoy working in a well-equipped laboratory and workshop. By providing these amenities to students, their innovative abilities will more likely develop.

5. Lack of Training and Motivations to Staff Members

Training and retraining of VTE teachers in various aspects of lifelong learning is quite imperative in rebuilding VTEin order to realize its goals and objectives. According to UNESCO (2012) the increasing changes in socio-economic and technological advances demand an urgent response which makes it imperative that VTE teachers be encouraged to undertake some in-service training in the areas of technologies and entrepreneurship. Educational institutions should consider training and retraining their staff members on the aims and objectives of vocational education to boost their knowledge and encourage them to teach these subjects. Aside training staff members in vocational education, these institutions should look into providing encouraging avenues to employees that perform exceptionally well in their duties.

6. Absence of Interest from Political Office Holders

Political office holders in Nigeria show disinterest in introducing vocational education into the country's educational curriculum. Narayan (2012) laments that funds that are meant for VTE projects that can transform lives are diverted to other areas as a result of lack of concern tor VTE. This among other anomalies has given rise to other forms of social vices such as favoritism; bribery and corruption as well as terrorism; consequently, most people elicit readiness todevise any means to get what they want at all cost regardless of its consequence(s).

7. The Nigerian Value System

Nigerians have this mentality that a university degree is more important than technical or social training. Gbenedio (2013) observed that there is too much emphasis on getting a university qualification, not minding whether the holder possesses the required knowledge and skills. In Nigeria, people go to school with the mindset that education will give them the opportunity to contribute to society. He concluded that, full input in Nigerian society requires vocational and technical training at all levels of our education system, which will identify the different skills and abilities. Teaching students in vocational education is the most effective way to build a secure socio-economic environment for everyone, in spite of race, gender and personal belief.

VTE as a Means of Alleviating Poverty for Sustainable Economic Development in Nigeria

Olaitan (2016) asserted that the usefulness of Vocational and Technical Education (VTE) cannot be underestimated as it stretches from an individual to the community and the society at large. Olaitan (2016) further stressed that), the nation is usually the fundamental beneficiary of Vocational and Technical Education (VTE). Therefore if Vocational and Technical Education (VTE) is well positioned it would alleviate poverty in so many ways as highlighted below:

1. VTE would develop in the individual the necessary technical skills to become a productive element and very useful to himself. According to Momoh (2014), a well-trained worker will be much more productive as an individual and within the society at large. To Momoh, the individual would have been well-prepared much ahead of a life after the school. Thus, the individual will be able to earn a remuneration that will enable him to be useful to himself and not an additional burden within the society. In short, VTE equips mankind to be producer of something useful to the society rather than becoming mere consumers.

2. VTE would reduce the rate of never-do- wells by providing training opportunities for individuals to acquire necessary skills that can make them self dependent. To Ogwuma (2018), Vocational and Technical Education is the form of schooling in which beneficiaries acquire occupational skills needed in preparation for a work in order to be able to earn a living. Although, it is believed that the society always benefits from VTE, individuals are the major beneficiaries as it earns them some income. Thus, their standard of living will be improved and they become independent citizens that are no longer burdens to the society at large.

3. VTE encourages individuals to make intelligent use of their brains to bring about innovations that will advance their country in terms of development generally. With VTE, technological innovations and discoveries will be made which will assist in the development of their country. In a country like Nigeria however, where individuals are greatly gifted, different technological development can easily be achieved. This was even buttressed further by Agbebi, (2014) arguing that VTE encourages utilization of new technological materials to become more innovative individuals as well as develop better entrepreneurial skills.

4. VTE would reduce the rate of unemployment amongst the youths and the entire citizenry. So many Nigerians who would have been self-dependent are now educated and unemployed. According to Fageyinbo (2013) VTE would bring about poverty reduction which simply entails breaking away from a state of lack and attaining economic freedom where the masses enjoy basic human needs such as availability of food, portable water, good housing, healthcare services, steady electricity, good road and communication network, educational and recreational facilities, economic and social security inter alia. Technological and Industrial developments would have been stimulated through the production of competent or capable workers who would have utilized available raw materials to develop the country.

5. VTE can be used as a medium of acquiring needed knowledge preparatory to a future career. Salabson (2018) stated that VTE would prepare individuals with necessary skills that will make them successful in their desire careers thereby becoming useful to themselves and to the society.

6. VTE stimulates technological and industrial development of a nation. Technology and vocational education would be better managed as well as thrive exponentially if isolated from general education, while its curriculum tailored to meet the employability skill demands of relevant specialties and industries. According to Alhoun and Atton (2012) adequate attention is paid to technology and vocational education should be given adequate attention and allow to exist

independently and run vocationally. Studies have described this approach as one of the key secret of many countries that excelled technologically. For instance, Australia has over 20 vocational (trades) schools specialized in training VTE and 4 technical colleges otherwise known as trade colleges where students after completing a modified years 12certificate and commence a school-based apprenticeship in trades of their choice. In Onatario, Canada, secondary schools were separated into three: technical, commercial or business and collegiate (the academic school) schools. In Central and Eastern Europe as well as Japan vocational schools are separated from general education with great emphases on acquisition of practical skillsand problem-solving techniques.

Conclusion

Any sustainable poverty alleviation programme should be laid on a firm policy thrust capable of creating enabling environment for germination and growth of skills and enterprises suitable for the promotion of economic initiative and self-help projects. As a process, skill acquisition has gone through various stages of development, from the traditional method to the modern way of doing things. All over the world, emphasis on poverty alleviation is directed to reaching the poorest poor of the populace through access to credits from micro finance institutions and other organizations to enable the poor participate in their economic fortunes.

Because of the destructive effect of poverty on the environment, the importance of sustainable system hardly needs emphasis. By exposing and helping the youth to economic self-help, the dignity of the youth would be enhanced and societal peace and stability will be strengthened. It is generally believed that acquisition of the requisite skills is a way of growing the productive power of a nation. Hence, the Nigerian people should recognize the fact that every citizen should be equipped to add efficiently to the welfare of the country.

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Assessment of Educational Background and Occupational Status of Home Makers' Decision in Household Equipment Acquisition

By

Abimbola Ayandoyin Emmanuel
Email: emmanuelaa@lasued.edu.ng
Orcid: 0009-0000-6595-4639
(+234) 08035270261 08102323886
Department of Home Economics Education, College of Vocational and Entrepreneurship Education, Lagos State University of Education (LASUED) Lagos, Nigeria

Abimbola Ayandoyin Emmanuel is a Lecturer I in the Department of Home Economics Education, College of Vocational and Entrepreneurship Education, Lagos State University of Education (LASUED) Lagos, Nigeria. Email: emmanuelaa@lasued.edu.ng, Orcid: 0009-0000-6595-4639, (+234) 08035270261, 08102323886

Abstract

This study assessed how the educational background and occupational status of homemakers impacted their decision in household equipment acquisition. Two null hypotheses were postulated to guide the study. The research design for the study was descriptive survey design. The population of the study was 2151 female homemakers in federal, state, and private colleges of education in South-Western part of Nigeria. Using a multi-stage sampling method, 667 female homemakers from six colleges of education in South-West, Nigeria were sampled out of the population. Data were collected through a self-designed questionnaire which was used to elicit responses from the respondents. The data collected for the study were analyzed using Pearson Product Moment Correlation Coefficient which was used to test the three hypotheses at .05 level of significance. Findings reveals that a significant relationship exists between education and homemakers' decision in household equipment acquisition and occupational status. Based on the findings above, it was recommended among others that the federal and state government should give a lift to female workers' salaries, provide more jobs and conducive environment for female workers.

KeyWords: *Home Maker, Occupational, Educational background, Equipment Decision*

Introduction

Homemakers are individuals who have dual roles, having a career and performing household responsibilities. Career homemakers independently make decisions on their own that help in the management of the dual roles, they may engage in full-time part-time employment and house work and at the same time and these may affect the output of both duties. Homemaking is duties that involve food preparation, cleaning, laundry, baby sitting and home maintenance (Okeke, 2007). The task done daily brings constraints to how their household chores are done and challenges to

managing their work life (Emmanuel and Ojo, 2013). Household equipment's are relatively expensive and entail short and long-term financial consequences which most consumers may find difficult to deal with. This household equipment's are durable electrical/mechanical products that are expected to be operational for a considerable period of time. They include refrigerators, cookers, deep freezers, blender and other kitchen appliances. They represent complex product categories because relevant technology changes continually. Most consumers consequently find it difficult to keep up with the changes and be able to fully grasp modifications to product categories (Erasmus, 2010). In line with Goal 12 of the Sustainable Development Goals (SDG's), sustainable consumption requires a paradigm shift for the adoption of sustainable lifestyles and support for resource efficient. A transition towards a resource efficient calls for environmental integrity and sustainable resource use, and can lead to improved quality of life and employment opportunities. Change is needed across the entire supply chain and product lifecycle (Amina, Sultana, Emma, and Veronica, 2017). As people assume higher responsibility they sometimes find consumption decision making difficult. Education of homemakers is critical for consumption decision making and widespread behavioural change. Education, being an instrument par excellence in achieving goals, has its root from the various levels. It influences and determines the quality of people's choice and the aesthetic value of their environment. Education helps to initiate positive changes and influences others to support responsible consumption, a highly educated person with good career may choose wisely. In line with this view, Adedokun (2011) states that education which is the acquisition of knowledge, skills and values, is strongly related to a higher standard of living which is directly linked to the ability of homemakers to be able to make a better choice among alternatives. Also, Amina et al. (2017) opined that education can provide learners with the knowledge and skills to implement sustainable practices and techniques (both at home and at work), use monitoring and accountability mechanisms and foster innovation. Clark (2004) viewed occupation as the principal activity in which a person is engaged in and earns a living, it can also be widely accepted as a documented measure of level of living. More often as people rise within an organization they believe they need to take a responsible decision no matter how little it is. Occupation women are primarily responsible for home-keeping, overseeing the organizational, financial, day-to-day operations of a family and managing all domestic concerns. The amount of income generated from a homemaker's occupational income determines how responsible they are in the choice of household equipment made. It is opined that a good balance of both occupational duties and household chores

with the right choice in purchasing household equipment will bring relief to the duties of the homemaker. The determining worth of household equipment at the level of educational level and occupation proves the personality and position of an individual. The hope of this study is that there is a positive predictor but where there are challenges and gaps, the study provides a framework to address these gaps through the assessment of the determinants of homemakers' decision in household equipment acquisition in the Colleges of Education in South West Nigeria.

In recent times, women changing role from full-time housewife to dual career role has raised some concern in the area of how to effectively perform their household chores using preferred equipment that can reduce the conflicts between work and family responsibilities. Recently household equipment acquisition has been threatened by challenges associated with high inflation, high cost of equipment, accessibility to where to purchase the equipment and possible services outlet and their acquisition among others. These problems could have an effect on the homemakers with dual role, and the need for some criteria to consider easing the problems of making a wrong decision in the acquisition of household equipment and also avoiding wastage of resources may arise. Attempts on such studies have been made at some level based on work simplification, which are usually generalized. Based on the above, this study attempts to assess the determinant of homemakers' decision in household equipment acquisition in South West Nigeria.

Methodology

Descriptive survey design was used for this study. The population for the study was made up of 2151; of all women (academic and non-academic staff) who are homemakers, from 13 Colleges of Education which are made up of all Federal, State, and Private Colleges of Education in the South West Nigeria.

Multi-stage sampling technique was used to select states that participated in the study. The sample sizes of 667 respondents were appropriately selected for the study. The instruments for data collection were structured questionnaire. The instruments for this study were validated by three experts in the Department of Home Economics, Ahmadu Bello University, Zaria. The instruments were critically examined based on appropriateness to the purpose of this study. The reliability of the instruments was determined by the statistical analysis of the data collected from the pilot study. The statistical package for social sciences (SPSS) version 20 based on Cronbach alpha reliability test was used. According to Spiegel (1992) reliability coefficient of 0.5 and 1 is expected to be obtained for the instrument, which would imply that it is reliable and internally consistent for the study, from the result obtained. The reliability index of 0.90 was obtained for the Cronbach's Alpha. The

research questions were analyzed using weighted mean. Pearson Product Moment Correlation (PPC) of statistical procedure was employed to analyze the data between all the variables in the null hypotheses, using Pearson Product Moment Correlation (PPMC).

Results

Research Question 1: To what extent does educational level determine homemaker's decision in household equipment acquisition in South West Nigeria?

Table 1: Extent of Homemaker's Educational Level as Determinant for Decision in Household Equipment Acquisition

N=660

S/N	RESPONSE CATEGORIES						
	Items	**VGE**	**GE**	**LE**	**VLE**	**X**	**SD**
1	Electric Cooker	309	155	64	132	2.97	1.001
2	Microwave oven	264	166	94	136	2.85	0.467
3	Halogen oven	226	205	89	140	2.78	0.870
4	Pressure cooker	243	176	69	172	2.74	0.874
5	Deep fryer	236	188	96	140	2.79	0.521
6	Rice cooker	209	185	110	156	2.68	0.874
7	Steamer	230	190	98	142	2.77	0.736
8	Refrigerator	238	197	95	130	2.82	0.467
9	deep freezer	266	172	108	114	2.89	0.870
0	Yam pounder	217	196	93	154	2.72	0.874
11	Food processor	212	187	115	146	2.70	0.521
12	Dish washer	237	161	113	149	2.74	0.874
13	Blender	235	166	100	159	2.72	0.736
14	Juicer	257	179	71	153	2.82	0.785
15	Bread toaster	300	152	65	143	2.92	0.486
16	electric kettle	254	153	100	153	2.77	0.684
17	Gas cooker	302	138	69	151	2.90	0.873
18	Kerosine stove	214	133	124	189	2.56	0.102
19	Grinding machine	231	142	106	181	2.64	0.754
20	Deep fryer	199	161	124	176	2.58	0.521
21	Barbeque grill	212	162	123	163	2.64	0.874
22	Juice extractor	195	167	131	167	2.59	0.521
23	Mixer	198	176	84	202	2.56	0.874
24	Peelers	217	158	101	184	2.62	0.736
25	Mincers	225	148	106	181	2.63	0.785
26	Choppers	206	136	112	206	2.52	0.486
27	Pancake Mixer	237	126	103	194	2.62	0.684
	Cumulative/mean/SD					***2.723***	**0.75**

Key: N=Number of Respondents, x=Mean, SD=Standard Deviation

The data presented in Table 1 shows the mean rating and standard deviation on the extent of homemaker's educational level as determinant for responsible decision in household equipment acquisition in South West Nigeria. Specifically, result shows that some of the household equipment, pressure cooker ($\overline{X}$ = 2.74; SD = 0.874),rice cooker ($\overline{X}$ = 2.68; SD = 0.874), yam pounder ($\overline{X}$ = 2.72; SD = 0.874),dish washer ($\overline{X}$ = 2.74; SD = 0.874), gas cooker ($\overline{X}$ = 2.90; SD = 0.873) and barbeque grill ($\overline{X}$ = 2.64; SD = 0.873), mixer yam pounder ($\overline{X}$ = 2.56; SD = 0.874), have high standard deviation. Cumulatively, the cumulative mean rating and standard deviation ($\overline{X}$ = 2.723; SD = 0.75) indicate that educational level determined the homemaker's decision of household equipment acquisition. Hence, educational level is a determinant of homemakers' decision in household equipment acquisition. However, majority of the people do not use the equipment although they may have it kept at home due to epileptic power supply, lack of electricity and lack of awareness.

HO_1: There is no significant relationship between educational level and homemaker's responsible decision in household equipment acquisition in South West Nigeria

Table 2: Pearson Product-Moment Correlation (PPMC) Statistics between Educational level and Homemakers Responsible Decision

Variables	N	Mean	STD	Df	r	P
Responsible Household equipment acquisition	660	507.09	125.02	685	.824**	0.001
Educational status determinant	660	73.55	22.89			

Table 2 presents the data on results of the Pearson Product-Moment Correlation (PPMC) statistics, which indicates that significant determinant exist between homemakers' decision in household equipment acquisition and educational level in South West Nigeria. The p value of 0.001 is lower than the .05 alpha level of significance ($p < 0.05$). The level of correlation between educational level and homemaker's decision of household equipment is at 0.824 and the type of correlation is proportional, meaning the correlation is very high and positive. This shows that high educational level of respondents, determined the extent of decision made in acquiring household equipment. This implies that homemaker's educational level significantly determines decision in

household equipment acquisition to a very great extent. Therefore, the null hypothesis which states that there is no significant relationship between educational level and homemaker's decision in household equipment acquisition in South West Nigeria, is hereby rejected.

Research Question 2: To what extent does the occupational status of the homemakers determine their responsible decision in household equipment acquisition in South West Nigeria?

Table 3: Extent of Homemaker's Occupational Status as Determinant for Decision in Household Equipment Acquisition in South West Nigeria

N=660 S/NO

RESPONSE X SD RMK

S/N	RESPONSE CATEGORIES Items	VGE	GE	LE	VLE	X	SD
1	Electric Cooker	321	86	82	171	2.84	0.413
2	Microwave oven	274	142	72	172	2.78	0.141
3	Halogen oven	204	138	117	201	2.52	0.210
4	Pressure cooker	235	144	88	193	2.64	0.521
5	Deep fryer	210	137	119	194	2.55	0.701
6	Rice cooker	224	105	130	201	2.53	1.002
7	Steamer	205	153	115	188	2.57	1.001
8	Refrigerator	221	163	97	179	2.65	0.467
9	deep freezer	224	152	88	196	2.61	0.870
10	Yam pounder	199	156	102	203	2.53	0.874
11	Food processor	206	157	105	192	2.57	0.521
12	Dish washer	199	171	96	194	2.57	0.874
13	Blender	198	170	86	206	2.55	0.736
14	Juicer	221	164	94	181	2.64	0.467
15	Bread toaster	255	135	89	181	2.70	0.870
16	electric kettle	274	132	78	176	2.76	0.874
17	Gas cooker	252	133	89	186	2.68	0.521
18	Kerosine stove	95	55	223	287	2.16	0.374
19	Grinding machine	113	111	146	290	2.41	0.436
20	Deep fryer	178	174	133	175	2.54	0.785
21	Barbeque grill	202	151	113	194	2.55	0.486
22	Juice extractor	169	173	129	189	2.49	0.684
23	Mixer	198	141	119	202	2.51	0.873
24	Peelers	196	154	125	185	2.55	0.102
25	Mincers	223	162	107	168	2.67	0.754
26	Choppers	228	158	99	175	2.67	0.746
27	Pancake Mixer	218	151	82	209	0.423	2.57
	Cumulative mean/SD						***0.605***
						2.609	

Key: N=Number of Respondents, x = Mean, SD=Standard Deviation

The data presented in Table 3 shows the mean rating and standard deviation on the extent of homemaker's educational level as determinant for responsible decision in household equipment acquisition in South West Nigeria. Specifically, result shows that some of the household equipment, yam pounder ($\overline{X}$ = 2.53; SD = 0.874), dish washer ($\overline{X}$ = 2.57; SD = 0.874), electric kettle ($\overline{X}$ = 2.76; SD = 0.874) and mixer ($\overline{X}$ = 2.51; SD = 0.873) have high standard deviation. Cumulatively, the cumulative mean rating and standard deviation ($\overline{X}$ = 2.723; SD = 0.75) indicate that occupational level determined the homemaker's decision of household equipment acquisition. Hence, occupational level is a determinant of homemakers' decision in household equipment acquisition. However, majority of the people do not use the equipment although they may have it kept at home due to epileptic power supply, lack of electricity and lack of awareness.

Hypothesis 2: There is no significant relationship between occupational status and homemaker decision in household equipment acquisition.

Table 4: Pearson Product-Moment Correlation (PPMC) Statistics between Occupational level and Homemakers Decision in Household Equipment Acquisition

Variables	N	Mean	STD	Df	r	P
Household equipment Acquisition	660	507.09	125.02	658	.808**	0.003
Occupational level determinant	660	70.45	25.13			

r calculate > r value at df 658 0.003 < 0.05

Results of the Pearson Product-Moment Correlation (PPMC) statistics, in Table 4 show significant determinant between occupational level and homemaker's decision in household equipment acquisition in South West Nigeria. The p value of 0.003 is lower than the 0.05 alpha level of significance, the status of correlation between occupational status and homemaker's decision in household equipment acquisition is at 0.808 and the type of correlation is proportional. This shows that the homemaker with a high occupational status has a very great demand for household equipment that will take care of the long hours spent at work. This implies that the homemaker's level of occupational status significantly determines their decision in household equipment acquisition. Therefore, the null hypothesis which states that homemaker's responsible

decision in household equipment acquisition is not significantly determined by occupational status in South West Nigeria is hereby rejected.

Discussion of findings

The study assessed the determinants of homemaker's decision in household equipment acquisition in South West Nigeria. The findings on hypothesis one (1) was rejected which states that there is no significant relationship between educational level and homemakers decision in household equipment acquisition in South West Nigeria, this was established because the p-value was less than 0.05 alpha level. In support of this finding, Amina, Sultana, Emma, and Veronica (2017) Education of homemakers is critical for responsible consumption decision making and widespread behavioural change. In line with this finding, Adedokun (2011) states that education which is the acquisition of knowledge, skills and values, is strongly related to a higher standard of living which is directly linked to the ability of homemakers to be able to make a better choice among alternatives. It was also discovered that hypothesis two (2) which states that there is no significantly relationship between occupational status and homemakers decision in household equipment acquisition in South West Nigeria was rejected, this was established at a correlation index of p-value of 0.000 which is lower than the 0.05 alpha level of significance, and that the type of correlation is proportional. The result indicated that occupational status significantly determines homemaker's decision in household equipment acquisition. Nwosu and Ayodele (2014) in support of this finding argued that occupational status has made many women (homemakers) made decisions in the choice and purchase of home appliances that can ease the burden of home chores.

Conclusion

The study reveals that the determinants of homemaker's decision were found to have significant relationship in household equipment acquisition in South West Nigeria. These were revealed in the test of the hypotheses of the study. The homemaker's ability to make wise decision in the consumption of household equipment was determined by their educational level and occupational status. Therefore, educational status and occupation are major determinant of homemakers' decision making on consumption of products, which is one of the cardinal point of Sustainable Development Goals (SDGs).

Recommendations

Based on the findings made and the conclusion drawn, the following recommendations were made:

1. There should be public enlightenment programmes on radio and television for educating homemaker's participation in decision making.
2. Homemakers with high occupational status should avoid unhealthy competition among themselves and be disciplined in their acquisition pattern.
3. Manufactures should consider the brands, durability and functionality of the homemakers in their process of construction.
4. Manufacturers should enable and inspire homemakers and influence their buying choices through the adoption and marketing of sustainable, practices and products.
5. Manufacturers should also promote skills development to design solutions for sustainable lifestyles among homemakers through on-the-job training.

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Relationship between Socio-economic Background and Academic Performance of Automobile Mechanic Works Students in Lagos and Ogun States' Technical Colleges

By:
Prof. Raymond, Uwameiye,
Dr. P.S.O. Uddin;

and
Dr. Adeyemi Ajao,
Department of Vocational and Technical Education,
Faculty of Education
Ambrose Alli University, Ekpoma

Prof. Raymond, Uwameiye is a Professor of Industrial Technical Education, Department of Vocational and Technical Education,Faculty of Education**,** Ambrose Alli University, Ekpoma. Email Address: uwameiye@gmail.com
Dr. P.S.O. Uddin is an Associate Professor,Department of Vocational and Technical Education,Faculty of Education**,** Ambrose Alli University, Ekpoma
Dr. Adeyemi Ajao is a Postgraduate Student in Department of Vocational and Technical Education,Faculty of Education**,** Ambrose Alli University, Ekpoma

Abstract

This study examined the relationship between socio-economic background and academic performance of Automobile Mechanic Works students in Lagos and Ogun States' Technical Colleges, Nigeria. One research question and two hypotheses were raised for the study. The descriptive survey research design was used for the study. A total of 120 students' population were used as sample due to small size, hence, no sampling was used because of the manageable size of the population. The instrument used to collect data was a self-developed questionnaire named "Parents' Socio-economic Background Questionnaire" (PSBQ) was utilized to collect data for the study. The data collected were analyzed using descriptive statistics (mean, for research question and Multiple Regression, Analysis of variance (ANOVA) for the hypotheses). One of the findings from the study shows that academic performance of automobile mechanic works students is significantly related to and influenced by parents' financial status. Based on the findings, the study recommended that among others, consistent importance should continue to be accorded parents' education as it affects students' performance in the study area.

Keywords: *Parents' Educational Background, Parents' Occupation, Parents'Income, Socioeconomic Background, Academic Performance, Technical College.*

Background to the Study

Education is one of the most important weapons to bring meaningful and objective changes in the way a nation or society is run. Education serves as a tool to remove primitive lifestyle, superstitious claims, orthodoxy and habitualized errors. Education is a tool and a prime-mover that provides contemporary skills, competencies, civilization and opportunities for people in a country or society which leads to socioeconomic, political and technological development of individual citizens and its aftermath of country wide infrastructural provisions in all sectors, allowing a steady productivity growth and economic advancement.

Education is also a behaviour changer which can reform an individual from stark ignorance to a well informed personality who will in turn contribute meaningfully to the progress of both his immediate and distant environment. It is in the light of this fact that Omoregie, (2018) submitted that any nation that fails to fully invest in its citizens' education is clearly asking for trouble. That is, such a trouble could emanate from under development, bad economy, dilapidated infrastructural facilities, crimes, youth restiveness, insecurity and political instability.

Therefore, a type of education that exposes its recipients to a world of lifelong work is Technical Vocational Education and Training (TVET). Uwameiye (2017) posited that TVET is all forms and aspects of education either in educational institutions, Universities, Polytechnics and Colleges of Education (Technical) or under their authority, by public authorities, the private sector, or through other forms of organized education, formal or non – formal, aiming at ensuring that members of the community have access to the pathway of lifelong learning.

It must be noted that one of the TVET institutions that promote life-long learning is the technical colleges in Nigeria. Technical colleges according to Oke and Olakotan (2017) are TVET institutions saddled with the responsibilities of equipping recipients with knowledge and skills needed to function effectively in the world of work. The goal of education at the technical college level according to Ekpenyong (2011) is to provide students with sound education that would enhance development of appropriate, social, mental, physical and skill competencies.

There are four technical colleges in Lagos State situated in Epe, Ikorodu, Agidingbi, Ikotun and Ado-Soba while there are seven Technical Colleges in Ogun State situated at Abeokuta, Ayetoro, Ig besa, Ajegunle, Ijebu-Mushin, Ijebu-Igbo and Ilara-Remo where only four are running automobile programmes. There are many TVET programmes in Lagos and Ogun States' Technical Colleges; one of them is Automobile Mechanic Works. Giri (2011) states that the study of

Automobile Mechanic Works involves self–propelled vehicles, consisting of four wheels, powered by internal combustion (heat) engine designed to convey passengers and goods. Automobile Mechanic Works is the study of sub–systems that are mutually dependent, coupled together to perform the functions of space and service utilities. The National Board for Technical Education (FRN, 2013) stipulated that the goals of Automobile Mechanic Works in the Nigerian technical colleges, is to produce craftsmen with good knowledge of the working principles of motor vehicles, the techniques and safety practices involved in the repair and maintenance works which objectives are safe, available, effective and affordable means of transportation for private and commercial purposes.

However, it would seem difficult to achieve these objectives as a result of the constraints posed on their realization. One of these constraints is related to the socio-economic background (SEB) of technical college students. Osonwa, Adebisi & Iyam (2013) stated that socio – economic status of the parents is a measure of their combined economic and social backgrounds that could be positively associated with a measure of good health, income, education, occupation type, residential location and social affiliation. Osonwa et al, (2013), itemized some ways through which the family socio – economic background could help the child. These include the ability of parents to provide good food in the right quantity and at the right time for their children, and initiating child's educational foundation through the choice of appropriate learning environment that will stimulate child's positive inclination towards education among others.

Socio-economic background of students is the enablement of parents to meet the financial needs of their children. These needs include good feeding, decent accommodation, good school to attend, ability to afford school and home related necessities. Parameters of socioeconomic status considered in this study include parents' education, parents' occupation and parents' income. The earning power and socio-economic class of the parents; Upper, Middle or Lower to a large extent may determine the aspiration and the academic performance of a student in Automobile Mechanic Works because of the need for various materials which include; drawing sets, personal computer with internet facility, improvising materials, needs for field works, feeding and personal care allowance. This may also determine the learning response of individual students to teachers instructions even when one teacher handles the proceedings. Socio-economic class of a student's parents can either make or mar his/her academic performance.

Academic performance is the evaluated learning outcome or change in behaviour of a student at the end of teaching/learning activities in comparison to the standard that has been set for evaluation processes through any or a combination of questioning, test, examinations, continuous assessments, experiments, homework, laboratory, field works or supervised industry – based training. Similarly, academic performance of a student depends on individual students, home and school environments, family income, parents' educational levels, residential location, parents' occupation, family size and parents' attitude towards education may have effect on students' prompt class attendance and completion of academic work which is an academic performance factor.

The National Board for Technical Education (NBTE) is charged with the academic performance standard setting as well as programme accreditation in the Nigerian Technical Colleges. The NBTE has specified that apart from other methods of evaluating student's academic performances in the Technical Colleges, 30% of academic time should be devoted to theories and related aspects while 70% of academic time should be devoted for practical training and related aspects. The National Business and Technical Examination Board (NABTEB) is responsible for the conduct of final examinations for Technical College students. NABTEB awards the National Technical Certificate (NTC) at the Ordinary Crafts Level, in general and trade subjects, while the Advanced National Technical Certificate (ANTC) for the Advanced Crafts Level, in general and trade subjects. In addition to the above certificate examinations, every technical college final year student is also expected to write and pass the Federal Crafts Certificate examination which is an internal arrangement as well as the Federal Ministry of Labour Trade Tests III, II & I which are competency–based (FRN, 2013).

Teaching and learning activities determine the performance of a learner during and after such activities to find out the level of understanding of each student. This understanding is dependent to a large extent on physiological and psychological state of a student which is also dependent on how much provision is made for a child's living and school needs, (Olewu & Oran, 2012).

Purpose of the Study

This purpose of this is to find out the relationship between Socio-Economic Background and Academic Performance of Automobile Mechanic Works Students in Lagos and Ogun States' Technical Colleges. Specifically, this study investigated the:

1. relationship between the upper, middle and lower socio-economic classes of parents' and academic performance of Automobile Mechanic Works' students in Lagos and Ogun States' Technical Colleges;
2. relationship between the collaborative interactions of upper, middle and lower socio-economic classes of parents' and academic performance of Automobile Mechanic Works' students in Lagos and Ogun States' Technical Colleges.

Research Questions

The following research question was raised and answered:

1. What is the relationship between socio-economic background of parents and academic performance of Automobile Mechanic Works students in Lagos and Ogun States' Technical Colleges?
2. What is the relationship between the collaborative interactions of upper, middle and lower socio-economic classes of parents' and academic performance of Automobile Mechanic Works' students in Lagos and Ogun States' Technical Colleges?

Research Hypotheses

The following hypotheses were formulated and tested at .05 level of significance:

H_{01}: There is no significant relationship between the upper, middle and lower socio-economic classes of parents' and academic performance of Automobile Mechanic Works' students in Lagos and Ogun States' Technical Colleges.

H_{02} There is no significant relationship between the collaborative interactions of upper, middle and lower socio-economic classes of parents' and academic performance of Automobile Mechanic Works' students in Lagos and Ogun States' Technical Colleges.

Methodology

The research design for this study was descriptive survey. According to Uzoagulu (2011), descriptive survey design is used to collect data that enable a systematic description of the various characteristic features of a given population. The study looked at the relationship between students' socio-economic background (SEB) and their academic performance in Automobile Mechanic Works in Lagos and Ogun States' Technical Colleges, parameters of SEB in this study were; parents' education, parents' occupation and parents' income as the independent variables while

students' academic performance was the dependent variable using questionnaire to collect data from respondents that made up the sample with a view to allowing generalization.

Population of the Study

The population for this study was 120 year three students of Automobile Mechanics Works in eight Lagos and Ogun States' Technical Colleges. The choice of students in year three were considered because these students had minimum of two years study experience in Automobile Mechanic Works and were also permitted to have more experience in this area since they were already rounding up their study. More so, respondents were given the instrument relating to parental factors to their parents at home to allow an objective and true information required on parental education, parental occupation and parental income

Sample and Sampling Techniques

The entire population of 120 Automobile Mechanic Works students in year three from Technical Colleges in Lagos and Ogun States was used as sample because of its manageable size. Azoagulu (2011) explained that the closer the sample to the population, the better the outcome data. 17 students were from Ado-Soba, 13 students were from Ikotun, 13 students were from Epe, 19 students were from Ikorodu all in Lagos State. 12 students were from Abeokuta, 16 were from Ayetoro, 13 from Ilara-Remo while 17 students were from Igbesa respectively, all in Ogun State, giving a population of 120 students for the study.

Research Instrument

The instrument used for this study was a structured questionnaire titled "Parents' Socioeconomic Background Questionnaire (PSBQ)". The questionnaire contained structured items that portray elements of parents' socio-economic background. The PSBQ sought information on items such as. parents' education, occupation, income. The PSBQ parameters were residence type, property owned by parents, conveniences provided and number of siblings among others. Points were assigned to each indicator of PSBQ. PhD and Masters' degree holding parents were awarded 5 points, BSc/HND 4 points, NCE/OND 3points, O/level/TCII, C&G intermediate 2 points while primary 6 certificate holding parents were awarded 1 point each. For parents' occupation, professionally qualified parents holding top management positions were assigned 5 points, 4 points

to parents holding mid senior (10-11) positions and equivalents, 3 points to intermediate position holders (08-09), 2 points to junior occupations (06-07) while 1 point was assigned to the lowest cadre (01-05). Classifications for parents' income were as follows; high income (grade level 12 &above) 5 points, medium income (grade level 10 & 11) 4 points while low income was (grade level 01-05)2 points. Students' test- scores were used alongside the percentile scores to separate the three socio-economic classes of students namely; high SEB, medium SEB and low SEB respectively for analysis seeking their possible relationship with students' academic performance. Students' test-score sheets were obtained from Colleges' A Academic Record Offices for data on academic performance upon permission from Principals

However, the data collected were analyzed using students' mean scores for the various socio-economic levels for research question, Multiple Regression and Analysis of Variance (ANOVA) statistical tools for research hypotheses.

Validity and Reliability of the Instrument

The questionnaire for this study was subjected to face and content validity by experts in Measurement and Evaluation from the Department of Vocational and Technical Education, Ambrose Alli University, Ekpoma to determine the validity of the question items. After screening and verification, items that were found valid were retained while those found invalid were modified, replaced or rejected.

The reliability of the instrument was determined by the use of test-retest technique. The instrument was administered on two occasions with a two- week interval to 12 Automobile Mechanic Works students in Government Technical Colleges in Awe in Oyo. The Pearson Product Moment Correlation coefficient of reliability of the two sets of scores was calculated and the score was 0.73. This was good enough for use in this study.

Method of Data Collection

The researcher administered the research instrument with the help of two research assistants. 120 copies of questionnaire were administered with the active assistance of subject teachers and all were retrieved for analysis.

Method of Data Analysis

Data obtained from PSBQ and students' test scores were used in the analysis. The

Mean scores were used for research questions while the students' test-scores and the percentile scores separated for the three categories of socio-economic background of parents; Upper, Middle and Low were analyzed using the multiple regression analysis and the analysis of variance (ANOVA) for individual relationship and collaborative interaction among the three classes of parental background.

Results Presentation

Research Question 1: What is the relationship between thesocio-economic background and academic performance of Automobile Mechanic Works students in Lagos and Ogun States' Technical Colleges?

Table 2: Mean Scores for the Various Levels of Socio-economic Background

SEB Levels	(Mean scores) X	N
Upper	67.53	40
Middle	60.19	40
Low55.15	40	

Table 2 shows students' mean scores that students from upper socio-economic background achieved the highest mean score of 67.53. This is followed by students from middle socio-economic background who posted a mean score of 60.19 while students from low socio-economic background achieved the least mean score of 55.15

H_{01}: There is no significant relationship between students' socioeconomic background and their academic performance in Automobile Mechanic Works in Lagos and Ogun States' Technical Colleges.

Table 3: Regression Summary Showing the Joint Contributions of Collaborative Activities of Socio-Economic Status to Academic Performance of Automobile Mechanic Students

Mode	R	R^2	Adjusted R^2	Std. Error of the Estimate	Durbin-Watson
1	.318[a]	.101	.095	5.76771	1.555

Predictors: (Constant). High Socio-Economic Status, Medium Socio-Economic Status and Low Socio-Economic Status**.** Evidence in Table 3 shows that the three indicators of socio-economic

status have positive multiple correlations with academic performance of automobile mechanic students (R = 0.318). The adjusted R^2 value of 0.095 indicated that the three indicators of socio-economic status jointly contributed 9.5% to the variance, that is, academic performance of automobile mechanic students. By implication, the remaining 90.5% was due to residuals, that is, other variables not included in the study. However, to confirm if the result of adjusted R^2 value obtained is significant, Analysis of Variance (ANOVA) was carried out and the result is presented in Table 4.

H_{02}: There is no significant relationship between the collaborative interactions of upper, middle and lower socio-economic classes of parents and academic performance of Automobile Mechanic Works students in Lagos and Ogun States' Technical Colleges.

Table 4: Relationship between the Collaborative Activities in Socio-Economic Status Indicators and Student Academic Performance

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	19.005	3	6.335	1.033	0.038[b]
Residual	1202.350	196	6.134		
Total	1221.355	199			

a. Dependent Variable: Academic Performance
b. Predictors: (Constant), High Socio-Economic Status, Medium Socio-Economic Status and Low Socio-Economic Status

Evidence in Table 4 shows that the calculated F-value is 1.033, and it is statistically significant at $p<.05$. Hence, the independent variables statistically and significantly predict dependent variable. This means that the obtained adjusted R^2 value was not due to chance. This implies that regression model is a good fit of the data. That is, the three indicators of socio-economic status are all important in determining academic performance of automobile mechanic students.

To establish relative contributions of each of the three indicators of socio-economic status on academic performance of automobile mechanic students, their relative β-values and their corresponding p-values were established and the results are presented in Table 5.

Table 5: Relative Contributions of Socio-Economic Status Indicators and Academic Performance of Automobile Mechanic Works Students

Model	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	B	T	Sig.	Remark
(Constaint)	33.761	1.574		21.455	.010	
High Socio-Economic Status	.011	.065	.013	.176	.019	Significant
Medium Socio-Economic Status	.101	.062	.121	1.640	.013	Significant
Low Socio-Economic Status	.003	.062	.004	.056	.003	Significant

a. Dependent Variable: Student academic performance

Table 5 showed that each of the three indicators of socio-economic status contributed differently to academic performance of automobile mechanic students. The relative contributions of each indicator to student academic performance in order of importance are: High Socio-Economic Status (β=0.013; $p<0.005$), Medium Socio-Economic Status (β=0.121; $p<0.05$) and Low Socio-Economic Status (β=0.04; $p>0.05$). This result means high socio-economic status contributed most to student academic performance while, low socio-economic status contributed the least.

Discussion of Results

Table 3 showed that parents' income, educational background and parents' occupation have significant joint and relative contributions in predicting academic performance of automobile mechanic students. This means that the independent variables (parents' income, educational background and parents' occupation) raised are significant in determining academic performance of automobile mechanic students.

The analyses showed that children from economic advantaged family are more likely to be equipped with relevant materials. The study also showed that children from economically stable families are more likely to perform well and better than children from low financial background. The result analyses corroborate with the study of Broody and Dowker (as cited in Odoh, Ugwuanyi & Chukwuani, 2017) which state that students who come from economically poor families due to poor parental income level are more likely to be less equipped with relevant materials and are more exposed to poor performance in school than those from more economically stable families. This finding of the study was also in line with the views of Machebe and Ifelunni (2014); Musarat, Sundus, Faqiha, Fozia, and Ayesha (2013); which showed that financial status of parents does not only affect the academic performance of students but also makes it impossible for children from low

financial background to compete well with their counterpart from high financial background under the same academic environment.

The result findings showed that children from families where parents are more educated tend to have high intellectual, economic, psychological and emotional capacities which often result to high academic performance. This finding is in line with the view of Ahmad and Naeema (2013) which state that children from families where parents have less education tend to perform systematically poor in school than pupils whose parents have more education.The opinions of Norsuhaily, Ibrahim and Mudassir (2017); Yunus, Hamzah and Razak (2018) are in line with the result of the analysis which revealed that parents who reached some certain level of education had the ability to assist children doing the assignment, know the needed books, models and maps for their children. The result of findings showed that parents' occupation can determine academic performance of automobile mechanic students. This finding is in line with the view of Michelle, and Young (2014) which states that children whose parents have better occupation score high marks than those whose parents have least occupation. Also, Faisal (2014); and Mohammed and Almatalka (2014) which reported that parental occupation is the main predictive variable influencing students' academic performance corroborates this study's finding.

Conclusion

The importance attached to parents' socioeconomic background in predicting children academic performance cannot be over emphasized. Parents with medium or high educational attainments, good and well – paying jobs are more inclined to their children's socio – academic needs. They have stable schedules, can plan ahead and assist their children academically and socially. Conversely, parents with low income and low socioeconomic statuses are likely to be incessantly disturbed; they are not likely to have a concerted roadmap for their children education. This is likely to affect their relationship with spouses and children, and by extension, children's academic performances.

Recommendations

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

1) Consistent importance should continue to be accorded parents' education as it affects students' performance in the study area.

2) Parents should be encouraged to maintain family responsibility-enabled income through capacity/economic development in their various occupations of endeavour in the study area.

3) Medium and small scale entrepreneurship should be encouraged with possible loan facilities for inclusive gainful economic activities as occupation enlargement assistance to maintain sustainable occupation.

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Influence of Teachers' Experience on the Academic Achievement of Students in Home Economics in Esan West Local Government Area of Edo State

By

Mrs C.H.Erua

Department of Vocational and Technical Education
Ambrose Alli University,Ekpoma.
&
Dr Mrs B.E.Uwameiye
Department of Vocational and Technical Education
Ambrose Alli University,Ekpoma.
E-mail; Ineose05@yahoo.com

Dr Mrs. B.E.Uwameiye is a an Associate Professor,Department of Vocational and Technical Education,Faculty of Education**,** Ambrose Alli University, Ekpoma

Mrs C.H.Erua is a Postgraduate Student in Department of Vocational and Technical Education, Faculty of Education**,** Ambrose Alli University, Ekpoma

Abstract

This study was to find out the influence of teachers experience on the academic achievement of students in Home Economics in Esan West local Government Area of Edo State. The descriptive survey design was used for this study. The population was the 3,012 students and 16 Home Economics teachers in the 16 public junior secondary schools in Esan West Local Government Area of Edo State. Using the purposive sample technique 16 Home Economics Junior Secondary Schools teachers and 320 students formed the sample for the study. The instruments used for the study are the Teachers Experience Questionnaire (TEQ) and Home Economics Achievement Test (HEAT). To analyze the data, the descriptive statistics tools, which were mean and standard deviation were utilized to analyze the research question while the hypothesis was tested with inferential statistics which was the t-test at .05 level of significance. One of the findings of this study is that teachers with high experience in teaching Home Economics had a higher mean score than their counterpart with low experience. Based on the findings, researchers recommend among others that government should encourage teachers through incentives such as promotion, increase in salaries and annual workshops so as to retain them for longer stay in the teaching profession.

KEYWORDS*; Experience, Academic Achievement, Incentives, Promotion, Technology*

Background to the Study

Education plays an important role in the life of a man, for it is a lifelong process. It is the process of development from infancy to maturity. It includes the effect of everything which influences human personality. Iram (2009) defined education as "a lifelong process of acquiring new knowledge and skills through both formal and informal exposure to information, ideas, and experiences. As enshrined in the National Policy on Education, It fosters the worth and development of the individual for the individual's sake and for the general development of the society. Therefore, education becomes the instrument with which the society transmits its own culture and values. It is seen as the cornerstone of every development forming the basis for literacy, skill acquisition, technological advancement as well as the ability to harness the natural resources of the state.

Besides, education happens to be the seal of growth and expansion tools of nations all over the world. This is made possible by impacting the relevant knowledge, skills and habits to its citizens, in their preparation for meaningful life. In identification of this, the Federal Government of Nigeria introduced the prevocational education. Prevocational education is an aspect of education that introduces its recipients to the world of work. Prevocational education is a type of functional education, which forms part of Nigerian junior secondary school education that is geared towards general education purposes, and involves exploratory activities with the world of work (Uwameiye, 2015). Through the exposure of students to prevocational subjects, students develop a broader understanding of industrial processes and are helped to explore their individual interests and aptitudes. Prevocational subjects at the junior secondary education level in Nigeria include Business Education, Introductory Technology, Practical Agriculture and Home Economics.

According to Anyakoha (2015), Home Economics as that part of the curriculum enables the student to make informed decision in the everyday life and which contributes to the students understanding of the world of work. The world of work is drawn from the knowledge of Food and Nutrition, Clothing and Textile, Home Management, Consumer Education, Home Furnishing, Interior Decoration, Child Development and Family Relation. Home Economics as a subject, gives students an added advantage in competitive career market. Its aims and objectives according to Paulucci (2006), include the following:

- To provide basic skills for personal use now and in the future.
- To prepare students for future careers in Home Economics.

- To furnish students with knowledge and skills for national economy.
- To develop basic skills in Home Economics.
- To provide the orientation and basic skills so as to satisfy an occupation for those who may not have the opportunity to further their training beyond secondary school.
- To empower individual with desirable skills, knowledge and value to perform specific function so as to become self-reliant.
- To help individual become a judicious spender and develop proper values for the achievement of healthy living and growth of the nation.
- To understand the political framework of a nation so that they can contribute to national economic and development of their country.

The above objectives of Home Economics seem admirable. As worthy as they are, there seem to be problems in the realization of the objectives. One of the problems that may not allow easy realization of the objectives of Home Economics in the secondary school is the characteristics of the teacher. The teacher is the bridge that makes teaching and learning effective, there is need to look into teacher's characteristics because effective teaching elicit effective leaning. Likewise teachers are the principal initiator of learning. Thus Ali in Ojukwu (2012) argues that an educational system is only as good as the teachers who operate it. In other words the characteristics of the teacher are a major determinant of the quality of learning the child acquires from the classroom.

Teacher's experience as stated by Ighodoro (2009), is the knowledge acquired, being in a particular discipline over a given period of time. The period of time could be days, weeks, months or years. To be able to acquire this experience, a teacher or a professional must work under instruction of a boss with a willingness to receive instruction from him or her. Experience can also be a practical knowledge from a profession not gained in a former school setting but in a defined social environment like hospital, ministries, firm, school, and others. By the definitions and opinions about experience, it can only be acquired if we can see, prepare to do what we see and hear. This implies that one must be ready to work; one can be in a job for years without acquiring actual experience. Years of experience is an important aspect of teacher characteristics. In all spheres of life, people generally prefer to work with somebody who has stayed on a job for some years. In other words, there is the general belief that a person who has done a particular job for some period of time will perform better than a neophyte. The importance of experienced teachers in schools has been highlighted by many researches (Akinycle, 2010; Ogundere, 2010). Researchers

have also given different opinions about teaching experience and students learning achievements Ijaiya, (2000) and Akomolafe, (2010). Their arguments centered on the fact that experience improves teaching skills while pupils learn better at the hands of teachers who have taught them continuously in a period of years.

Statement of the Problem

Over the years, a number of researchers have actively focused their research activities on identifying ways and means of reversing the rate of declining achievements in the various school subjects. There are majorly two parameters in assessing the quality of learning; namely students' results especially in standardized test and their behavior or performance after school (Ijaiya, 2009). In Nigeria and particularly in Edo State, students' academic performance in the external examination at the secondary school has not been encouraging. Sam (2011) regrettably observed that academic excellence had since ceased to exist in the land. According to him, every academic year, the state is grieved by the below average performance of thousands of students in the national examination, where above 70% of the candidates failed to secure credits in five subjects including Home Economics. For instance, this analysis of the academic performance of students in Home Economics held in 2013, 2014, 2015, 2016 and 2017 in the 18 local government areas of Edo state. The analysed data disclosed that out of the total number of 58,983 that sat for the examination in five years,in Edo State, in 2014,2015, 2016, 2017 and 2018; 1090 (1.8 %) passed with A. 2236 (3.8%), passed with B, 6897(11.7%) passed with C, 12763(21.6%) passed with D While 35,990 presenting (61%) failed the examination. Consequently, parents are concerned and worried about the poor performance of their wards, having spent so many funds to sponsor their children in schools only to come out with poor results. Stake holders in education are confused on how else to intervene in the affairs of teaching and learning, so as to improve the rate of performance in school subjects.

Although the federal government and stakeholders recognize the critical importance of Home Economics as a vocational course where students acquire life skills. The aforementioned challenge is an indication that this vocational programme may not have received the kind of attention and recognition it demands. However, some research studies suggested that factors inside and outside the classroom affect students' achievement. They ascribed the teachers factors as responsible for the students under achievements. (Ojo, 2004). Additionally, Ewa (2012) reported that that many

schools are using Biology and Agricultural science teachers to teach Home Economics which may determine their attitude towards teaching the subject. Therefore, one wonders if teacher's experience would influence student's academic achievement in Home Economics also in Edo state.

Studies on teacher's experience have been carried out in recent times. In the foreign scene, Olando and Mwangi (2021) investigated the influence of teachers characteristics (Teaching experience) and found out that teaching experience had significantly significant influence on reading, speaking, listening as well as basic skill among grade one pupils in Mombasa, Kenya. Aside, carryout this research outside the borders of Nigeria, and among primary school pupils, Muhammand (2021) carried out the effect of teachers academic qualification and experience on students achievement and interest in accounting in Kaduna State. And found out that teachers academic qualification and experience when taken together made significant influence on achievement of student in Kaduna State. This also was carried out carried out in the College of Education. To this end, it is not in the researcher's knowledge that any study on teachers experience on students academic achievement in Home Economics was carried out in Esan West Local Government Area in Edo State. This knowledge gap is what this study sought to fill.

Purpose of the Study

The main purpose of this study is to determine the influence of teachers' experience on the academic achievement of students in Home Economics. Specifically, the purpose of this study is to determine the:

1) influence of teachers' experience on the academic achievement of students in Home Economics in Esan West Local Government of Edo Sta

Research Questions

The following research questions were raised to guide this study.

Research Question 1: What is the influence of teacher's experience on the academic achievement of students in Home Economics? And

Research Question 2: What is the difference between the academic achievement of students taught by teachers with low experience and teachers taught with high experience in Home Economics in Esan West Local Government of Edo State?

Hypothesis

The following hypothesis was tested in this study:

Hypothesis 1: There is no significant difference between the academic achievement of students taught by teachers with low experience and teachers taught with high experience in Home Economics in Esan West Local Government of Edo State.

Methodology

The research design for this study was a descriptive survey. A research survey according to Olaitan & Nwoke (2011) is one which the entire population or representative sample is studied by collecting and analyzing data from the group through the use of structured questionnaire. This study is concerned with the influence of teachers' experience on student academic achievement in Home Economics. The independent variable consists of teachers' experience, The academic achievement of student of secondary school in Home Economics is the criterion variable. The design was considered appropriate for this study since the study was basically focused on describing the teachers' experience in relation with the academic achievement of students in Home Economics.

Population of the Study

The population for the study was made up of sixteen (16) Home Economics teachers teaching in the public Secondary Schools and the 3, 012 Home Economics students in JSS 11 in the concerned schools in Esan West Local Government Area of Edo State (Ministry of Education, 2018).

Sample and Sampling Technique

The entire population of 16 teachers was used for the study, because the population size is small. Based on this, there was no sampling for the teachers. For the students, the purposive sampling technique was utilized for selecting the schools; any school where there is Home Economics teacher, was purposively selected for the study. Any school without, Home Economics teacher was not included in the study. The entire population of sixteen (16) teachers from the 16 public schools constituted the sample of teachers for the study. This decision was taken, because the population size is of a manageable size. Based on this, there was no sampling for the teachers.

For the students, the purposive sampling technique was employed to draw a total number of 20 JSS 11 students from each of the 16 schools using the balloting technique. This was done in schools

where there is a Home Economics teacher. This gave a total of 320 students that were used for the study.

Instruments of the Study

The instrument that was utilized for data collection was a structured questionnaire title: "Teacher's Experience Questionnaire (TEQ)" and "Home Economics Achievement Test. (HEAT)". The TEQ was focused on the number of years respondent have in the teaching field, which is also termed as the teaching experience with that the teachers are classed as high or low experience. The Home Economics Achievement Test (HEAT) was a 50 item questionnaire which was used to determine the achievement of the students.

Validity of the Instrument

The instrument for data collection was subjected to face validity by the researcher's supervisor and two other experts in the Department of Vocational and Technical Education, Faculty of education, Ambrose Alli University, Ekpoma. Their corrections and suggestions were incorporated into the final instrument.

Reliability of the Instrument

To establish the reliability of the questionnaire, a test re-test method was adopted. The instrument was first administered to Ten (10) Home Economics teachers and 30 Home Economics students in Esan North East. After an interval of two weeks, the instrument was re-administered to the same group of respondents. Their responses for first administration and second administration were correlated using Pearson Product Moment Correlation and it yielded a reliability coefficient of 0.78. For the achievement test, the Richard Kuderson formula was used in establishing the reliability since the achievement test requires either a pass or fail. The reliability of the achievement tested yielded a coefficient of 0.82 which shows that the achievement test is reliable.

Method of Data Collection

The researcher engaged the services of two (2) research assistants who were exposed to a short training on how to distribute and retrieve the instrument. The instrument was administered and retrieved the same day.

Method of Data Analysis

The research question was analyzed using the mean and standard deviation while the hypothesis was tested using t-test at .05 level of significance such that any calculated t-test value above 1.96 was regarded as significant, and any calculated t-test value less than 1.96 was regarded as not significant.

Presentation of Results

Research Questions 1: What is the influence of teachers' experience on the academic achievement of students in Home Economics in Esan West Local Government Area?

Table 1: **Mean and Standard Deviation of Academic Achievement of Students in Home Economics According to theirTeachers' Experience**

Variable	Options	N	Mean	SD
Teachers' Experience	Low experience	186	49.40	10.86
	High experience	134	64.25	14.16
	Total	**320**		

Table 1 indicates that students taught by teachers with low experience scored a mean of 49.40 with a standard deviation of 10.86, while students taught by teachers with high experience scored a mean score of 64.25 with a standard deviation of 14.16. Students taught by teachers with high experience achieved higher than those students taught by low experience.

Table 2: Summary of t-test of the Academic Achievement of Students Taught By Teachers with High Experience and Students Taught By Teachers With Low Experience in Home Economics in Esan West LGA

Teacher'Experience	N	Mean	SD	Df	t-val	Decision
Low experience	186	49.40	10.86	14	2.74	*S
High experience	134	64.25	14.16			

Table 4 shows a calculated t-test of students performance in Home Economics, of students taught by high experienced and those with low experienced teachers in Esan West. The analysis shows a calculated t-value of 2.74 which is higher than the critical table value of 1.96 at .05 level of significance. The analysis indicated that there is a significant difference between the academic achievement of students taught by teachers with high experience and students taught by teachers with low experience in Home Economics in Esan West Local Government Area. The hypothesis was therefore rejected.

Discussion of Findings

The finding of this study shows that there is significant difference between the academic achievement of students taught by teachers with high experience and students taught by teachers with low experience in Home Economics in Esan West Local Government Area. This finding corroborates with the findings of Olando and Mwangi (2021) who revealed that teaching experience had a significant influence on reading, speaking, listening as well as basic skills. Ukwuayi, Etan and Unimma (2019) also examined the relationship between teachers characteristics and academic performance in commerce among senior secondary school revealed a significant relationship between teachers qualification, teachers years of experience and students academic performance in commerce among senior secondary school students in Cross River State, Likewise, Kirk Patrick (2015) supported the finding by declaring that experience is acquired when you work for some period of years, he or she will perform better and be an advantage to the institution. Experienced teachers in school has been highlighted by many researchers (Akinleye, 2010, Ogundare 2011) in investigating possible difference in teaching strategies, schuler (1984) grouped teachers into three levels of teaching experience (3-6, 7-10 more than 10 years). His finding revealed that experienced teachers perception of their teaching objectives was significantly more subject oriented than that of

first year teachers. Experience is the best teacher. Adeyemi (2010) examined teachers' teaching experience and students learning outcomes in the Secondary Schools in Ondo State Nigeria and found out that students taught by highly qualified teachers achieved higher than those taught by less qualified teachers.

Teachers experience has an important role to play on students' achievement at the junior secondary level. Experienced teachers have a richer background of experience to draw out from and can contribute insight and ideas to the course of teaching and learning; they are open to correction and are less dictatorial in class room. This finding is also in line with the finding of Muhammad, (2021) whose finding from a study revealed that all lecturers' academic qualification and experience when taken together made significant effect on students' achievement in Accounting. Ayugi, Ordera and Muse (2013) stressed that there is a significant relationship between teachers' years of experience and students' academic performance. Never the less, contrary to the finding of the study, Ansah, Quansah, and Nugba (2020) showed that experience did not significantly moderate the relationship between teachers subject matter knowledge and students mathematics achievement in addition likewise, Adeyemi (2010), contradicted the current finding, because the authors found that teachers teaching experience has no significant influence on students academic performance.

Conclusion

This study has found out that teachers experience influence academic achievement of students in Home Economics in Esan West Local Government Area of Edo State. This is a pointer to the fact that, this could be one of the reasons students are losing interest and therefore perform poorly. As a result decrease the passion to pick a career in Home Economics related trade after Junior Secondary. However provision of good incentives, good salary, re-training, provision of good teaching aids facilities and materials will be able to help to sustain teachers in schools.

Teachers' experience have proven to be a factor that influences students' academic achievement in Home Economics in Esan West. In line with this, it is believed that if the education stakeholders and relevant government agencies ensure that only teachers with high experience are utilized in the teaching of Home Economics in schools, a solid foundation in the subject in Esan West Local Government West would be laid.

Recommendations

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

Government should allow high experience teachers and low experience teachers to teach together in the same school. This will help the high experience teachers to mentor the low experience teacher

1. Teachers with high experience should be utilized in the teaching of Home Economics in the junior secondary schools in Esan West Local Government Area.
2. Good incentive, salary and remuneration should be paid to teachers of Home Economics to boost their moral and attitude towards teaching of Home Economics so as to retain them in schools.
3. Adequate teaching and learning materials, facilities and equipment for laboratory practical should be made available by government and relevant education stakeholders to encourage the teachers to continue to stay in schools.

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Effect of Jigsaw Instructional Method on the Academic Performance of Students of Electrical Electronic Technology

By

Prof Raymond Uwameiye,

Dr. J.O. Advbiele,

and

Dr. A.D. Omoh

Department of Vocational and Technical Education
Ambrose Alli University
Ekpoma Edo State, Nigeria

Prof. Raymond Uwameiye is a Professor of Technical Education in the Department of Vocational and Technical Education, Ambrose Alli University, Ekpoma
Dr. J.O. Adavbiele is a Associate Professor, Department of Vocational and Technical Education, Ambrose Alli University, Ekpoma
Dr. A.D. Omoh is a Postgraduate student in the Department of Vocational and Technical Education, Ambrose University, Ekpooma

Abstract

This study investigated the effectiveness of Jigsaw instructional method against the lecture method of teaching in enhancing the academic performance of students in Thermionic Emission. The pre-test post-test equivalent method was employed for the study, using the quasi–experimental design. The result was analyzed using t-test and Analysis of Covariance (ANCOVA). Findings revealed that the group of students assigned for Jigsaw Method of instruction achieved significantly higher mean score than those assigned to the lecture method of teaching. The performance of Male and female Students in Jigsaw method group achieved higher mean scores in the Achievement test than that of the male and female students assigned to lecture method of teaching. There was also interaction effect of the teaching method and gender with the female students performing better than the male. It was recommended that Jigsaw method of instruction should be employed not only in teaching Thermionic valves course students even at all levels of education.

Introduction

Educationinvolvesalltheprocessesby whicharecipientdevelopstheabilities,attitude,andvaluesincludingacquisitionofknowledge,anddevelopmentofskillsthatcouldlead to rightattitudeand usefulness in the society. Hence, it remains the single factor that guarantees both individual growth and community development. Omoregie (2018) statedtheconcernsofEducationasteaching andlearningforacquisitionof theoreticaland

practicalknowledge most especially in Technical, Vocational, Education and Training (TVET) programs such as Electrical and Electronics Technology.

According to Uwameiye(2010),qualityTVET in technical subjects such as thermionic valves,recipients irrespective of gender (boysand girls), wouldacquirebroadknowledge of scienceandtechnology ina broad occupationalarearequiringtechnical and professionalcompetencesandspecificoccupational skills. In line with above, national TVET system mustbeableto address bias and developtheknowledgeandskillsthat willheltheworkforcebecomemoreflexibleandresponsivetotheneedsoflocallabour marketwhilecompetingintheglobaleconomy. Standing on this premise, it is interesting to note that the issue of gender consideration is a strong factor too.

Oviawe, Ezeji and Uwameiye (2015) stated that gender factor has assumed prominence in Technical, VocationalEducationandTraining (TVET)discourse,andithasbeendocumented that disparityexists betweenmaleandfemalestudentsacademicperformancesinvarious disciplinesandthatthetrendnowisforpeopletopayattentiontoeducatingthefemalechild inNigeria. Hence,Nurhaeni and Kurniawan (2018) emphasized that gender differencesshouldbe considered intoTVETprogrammesforthemtodeveloptheirpotentialswithoutbeinginhibited bygenderbias. To this end, Obafemi (2015) proposed that instructional methods which are student centred and interactive can effectively promote gender equity in educational programmes; otherwise the purpose of TVET may not be achieved.

Instructionalmethodsare educationalapproachesorstrategieswhichare appliedby teachersinordertotransformknowledgeintolearningandenhancethestudents'academic performance.Steinmayr,Meibner, Weidnger,and Wirthwein(2017) stated that academicperformancerepresentsperformanceoutcomesof students using their grades or score in examinations thatindicatestheextenttowhicha person hasaccomplished specificgoalsthatwerethe focusof activities inaninstructional environment,specificallyinSchools,Colleges,andUniversities. Pooja (2017) stated that there are different types of instructional methods such as teacher-centred such as lecture method, and student centred method which involves interactive and collaborative learning process.

According to Woldeamanuel, Abate, and Berhan, (2020), Lecturemethod is preferred by most lecturers because it encourages students to replicate facts without actually understanding the topic and unsurprisingly fails in the face of multifaceted interactions involved in technical knowledge and practical skills. In lecture method, lecturers teach students mostly using 'talk and chalk' method, which comprises

writing notes on the chalk-board; and all the students do is just to copy on their notebook and are overburdened with facts.Hencelecture method may have been adjudged ineffectiveto teach technology and technical subjects. Slavin (2014) opined that Jigsaw cooperative instructional method isateachingapproach that encourages students' group learning activities; enables each student of a group to specializeandtakeresponsibilityof oneaspect of learningunit, masteritandteachittothegroup; andhelps to findsolutiontoanacademicassignment or class project.

Slavin explained that thearrangementissuchthatstudentsaremademembersoftwodifferent groupscalledthe"homegroup'and ' expertgroup'. Theywouldfirstgatherashomegroup, and eachmember of thehomegroupisassignedaportionofthesubjectmattertolearnin ordertobecomean, 'expert'inthatsubjectmatter.Thismethodof teachingstrategy helpsstudentstodevelop:(i)competenciesforsocialand economiclife,(ii) technical and vocational skills to make them self-reliant, (iii)achievesignificantlearning; and (iii) acquire relevant skills necessary for work after graduation, thus achieving the objectives of TVET (Slavin, 2014).

TheobjectivesofElectricalandElectronicsTechnology maybedifficult to achieve duetoinhibitionsposedby the current lecture instructional method that ispassive andnot student centered. The principles of lecture method may not enhance quality academic performance and skill acquisition, hence the concomitanteffectofsuchinstructionalmethodisnot onlypooracademicperformance,but the set objectives of the programme may not also beachieved.If TVET programs such as Electrical and Electronics Technology is going to be relevant in this ever changing technological world, then there must be a paradigm shift of instructional methods from teaching to learning and from the current lecture method to an interactive and collaborative based classroom so that recipients academic performance can be enhanced and be also equipped with relevant skills to enable them find space in the current technological world of work.

According to Aggeliki(2018), Electrical andElectronicsTechnologydeals withall electricaland electronics equipment, toolsanddevices,includingmaintenance,design, installationandelectricalwiring.TVET recipients trainedinElectricaland ElectronicsTechnologyareequipped toacquireskillsnecessary fortechnologyandprovide safe andreliableservicesin accordancewith therelevant codesandbe to readywork after graduation.In Electrical and Electronics Technology, Thermionic Valves is the major course taught at the third year level in the Electrical and Electronics program involving triode valves, tetrode valves, pentode valves, elements and compounds, constitution of matter and types of thermionic valves and emission processes at the College of Education in Nigeria.

Statement of the Problem

The importance of TVET programs in this era of changing technologycannotbeover emphasized.Toassumethatthelecturemethod isstillsufficient withrespect toacquiringrelevantskill, understanding the subject matterandmeetingthecurrentlearningneedsofthestudents may not be correctbecauseitisnotstudent-centeredbut content driven, where learningispassiveand memorizationofsubjectmatterisencouraged.Hence,itisofutmostimportancethatthe method must change so that the decline ofacademic performance of the students anddevelopment of practicaland interactiveskillsforworkplaceaftergraduationcanbe addressed.

Despite the obvious shortcomings of the lecture method, lecturers still use it to teach in TVET programs hence students' acquisition of practical knowledge, relevant skills, and performance have been adjudged low by researcher such as Oviawe (2010) who stated that despite many years of the use of lecture method to teach, students' performance is still poor with no sign of improvement, and development of relevant skills for workplace after graduation is also far-fetched thereby failing to achieve the objectives of TVET.

The following data from Electrical and Electronics Technology reveal that NCE II students at some colleges of education in Southwest, Nigeria between 2012 and 2017 who were taught using the lecture method performed poorly academically: 60.9 percent of the 59 students in College A who took the tests between the reviewed years failed, while 39.1 percent passed. College B had a failure rate of 67.165 percent and a pass rate of 32.84 percent (analysis in Appendix VIII). To substantiate these claims, the NBTE 2009, 2010, 2011, and 2012 results in subjects covered by Technology programs were quite low, with the highest mean score in such courses being 34.67 percent, 38 percent, 40.43 percent, and 27.78 percent, respectively (NBTE 2012 in Oviawe & Adeola, 2017). According to the NABTEB's Chief Examiners' report, the students' poor performance was attributable to the passive lecture method. Thus the problem of this study is the poor performance of students in technology examinations.

Population of Study

National Commission for Colleges of Education (2019) says that Southwest Nigeria has 19 colleges of education with a total of 2,625 NCE II students. This study investigated six colleges because they are the only ones that offer technical education.

Sample and Sampling Technique

Southwest Nigeria's has six colleges of education that offer Electrical and Electronic Technology. The six colleges of education were purposively selected. Out of the six colleges of Education, two were randomly selected through balloting technique for use in the study. NCE II Electrical and Electronic Technology intact classes from the two colleges of education were randomly balloted into control and experimental groups. Number of students in the two classes was 31 and 26.Whereas the class of 31 was the experimental group taught with Jigsaw instructional method, the class with 26 students was the control group taught with lecture method of instruction. .

Instrument for Data Collection

Electrical and Electronics Technology Achievement Test was developed by the researcher (EETAT). The EETAT was a 50-item multiple choice objective test with four response options (A to D) based on the Minimum Standards Curriculum for Vocational and Technical Education established by the National College of Education (NCCE, 2012). This EETAT was used for both the Pre-test (PREEETAT) and Post-test (POSTEETAT), as it was designed to correspond to the Electrical Circuits and Electrical Measuring Instruments course taught during the study. Electrical Measuring Instruments; and (ii) alternating current and direct current circuits are offered. (iii) Ac Circuit Quantities and Power, (iv) Resonance and Resonance Frequency, and (v) Circuit Theory. At the conclusion of the treatment, a post-test was administered. The Post-test (POSEETAT) contained the same 50 test items as the pre-test, but they were rearranged and numbered differently to ensure that students were unfamiliar with the pre-test questions. The examination lasted an hour. The EETAT item specification assessed cognitive, affective, and psychomotor domains of education.

Item Specifications includes a 15-item cognitive test, a 15-item affective test, and a 20-item psychomotor test that are all based on the National College of Education's Minimum Standards Curriculum for Vocational and Technical Education scheme of work for Electric Circuits and Electrical Measuring Instruments. The knowledge objective was weighted in relation to the behavioural objective of the unit of study. Their level of familiarity with the subject matter in the Cognitive, Affective, and Psychomotor domains determines their knowledge objectives. 30% Cognitive, 30% Affective, and 40% Psychomotor, results in a total of 50 test items. Each item received a score of two points, for a total of one hundred percent.

Psychomotor test questions were more challenging to answer due to the fact that they involved the application and manipulation of abilities. The researcher created a score sheet for the treatment and control groups. Correct responses to any item earned two (2) points, while incorrect responses earned zero (0) points.

Validation of the Instruments

The EETAT underwent face and content validation to ensure that it accurately measured the variables for which it was designed. The EETAT was subjected to content validity checks by two experts in Electrical and Electronics Technology at Ambrose Alli University Ekpoma, Department of Vocational and Technical Education. Their criticisms, suggestions, and modifications were incorporated into the final instrument (EETAT)

Reliability of the Instrument

The EETAT's reliability was determined by re-testing 30 students enrolled in NCE II Electrical and Electronic Technology at the College of Education in Warri, Delta State. The test re-test data were analyzed using the Kuder Richardson formula (KR_{20}), and a reliability coefficient of .83 was determined to be reliable. Due to the variable nature of some items, Kuder Richardson KR_{20} was used.

Experimental Procedures and Conditions

The researcher first obtained permission from the Registrars and Heads of Departments of the two Colleges of Education to use the schools. After that, the researcher visited the sampled Colleges of Education to speak with administrators about their involvement in the study.

Teaching Session: The researcher trained the lecturers who would administer the treatment two weeks prior to the start of the treatment. Two lecturers in Electrical and Electronic Technology were assigned to teach each of the following courses. The lecturers who participated developed and agreed on treatment administration schedules.

Method of Data Collection

The data collection process was divided into two stages.

Phase 1: A preliminary examination was given to both the experimental and the control groups. During the entirety of the pre-test, the Electrical and Electronics Technology Achievement Test (EETAT) was given to each group. Students were given sheets of objective questions for the EETAT, each of which

contained 50 different things, and were instructed to fill in the appropriate responses on those sheets. The researcher collected the students' pre-treatment cognitive achievement scores by coding the EETAT pre-test sheets and then taking the test himself. By going through this exercise, a baseline was set for the students' overall performance in the model course before treatment.

Phase 2: This phase occurred at the conclusion of the six-week period. As a post-test, the Electrical and Electronics Technology Achievement Test (EETAT) was administered, and the following precautions were observed throughout the experiment:

i. attendance was taken at the start of each teaching session to ensure that data analysis did not include scores for students who would have missed any of the sessions.

ii. the experimental groups received an equal number of treatments, while the control groups were instructed by their lecturers on the same subjects as the experimental groups.

iii. to ensure that they are not overly familiar with the pre-test and post-test questions, the test items have been rearranged.

iv. the time allotted for pre- and post-testing was same.Students were provided with objective question sheets on which they could fill in the correct answers for the EETAT. The researcher then scored the EETAT sheets and obtained the students' cognitive achievement scores following treatment. Each item carried a score of two (2) points for a correct response and zero (0) points for an incorrect response.

Method of Data Analysis

The data from the EETAT were analyzed making use of Means, t-tests, and Analysis of Covariance (ANCOVA). The mean and standard deviation were used to provide answers for all of the research topics. The t-test was utilized to test the hypotheses.

Hypothesis1: There is no significant difference on the academic performance of Year II students taught with the Jigsaw method of instruction as compared with those taught using the lecture method of teaching in South-West Nigeria .

Table 2: **t-test Calculation for Post Test Scores for Students**

	Df	Mean Difference	Sig. (2-tailed)	t-value
Post test	45	32.40	0.000	18.64
Pre-test	45	0.65	0.214	1.26

Table 2 shows that the t-value for the post-test is 18.64 at 0.000 significant level, while the t-value for the pre-test shows 1.26, at the .214 significant level. This indicates also that those taught with Jigsaw instructional method performed better than those taught with the lecture method. Thus the hypothesis of no significant difference is rejected.

Research Question 2: What is effect of Jigsaw method of instruction on the academic performance of male and female Year II students in Electrical and Electronics Technology as compared with those taught using lecture method in South West Nigeria

Hypothesis 2: There is no significant difference on the academic performance of Year II male and female students taught with the Jigsaw method of instruction as compared with those taught using the lecture method in South-West Nigeria.

Table 2: t-test of Male and Female Students

Teaching Method	Gender	Mean Score	Standard Deviation	t-test Values	Sig	Mean Difference
	Male (32)	55.52	20.80	1.47	0.033	16.87
	Female (15)	69.40	31.90			

Table 2 shows a significant difference teaching method and gender with t-value of 1.47, at the .033 level of significance. The female students score 69.40 with a standard deviation of 31.90, while the male scored 55.52 with standard deviation of 20.80. This shows that the female achieved higher with Jigsaw method than the male students.

Summary of Findings

The following is the summary of findings of the study:

i. There was a significant difference between the students taught Electrical and Electronics Technology with jigsaw method of instruction and those taught with lecture method in favour of jigsaw method.

ii. There is a significant difference on the academic performance of Year II male and female students taught with the Jigsaw method of instruction as compared with those taught using the lecture method in South-West Nigeria, in favour of girls.

Discussion and Findings

Table 1 indicates that thereisa significantdifferencebetweentheperformanceofNCEII students' taughtElectricalandElectronicsTechnology withJigsaw method of teaching andLecturemethodsin South-west Nigeria.This study' finding corroborates Suresh and Reddy's (2017) which corroborates Suresh and Reddy (2017) that reported significant effect ofJigsawCooperative LearningStrategyin promotinginsightfullearningof JuniorIntermediate Students performanceinMathematics.

The findings from the results on gender and academic performance indicate a significant difference between Jigsaw instructional method and gender in favour of female students. The findings are indicative of the effectiveness of the Jigsaw method of teaching in achieving desired outcomes. The method seems better because it enables an interactive classroom environment as students were able to share ideas and learn from one another, hence jigsaw is a cooperative, collaborative and interactive method for teaching Thermionic valves in Electrical and Electronics Technology programmes at tertiary education levels. The students took charge of their learning process while the teacher acted as an instructor, a guide and a mentor. The process enhances their understanding of the subject matter and enabled a better academic performance.

Conclusion

It is seen that Jigsaw method of instruction which is student centered enhances students' academic performance than the Lecture method that is teacher centered and adjudged passive. This better performance can be due to the cooperation among the students' where they have to share ideas as they interact with one another.

Recommendations

Based on the outcomes of the study, the researcher recommends as follows:

i. That all TVET programs, at colleges of education, should utilize the jigsaw methods to teaching Electrical and Electronics Technology

In order to improve students' outcomes and reach the TVET program's aims and objectives for Electrical and Electronics Technology, lecturers should be motivated to incorporate the Jigsaw methods into their teaching methods.

ii. Nigerian Educational Research Development Council (NERDC) should include more innovative teaching methods such as Jigsaw and concept mapping in the education curriculum, especially for technical subjects, when reviewing the current curriculum for educational institutions.

iii. Lecturers should provide an interacting learning environment for students so that they can connect successfully in the classroom to boost students' learning experiences and skill acquisition.

iv. Government and education stakeholders should ensure Electrical and Electronics Technology lecturers have interactive teaching skills to engage and motivate students during the learning process.

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Maternal Nutrition Related Knowledge as Correlates of Nutritional Status of Pupils in Etsako West Local Government Area of Edo State

BY

Aliu Rahmat Oyhoryhor

Auchi Polytechnic, Auchi. Edo State.

&

Dr Mrs B.E.Uwameiye

Department of Vocational and Technical Education,

Ambrose Alli University, Ekpoma. Edo State

Dr. Mrs. B.E. Uwameiye is an Associate Professor,Department of Vocational and Technical Education, Faculty of Education**,** Ambrose Alli University, Ekpoma

Aliu Rahmat Oyhoryhor is a Postgraduate Student in the Department of Vocational and Technical Education, Faculty of Education**,** Ambrose Alli University, Ekpoma

Abstract

The study examined the maternal nutrition related knowledge as correlate of nutritional status of pupils in Etsako West Local Government Area of Edo State. Specifically, the study examined the nutritional knowledge of primary school pupils' mothers, the nutritional status of primary school pupils and further determined how maternal nutritional related knowledge correlate with the nutritional status of pupils in Etsako West Local Government Area of Edo State.
The correlational research design was employed. The population of pupils for this study was twenty nine thousand nine hundred and twenty seven (29,927) pupils in Public Primary schools in Etsako West Local Government Area of Edo State. The sample size of 299 pupils representing 1% of the total population of 29,927 pupils was drawn as sample to take the questionnaire on maternal nutrition knowledge to their mothers at home. Two instruments were used for data collection. The first is maternal nutritional knowledge questionnaire (MANKQ), while the second is Nutritional Assessment Sheet (NBAS). The split-half reliability coefficient of 0.73 and 0.88 were obtained on the two instruments respectively. Research questions 1 was answered using means and standard deviation while the Pearson Product Moment Correlation Coefficient (PPMCC) statistics was used to test hypothesis at 0.05 level of significance. The result shows that there was a significant relationship between nutrition related knowledge and the nutritional status of pupils in Etsako West Local Government Area of Edo State. The researcher recommends that nutrition must be mainstreamed into policies, and programs, by all stakeholders who address food insecurity and malnutrition in rural Nigeria and in the country as a whole.

KEYWORDS: *Nutritional Status, Maternal, Nutritional Knowledge, Insecurity, Malnutrition.*

Background to the Study

Primary education is the education given to children aged 6-12years in Nigeria. It is the education that is received after early childhood and kindergarten education but just before secondary education (Federal Republic of Nigeria, 2013). It is the foundation, bedrock and basic education that runs a 6years programme and awards a certificate known as the First School Leaving Certificate (FSLC). The National Policy on Education stated that the objectives of primary education are to: a) inculcate permanent literacy, numeracy and the ability to communicate effectively; b) lay a sound basis for scientific, critical and reflective thinking; c) promote patriotism, fairness, understanding and national unity; instill social, moral norms; d) values in the child; develop in the child the ability to adapt to the changing environment; and e) provide opportunities for the child to develop life manipulative skills that will enable the child function effectively in the society within the limits of the child's capacity (Federal Republic of Nigeria, 2013). The last objective above shows that the federal government recognizes the place of primary education in providing opportunities for pupils (who are learners at the primary school level) to develop life manipulative skills that will enable them function effectively in the society within the limits of their capacity. To function effectively on any given activity, one essential resource needed to sustain life is food.

Food can be regarded as any substance consumed to provide nutritional support to facilitate growth and development of the body. Olumakaiye, Atinmo and Olubayo-Fatiregun (2020) defined food as any edible substance that can be eaten and digested to provide nourishment for the wellbeing of plant and animals. They added that the body needs variety of nutrients namely: Protein, Carbohydrate, Fat, Vitamins and Minerals. Protein is needed to build, maintain, repair muscle, and other tissues in the body. Foods rich in protein include meat, eggs, dairy and fish. Carbohydrates can be classified into two kinds: starches and sugars. Food rich in starches include rice, maize, wheat and potatoes and sugars include fruit, honey, sweets and chocolate. Likewise, carbohydrate provides the body with the energy needed for daily living.

Another food nutrient is fat - the body's secondary source of energy. Fat actually provides more energy/calories per gram than any other nutrient, but is more difficult to burn. Food sources of fats and oils includes: butter, lard, milk, cheese and some meat. Vitamins and minerals are needed in very small amounts and are sometimes called micronutrients, but are essential for good health. They control many functions and processes in the body sources, and in the case of minerals it also

helps to build body tissue such as bones (calcium) and blood (iron) (Akeredolu, Osisanya, Seriki-Mosadolorun & Okorafor, 2019).Dietitians, Home Economist, Nutritionist, medical practitioners have a common believe that spending on good food to stay healthy with one's household, is better than spending on medical services as a result of poor health. Also, healthy dieting for children such as learners of primary school age (pupils) is more than just giving them large quantity of food; it includes giving them plenty of water and enough protein for growth and cellular repair.

Children need adequate carbohydrates for their high energy levels and just enough fat to provide essential fatty acids for cell growth. Children's diets require enough iron, calcium and vitamin D to strengthen blood and bones as well as zinc and magnesium to support the immune system. All these nutritional requirements can be met through a diet high in fruits, vegetables, grains and meats. Physically, a child's body is different from that of an adult, and it can be hard to understand that a child is not a miniature adult, because children are growing and developing, they have particular nutritional requirements. Even teenagers are still growing, often in ways we cannot see; and this is why giving children nutritionally dense food is important for proper overall growth and development in the avoidance of health difficulties arising from poor nutritional status.

Nutritional status refers to the measure of diet quality and wellbeing of an individual such as children of school age Ikujenlola and Adekoya (2020) they are commonly measured to explain the extent of diet soundness, quality of food intake and its corresponding growth outcome on an individual using various anthropometric indicators. Some of these anthropometric indicators include: body mass index (BMI), head circumference, height, weight, height to age, weight to age, height to weight ratio among others. In this regard, using any of these anthropometric indicators could help one to determine the nutritional status or quality of a child or an individual in a household. Ojiako, Manyong and Ikpi (2019) noted that nutritional status of learners may be traced to the food consumption pattern in their various homes.

Nutrition knowledge refers to awareness of the concepts and processes related to diet, health and diseases also knowledge of food nutrients dietary guidelines and recommendations (Ikujenlola & Adekoya, 2020). From the definition, a mother with good knowledge of the concepts and processes related to dieting, health and diseases is likely to understand: the meals that are good sources of protein, vitamins minerals, starchy foods, the foods typically high or low in fibre, meals with high calorie and their attendant effect on health and nutritional status, on growing children of school age. As noted by Olumakaiye et al (2020) maternal nutritional knowledge may favour

healthy food consumption by children and thus promote changes in food habits that may promote their wellbeing and reduce some health risks. This explains that limited maternal knowledge about food choices, feeding, and health care seeking practices may affect nutritional outcomes in children. Ijarotimi, Adebiyi, Fatiregun (2016) noted that poor nutrition knowledge is one of the main factors in the development of malnutrition as it is well known fact that most illiterate mothers tend to adhere to their old eating patterns rather than venturing to seek new and more proper eating habits.

In other to maintain healthful diets, knowledge of variety balance of foods from all food groups and moderate consumption of all food items is very important. Poor nutritional diet may lead to micro nutrients deficiencies and poor nutritional status. The consequences of poor nutritional status at early stage of life may be so serious that it can result in depression, lack of self-esteem, unconsciousness, anxiety, poor cognition, poor academic achievements in extreme condition among school children. In most communities in Estako West Local Government Area of Edo State, most mothers give their children in primary school less fruits and vegetables but rather put starchy foods such as boiled rice, spaghetti and noodles “indomie” in their lunch pack for consumption during their lunch break. Some working mothers who hardly have time to prepare meals before their morning school-run often opt to give their children pastries like doughnut, snacks such as beef roll “gala”, biscuits and flavoured drinks. These “convenience foods” given to pupils by most mothers are high in salt, saturated fats and low in essential micronutrients which may not be too good for pupils undergoing growth spurts.

Healthy eating may vary from person to person. However, most experts agree that a healthy diet is more than what to eat or what not to eat. It includes plenty of water and enough protein for growth and cellular repair. Children need adequate carbohydrates for their high energy levels and just enough fat to provide essential fatty acids for cell growth. Children's diets require enough iron, calcium and vitamin D to strengthen blood and bones as well as zinc and magnesium to support the immune system. All these nutritional requirements can be met through a diet high in fruits, vegetables, grains and meats. Physically, a child's body is different from that of an adult, and it can be hard to understand that a child is not a miniature adult, because children are growing and developing, they have particular nutritional requirements. Even teens are still growing, often in ways we cannot see. Giving children nutritionally dense food is important for proper overall growth and development. A child’s body needs good nutrient, not just food, absence of which result to malnutrition.

World Health Organization (2013) noted that one out of three children in Nigeria is overweight or obese as a result of poor food consumption. Allowing children to eat processed and fast foods instead of fruits, vegetables and other whole foods, pushes them toward having lifelong weight issues. Children have a higher metabolic rate, requiring more caloric intake than adults, but it's vital that the calories they consume should have fibres therefore, when considering a child's diet, it's important to know what to include and what not to include in other to avoid weight issues.

Variety is not how much or how often a child eats certain foods, rather it refers to the wide array of food choices that are eaten per time. For instance, making fruits and vegetables the main course for each meal will make certain that a variety of vitamins, minerals and fiber that are consumed by children routinely will facilitate healthy child growth and development. A balanced diet must contain sufficient amount of carbohydrate, protein, fat, vitamins, minerals and fibre in the required amounts to reduce health challenges in children such as malnutrition. WHO (2013) stated that malnutrition in children is among the leading health problems that contribute to the high child morbidity and mortality in the developing world including Nigeria. Malnutrition can be ad dressed through simple interventions. When addressing micronutrient malnutrition, a combination of interventions may be used, involving the modification of diet, increasing micronutrient bioavailability and consumption as well as increasing food availability, food fortification, supplementation and food diversification, nutrition education and school feeding programmes (UNICEF, 2016).

The National Home Grown School Feeding Programme (NHGSFP) is a government led ₦70 per day school feeding programme that aims to improve the health, nutrition and educational outcomes of public primary school pupils. The NHGSFP which started in 2016 under the first tenure of President Muhammadu Buhari administration was launched by the Vice Pressident – Prof. Yemi Osinbajo at Eyaen Primary School in Uhunwonde Local Government Area of Edo State. In his speech, “the Vice president noted that the social investment programme employs 94422 cooks while over 100000 small holder farmers are linked to the programme while 594 cows are slaughtered, 138,000 chickens and 83million tonnes of fish are used in preparing the meals across the country”. With regards to the objective and impact of the programme, the Vice president added that the programme is geared towards provided vulnerable families the opportunity to feed and send their children and this is expected to reduce the number of malnourished pupils and increase enrollment and school attendance (Vanguard, 2019). This explains that the school feeding

programme was launched to tackle malnourishment among pupils and promote educational outcomes. However, the impact of the school feeding programme may not have felt by many households and primary school children in Etsako West Local Government Area of Edo State.

Estako West Local Government is one of the eighteen local government areas in the District of Edo State. The researcher has observed that many households in various communities in the local government prefer to buy little quantity of starchy foods such as cassava meal "fufu", cassava flakes ("Garri") and local rice that will be sufficient for the entire household till the next market day. The reason for this is traceable to the rising cost of food items which has made many fixed amount of budget for family upkeep insufficient. Many women do not consider starchy foods that are fairly cheaper as the most favourable and "pocket friendly" choice to make when buying and preparing food items for their children and family. Aside, the financial inability to buy more nutritious food items and change diet for members of their household, lack of nutrition knowledge food processing methods and storage facilities often makes many home buy less of perishable foods such fruits and v egetables in the market but rather opt for starchy meals that are cheaper, larger in quantity with low perishable duration. Hence, many mothers compromise quality and costly diet for quantity and cheaper food items without considering the nutritional implication of what their children feed on a day to day basis. This study therefore investigates whether food consumption pattern and maternal nutrition knowledge are correlates of nutritional status of pupils in Estako West Local Government Area of Edo State.

Statement of the Problem

In Nigeria, the National Nutrition and Health Survey conducted in 2018 revealed that, 32.0% of children under-5 years are stunted indicating chronic malnutrition, 8.7% and less than a quarter (21.0%) are wasted and underweight, respectively. Without addressing malnutrition, the Sustainable Development Goal two (SDG 2) of ending hunger, achieving food security and improved nutrition and promoting sustainable agriculture may not be realized as malnutrition during early development (0-5years) can harm the body and lead to learning and memory deficits, lower intelligence quotient (IQ), poor school achievement and behavioral problems in childhood and adolescence. Hence, malnutrition in children remains a problem in Nigeria and several other African countries.

Likewise, Ozor, Iyamu and Osifo (2014) found that majority of children consume mostly carbohydrate-based foods and have insufficient intake of macronutrients and micronutrients except

for energy. The low energy intake was further confirmed by the high percentage of stunting followed by underweight and wasting, with low prevalence of overweight and obesity among pupils in Edo State. Low energy intakes has a negative impact on height genes, metabolism, behaviour furthermore, prolonged dietary deficit may result in reduction of physical fitness in school children. The consequences of these as observed by the researcher are that many pupils in public primary schools suffer the problem of malnutrition due to poor food consumption patterns and this could lead to poor academic performance.

Several studies have been carried out on nutritional status of children, under-nutrition and related issues in Edo State. For instance, the study by Ozor, Iyamu and Osifo (2014) focused on the prevalence of under nutrition among under-five's in Ekpoma a community in central part of Edo State, Nigeria. Obarisiagbon, Omuemu and Okojie (2018) assessed the nutritional status and its possible determinants among children attending Early Child Care Centres in Benin City, Edo State while Ehwarieme, Ogbogu, Mbadugha and Obiekwu (2018) assessed the nutritional status among under -five children in Evbuotubu Community Egor Local Government Area, Edo State.

As much as the foregoing studies contributed to literature, none of the studies attempted to determine whether nutritional status of the children was related with nutritional knowledge of the children's mothers who are the provider of foods to these children in Edo State. However, limited empirical evidence exists on the relationship between nutritional related knowledge of illiterate mothers and nutritional status of their children in Etsako West Local government Area of Edo State. Although, maternal education may be an important determinant of nutritional status of children, it remains unclear whether mother's practical knowledge about nutrition is related to nutritional status of primary school pupils in Estako West local Government Area of Edo State. Furthermore, it seems that factors that influence translation of acquired knowledge into practice are not well-understood. It is this knowledge gap that this study attempts to address. To this end, the researcher seeks to investigate whether there is relationship among mother's nutritional related knowledge and the nutritional status of primary school pupils in Estako West Local Government Area of Edo State.

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Research Design

The co relational research design was employed in this study to assess the relationship between maternal nutritional related knowledge and nutritional status of pupils in Estako Local Government Area. This is to ascertain the direction, magnitude and significance of any possible relationship existing between these variables in the study area.

Population for the Study

The population of pupils for this study is twenty nine thousand nine hundred and twenty seven (29,927) pupils in Public Primary schools in Etsako West Local Government Area of Edo State. The population covered all the fifty six (56) primary schools in Etsako West Local Government Area of Edo State. This population record as obtained from the Primary School Survey statistics (2020) from the Ministry of Education, Edo State

Sample and sampling Techniques

The sample size of 299 pupils representing 1% of the total population of 29,927 pupils was drawn as sample to take the questionnaire on maternal nutrition knowledge and food consumption pattern to their mothers at home. The simple random sampling, specifically, balloting technique was used to draw sample from the population. For the schools, 10 schools were randomly selected using the balloting technique from the 56 schools. From the 10 schools, 10 pupils were randomly selected from primary 4 and 19 pupils from primary 5 which will be equal to 29 pupils. From the 10 schools will give a total of 299 pupils representing pupils from Etsako. Osuala (2007) postulated that when the population of a study is large, 1% is acceptable, when normal distribution and fairly homogenous characteristics is assumed in the population. Hence, the researcher assumes a position of normal distribution and fair homogeneity of population. Table 1 showed the population and sample drawn from the population.

Instrument for Data Collection

Three instruments were used for data collection. Three instruments were used for data collection. The first is maternal nutritional knowledge questionnaire (MANKQ), the second is Nutritional Status Assessment Sheet (NSA).

The first instrument (MANKQ) is a self-developed questionnaire designed for pupil's mothers. The questionnaire covers three 30-items and three component parts namely: general nutrition (items 1-10), children needs (items 11 to 20) and malnutrition in children (items 21 to 30). The items were rated on a four point Likert type scale of Strongly Agree -4 to Disagree -1.

The second instrument is the Nutritional Status Assessment Sheet (NSAS) is a checklist to collect data on some anthropometric indicators to measure nutritional status of children. The nutritional status assessment sheet comprise of the pupils' age, height and weight. These measures were used to ascertain nutritional status of pupils on pupils'

Validity of the Instrument

The face and content validity of the research instrument was established by the judgments of three experts in Home Economics Education Unit in the Department of Vocational and Technical Education, Faculty of Education, Ambrose Alli University, Ekpoma. Copies were given to the experts to critically examine and ascertain whether the content of the instrument covered the contents of the study. They are required to check for the appropriateness of each item in terms of the suitability of the items in the instrument and make necessary corrections. Their constructive criticisms and suggestions were used to modify and produce the instrument that was used for data collection in this present study.

Reliability of Instrument

The split-half reliability method was used in this study. The three instruments were administered to 30 school pupils randomly selected outside the study area (Etsako East Local Government Area of Edo State) but within the senatorial district to determine the internal consistency of the instrument. In conducting the reliability test, the 30 pupils constituting the pilot test was administered the instruments. The responses collected from them were split on the basis of odd and even numbers. The Pearson Product Moment Correlation Coefficient statistics was used to measure the degree of internal consistency between the two set of response scores. The split-half

reliability coefficient of 0.73, 0.84 and 0.88 were obtained on three instruments respectively. The instrument was adjudged reliability since the reliability coefficient was higher than 0.70.

Administration of Instrument

The researcher went to 10 primary schools in Etsako West Local Government Area of Edo State with the questionnaire for data collection. The researcher along with two trained research assistants administered the questionnaire to pupils. The research assistants were post graduate students from the Faculty of Education of Ambrose Alli University, Ekpoma who already have prior knowledge about research and questionnaire administration. The researcher devoted sufficient amount of time to go through the content of the instrument with the research assistants to ensure that possible sections of the instrument that appeared vague or unclear are clarified. This was done to ensure that the research assistants come to term with the contents of the instrument to make them appropriately collected body measurement data from participants and provision of honest responses on the items.

In other to gain access and cooperation from the respondents, permission was be taken from head teachers of primary schools to solicit their support for carrying out the investigation. Also, a consent letter of introduction, introducing the researcher and soliciting the permission to carry out the research will be attached to the questionnaire given to pupils. Pupils will be encouraged to hand over the questionnaires to their mothers/guardian and return the filled copy to the school for collation. The researcher and her research assistants hope to spend adequate time with head teachers in each institution to clarify the purpose of the research exercise before administering the instrument or taking body measure parameters from students. The instrument was given to the respondents and was collected immediately, the 299 questionnaires given to the respondents were retrieved making it 100% return rate

Ethical principles of respect for human dignity and justice highlighted in Folayan, Haire, Harrison, Odetoyingbo, Fatusi and Brown (2014) was implored throughout the study. According to them, informed consent is a fundamental requirement in research participation. It is obtained through a dialogue that respects the individuality of each prospective participant and allows ample opportunity for the prospective participant to ask questions. They added that informed consent must be voluntarily obtained and devoid of undue inducement and coercion (particularly considering minors). This is central in research.. Consequently, the researcher made informed written consent on

the questionnaire to mothers about the confidentiality, intended use of the data collected from their children/wards and the non-disclosure of personal identity of participants in the study.

Method of Data Analysis

Research questions 1, was answered using mean and standard deviation. A mean score of 2.5 was used as the benchmark for determining level of nutritional knowledge. A score of 2.50 and higher represents good nutritional knowledge while a score less than 2.5 represents poor nutritional knowledge. Body Mass Index (BMI) was used as the measure for nutritional status. BMI is the ratio of a person's weight in kilogram (kg) to the square of the persons in height metres (m^2).

PPMCC statistics was used to test the hypothesis. The Pearson Product Moment Correlation Coefficient statistics was used to determine the **3s** – sign, strength and significance of a Pearson-r coefficient. Therefore, the first '**S**'- sign was used to explain the direction of the relationship (positive or negative). The second '**S**' which represents strength of the correlation were used to explain the magnitude (weak, moderate or strong) of the relationship between variables in quantitative terms while the last '**S**' representing significance of the Pearson-r was used to determine the relevance of the correlation coefficient.

The decision on the significance of the Pearson-r were reached by comparing the p-value (probability value of the correlation coefficient or what is otherwise abbreviated as sig. value) in relation to the predetermined level of significance at which the hypothesis is tested. Therefore, the decision rule for rejecting the null hypothesis is if only the p-value (or sig. value) is less than the level of significance. That is, the $p<.05$. Hence, the null hypothesis will be retained when the p-value is greater than the level of significance (that is, the $p>.05$). The two hypotheses were tested at .05 level of significance.

Presentation of Results

The results of this study are presented in line with the stated research questions and hypothesis. In analyzing research questions 1 the mean ($\bar{X}$) and standard deviation (S.D) was used.

Research Question 1: What is the nutritional knowledge of primary school pupils' mothers in Etsako West Local Government Area of Edo State?

Table 1: Analysis of the Nutritional Knowledge of Primary School Pupils' Mothers in Etsako West Local Government Area of Edo State

S/N		X	S D	Remarks
Part A	**General Nutrition**			
1.	Garri is not source of protein	2.30	0.543	Diasagree
2.	One of the sources of protein is yam	2.52	0.655	Agree
3.	Portentous foods helps for growth	2.40	0.551	Disagree
4.	A good source of vitamin A is cassava	2.67	0.453	Agree
5.	An example of energy giving food is fish	2.44	0.754	Disagree
6.	Egg is another source of protein	2.07	0.466	Disagree
7	Garri is source of carbohydrate	2.52	0.544	Agree
8	Vitamin A is essential in a child growth	2.68	0.543	Agree
9	Given my child too much carbohydrate causes obesity	2.35	0.633	Disagree
10	Fatty food is a source of energy	2.06	0.332	Disagree
	Mean score = 2.40			
Part B	**Children needs**			
11	School age children need more of carbohydrates	2.52	0.524	Agree
12	I give milk to my children everyday	2.23	0.456	Disagree
13	The fish and meat are bigger than fufu/Eba	1.02	0.569	Strongly disagree
14	I give my child breakfast every morning	2.08	0.534	Disagree
15	Fruits is an essential part of their daily consumption	1.45	0.456	Strongly Disagree
16	I give at least 3 eggs per week to my child	2.04	0.634	Disagree
17	Balance diet is my guiding principles	2.06	0.645	Disagree
18	I give my children much fish than meat	2.56	0.567	Agree
19	I give them milk before bed time everyday	1.06	0.653	Strongly

				Disagree
20	I give them meal in between meal to make them healthy	2.08	0.342	Disagree
	Mean score = 1.91			
Part C	**Malnutrition in Children**			
21	Excessive feeding on carbohydrate food cause malnutrition	2.07	0.621	Disagree
22	Regular intake of starchy foods helps growth	2.53	0.456	Agree
23	Malnutrition is caused by protein foods	1.67	0.543	Strongly Disagee
24	Kwashiorkor is caused by fatty foods	2.52	0.654	Agree
25	Effect of malnutrition is for life	2.32	0.543	Disagree
26	Fruits /vegetable can help manage malnutrition	1.06	0.654	StronghlyDisagree
27	Too much intake of sugary food causes obesity	2.56	0.543	Agree
28	Eating excessive processed food causes malnutrition	2.45	0.546	Agree
29	Eating without exercise may causes obesity	1.09	0.743	Strongly Disagree
30	Eating fish can help to manage malnutrition	1.88	0.657	Strongly Disagree
	Mean score = 2.02			

Table 1 shows that the mean on knowledge on general nutrition is 2.40, Child nutrition is 1.91, this indicates that in the area of child nutrition, most of the respondents are very low while malnutrition is 2.20. All are below 2.50 which is less than the criterion mean of 2.50. Therefore, analysis of the research question one shows that the nutritional knowledge of primary school pupil's mothers in Etsako West Local Government Area of Edo State is low

Research Question 2: What is the nutritional status of primary school pupils in Etsako Local Government Area of Edo State?

Table 2: Nutritional status of primary school pupils in Etsako West Local Government Area of Edo State

BMI range	Nutritional status	Percentile range	No. of pupils	Percentage (%)
Below 18.5	Underweight	Less than the 5th percentile	108	36.1
18.5-24.9	Healthy weight	5th percentile to less than the 85th percentile	86	28.8
25.0-29.9	Overweight	85th to less than the 93th percentile	67	22.4
30 and above	Obese	Equal to or greater than the 95th percentile	38	12.7
Total			299	100

** Height or Weight is below expected average*

The result shows that the 36.1% were underweight, 28.8% were healthy weight, 22.4 % were overweight while 12.7% were obese. This shows that the nutritional status of most of the pupils were poor as majority (n = 108) representing 12.7percent were underweight. This shows that pupils of ages 9-12year were mostly underweight and therefore, their nutritional status was poor.

Table 3: Relationship between Nutritional Related Knowledge of Mothers and the Nutritional Status of Pupils

Variables		$\bar{X}$	S.D	Pearson r-coefficient	p-value	Remarks
Nutritional Related Knowledge	299	2.11	.881	.546**	0.000	Null hypothesis rejected ($p<0.05$)
Nutritional Status		2.52	.537			

****. Correlation is significant at the 0.05 level (2-tailed).***

***Note**: Pearson r- coefficient ± 0.00 - 0.39 = Weak relationship*

Pearson r- coefficient ± 0.40 - 0.69 =Moderate relationship

Pearson r- coefficient ± 0.70 - 1.00 =Strong relationship

The data in Table 3 showed that the mean ($\bar{X}$) and the standard score (S.D) of the respondents (N=299) were 2.11 and 0.881 for nutritional related knowledge and 2.52 and .537 for nutritional status respectively while the Pearson correlation coefficient of 0.546 was statistically significant ($p<0.05$). Therefore, the null hypothesis was rejected while the alternate hypothesis was accepted. This indicated that there was a significant relationship between nutritional related

knowledge of mothers and the nutritional status of pupils in Etsako West Local Government Area of Edo State.

Discussion

Nutritional Knowledge of Primary School Pupil's Mothers

The result showed that the nutritional knowledge of primary school pupil's mothers in Etsako West Local Government Area of Edo State was poor. The result agreed with that of Mahmoud and Ghaly (2019)who found that only 4.7% of the study subjects – women had good knowledge about nutrition. As much as 81.6% of them had fair knowledge and only 13.8 % had poor knowledge. The result is in line with that of Akeredolu et al (2019) who found that the mothers' nutritional knowledge as revealed by the test score was good in Lagos State, Nigeria. The result supported that of Yabanc, Kısaç and Karakuş (2019) who found that many of the mothers who have good nutritional knowledge level and their children have normal weight in Ankara, Turkey.

The result further agreed with that of Gichana (2019) who concluded that mothers' nutritional knowledge exists but it is poor. The result disagreed with that of Oyira and Opiah (2019) who found that most respondents had higher knowledge of nutritional and the children were well nourished in Calabar Municipality, Cross- River State Nigeria. The result is in consonance with that of Man, Uday, Hassan, Bharat, Paudel and Varalakshmi (2019) who found that most parents lack knowledge of the appropriate food items to prepare and give their girl child as there were indications of high junk foods consumption. The result supported that of Fashola, Abosede and Foluke (2018), who found that majority of the respondents, knew and had a good attitude towards good nutrition supporting studies from Kenya and Northern Nigeria. This, however, did not translate to good practice for about half of the respondents.

Maternal Nutritional Related Knowledge and the Nutritional Status of Pupils

The result showed that there is a significant relationship between nutritional related knowledge of mothers and the nutritional status of pupils in Etsako West Local Government Area of Edo State. The result agreed with that of Berihu, Gerez, Hailemariam and Kidanu (2020) who found knowledge difference among the monthly income and mother's educational level. Mother's knowledge on infant and young child feeding was found to be a predictor of child's health and nutritional wellbeing. The result is in line with that of Ikorok, Eka, Ogunjimi and Udoh (2020) who

found that knowledge of maternal nutritional had significant influence on nutritional status of senior secondary school students in Akwa Ibom State. The result supported that of Akinrinmade, Njogu and Ogada (2020) who found that parents who had knowledge also had well-nourished children.

The result is in line with that of Oldewage-Theron (2019) who found that high frequency of food consumption was associated with good nutritional status of learners selected school in rural QwaQwa. The result supported that of Abdirahman (2018) who found that nutritional related knowledge of adolescent was low and this was associated with in Mandera East Sub-County, Mandera County. The result is in line with that of Ajao, Ojofeitimi, Adebayo, Fatusi and Afolabi (2018) who found that parents' had knowledge food consumption pattern and nutritional status of children in Ile-Ife, Nigeria.

The result is in consonance with that of Omage and Omuemu (2018) who stated that food consumption patterns are personal behaviors that is developed over the years and may be influenced by physiological and social factors. Furthermore, the result agreed with that of Boylan, Lallukka, Lahelma, Pikhart, Malyutina, Pajak (2011) who found that about one third (32.1%) of secondary school students in New Delhi area consumed fast food (e.g. burgers, pizzas, fried foods etc.) three or more times per week.

Conclusion

Food can be regarded as any substance consumed to provide nutritional support to facilitate growth and development of the body. It is responsible for sustaining life. It is known that mothers are direct providers of foods for the family. They are expected to be equipped with knowledge of nutrition , which is the science of food. This study extensively examined the nuttinal knowledge of pupils mothers as it relates to the pupils's nutritional status. Based on the findings, it was concluded that nutrition related knowledge of pupils mothers in Etsako West Local Government Area of Edo State was low while their nutritional status was equally low. It also emphasized that nutritional related knowledge are direct correlates of the nutritional status of pupils in Etsako West Local Government Area of Edo State.

Recommendations

Based on the findings, the following recommendations were made:

a) Comprehensive public nutritional education programme for pupils, their parents and teachers, is needed to promote nutritional health with the necessary political will of the governments at all levels to ensure sustainability; establishment or improvement where it already exists.

b) The school feeding programme in Edo State should be adequately financed, well managed and monitored by the state ministry of education to ensure pupils are feed with the right diet in quality and quantity in order to make up for whatever good meals their parents could not afford them from home.

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Influence of Family Dysfunction on the Social Behaviour of Adolescent Children in Ekpoma, Edo State

By

Dr. (Mrs.) Okosun, C.J
Department of Vocational and Technical Education
Ambrose Alli University, Ekpoma
07064873550
cjokosun@gmail.com

And

Dr. (Mrs.) Aluyor .P.
Department of Vocational And Technical Education
Ambrose Alli University,
Ekpoma
07063149091
pataluyor@yahoo.com

Dr. (Mrs.) Auyor.P. is a senior lecturer at the Department of Vocational and Technical Education. Fculty of Education. Ambrose Alli University, Ekpoma

Dr. (Mrs.) Okosun, C.J is a Lecturer 11at the Department of Vocational and Technical Education. Fculty of Education. Ambrose Alli University, Ekpoma

Abstract

This study investigated the influence of family dysfunction on the social behavior of adolescent children in Ekpoma, Edo State. The survey research design was adopted for the study. The population of this study was made up of all dysfunctional families and adolescents in Ekpoma. A sample of 20 dysfunctional families, having fifty-two (52) adolescents was used for the study. Questionnaire was used to obtain relevant data. Data collected were analyzed using weighted mean and standard deviation. The result of the findings revealed that one of the causes of family dysfunction is controlling parents, that is authoritarian parenting. The findings also showed that family dysfunction influences the social behavior of adolescent children because the cumulative mean response of 3.8 is higher than the decision mean of 3.0. Based on the findings of this study, it was recommended among other things that government at all levels; NGOs and religious bodies should establish functional counselling units/family therapy centres where families and adolescents can be helped to get out of dysfunction.

Keywords: *Family dysfunction, social behavior, adolescent children.*

Introduction

All families have the potential of growth and adjustment in response to distress, trauma or crises. Undoubtedly, some families, regardless of type, number of problems, ethnic or racial makeup, religion and spirituality, socio-economic status, sexual orientation, or degree of education, are happier and more stable than others. They are more flexible in seeking solutions to problems, more purposeful in pursuing satisfaction than other families.

Family dysfunction can be any condition that interferes with healthy family functioning, (Eric, 2019). Most families have some period of times where functioning is impaired by stressful circumstances (death in the family, a parents serious illness). Healthy families tend to return to normal functioning after the crises passes but dysfunctional families remain in that state. In dysfunctional families however, problems tend to be chronic and children do not consistently get their needs met. Negative patterns of behavior tend to be dominant in their children's lives (Gil, 2016). A dysfunctional family is a family in which conflict, misbehavior and often child neglect or abuse on the part of individual members of the family occur continually and regularly, leading other members to accommodate such actions (Hart, 2015). Children sometimes grow up in such families with the understanding that such arrangement is normal. They exhibit such characters among their peers without knowing that they hurt other people's feelings.

Gil (2016) stated that there are many reasons why families become dysfunctional but the four common causes of family dysfunction include, deficient parents, controlling parents, alcoholic parents and abusive parents. Regardless of the kind of dysfunction or abuse, the effect on adolescents' social behavior is the same.

The period of adolescence which is a stage between childhood and adulthood is characterized by labile emotions, personal identity, peer relationships, independence and testing boundaries and self-centered attitudes, (Anna, 2017). Adolescence is a transitional phase of growth and development (Mihalyi, 2018). World Health Organization (WHO) defines an adolescent as any person between ages 10 and 19. Anna (2017) also defines adolescence as the period lasting from approximately age 11 to 21. The five leading characteristics of adolescence are biological growth and development, an undefined status, increased decision making, increased pressures and the search for self.

Adolescence can be broken into three stages; early adolescence, middle adolescence and late adolescence. Each stage has its own characteristics (Yolanda, 2019).

According to Janet (2016), children of dysfunctional families normally show the following characteristics:

i. They guess at what normal is;
ii. They have difficulty in following a project through from beginning to end;
iii. They lie when it would be just easy to tell the truth;
iv. They judge themselves without mercy;
v. They have difficulty having fun;
vi. They take themselves very seriously;
vii. They have difficulty with intimate relationships;
viii. They over react to changes over which they have no control;
ix. They constantly seek approval and affirmation;
x. They feel that they are different from others;
xi. They are either super responsible or super irresponsible;
xii. They are extremely loyal, even in the face of evidence that the loyalty is undeserved; and
xiii. They are impulsive.

Regardless of the kind of dysfunction or abuse, effects vary widely across individuals. Keer and Bowen (2016) stated that adolescents of dysfunctional families either at the time or as they grow older may also:

i. Lack they ability to be playful or childlike, and may “grow up too fast”;
ii. Have moderate to severe mental health issue, including possible depression, anxiety and suicidal thoughts;
iii. Become addicted to smoking, alcohol and drugs especially if parents or friends have done the same;
iv. Bully or harass others, or be an easy victim thereof;
v. Be in denial regarding the severity of the family’s situation;
vi. Have mixed feeling of love-hate towards certain family members;
vii. Have difficulty forming healthy relationship within their peer group (usually due to shyness or a personality disorder);

viii. Feel angry, anxious, depressed, isolated from others or unlovable;

ix. Become a juvenile delinquent and turn to a life of crime;

x. Have low self-esteem or a poor self-image with difficulty expressing emotions.

In most cases, adolescents are the worst hit in families that are dysfunctional. This is because they are at a stage of identifying themselves and building up on their personality. As a result, when there are crises in the home, they get confused and are affected negatively.

Statement of the Problem

The rate at which families are becoming dysfunctional in Nigeria is really on the increase. This is as a result of the economic situation and moral decadence in the society (Namka, 2018). Families where responsible individuals are expected to be formed and nurtured have become places where irresponsible acts are being carried out which in turn brings about undesired behavior in the adolescent child.

The researchers observed that a lot of adolescent in Ekpoma are engaging into all sorts of crime, and this is a clear evidence of the high rate of family dysfunction. Recently, it was reported that the activities of "Yahoo Boys" is more in Ekpoma than any other part of the country. The researchers also observed that parents always have big ambitions for their children. They tell them what they should do at all times, what their career should be, who their friends should be and who they should date. They compare their children with their mates and keep reminding them of their failures. These are causes of negative parenting which may be the causes of family dysfunction. In the height of these, the question that arose is, how does family dysfunction influence the social behavior of adolescents?

Purpose of the study

The main purpose of the study was to investigate the influence of family dysfunction on the social behavior of adolescent children in Ekpoma, Edo State. Specifically, this sought to examine the:

1. Causes of family dysfunction in Ekpoma
2. Influence of family dysfunction on the social behavior of adolescent children in a dysfunctional family in Ekpoma.

Research Questions

The following research questions guided the study:

1. What are the causes of family dysfunction among families in Ekpoma?
2. What is the influence of family dysfunction on the social behavior of adolescent children in a dysfunctional family in Ekpoma?

Method of Study

This study utilized survey research design to ascertain the effect of family dysfunction on the social behavior of adolescent children in Ekpoma, Edo State. The population comprised of all adolescents from dysfunctional families in Ekpoma. The dysfunctional families were selected through a baseline study carried out by the researchers to know the families that were dysfunctional. Twenty dysfunctional families were purposely selected. The researchers used what they scored during the baseline study to select. The baseline study was scored 0 to 100. The higher the score, the more dysfunctional the family is. So, twenty families with the highest scores were selected using the purposive random sampling. All adolescents in the twenty families were used. There was no need to sample the adolescent because the number, which was 52, was manageable. The instrument used for the study was a structured questionnaire. The questionnaire was in two forms, one was designed for parents to ascertain the causes of family dysfunction. The other was for the adolescents to ascertain the effect of family dysfunction on their social behavior. Family and child development experts validated the instrument and the Cronbach Alpha was used in ascertaining the reliability of the instrument and it yielded 0.85. Data collected were analyzed using weighted mean scores and standard deviation.

Findings

Research Question 1: What are the causes of family dysfunction among families in Ekpoma, Edo State?

Table 1: Weighted mean score and standard deviation on the causes of family dysfunction among families in Ekpoma, Edo State.

S/N	Item	Categories					Mean	Standard Deviation
		Always (5)	Most Times (4)	Sometimes (3)	Never (2)	Undecided (1)		
1	Do you feel happy when the children ignore their own needs and feelings just to satisfy your needs?	45	32	9	24	8	2.9	**.417**
2	Do you choose friends for your children?	50	44	30	6	6	3.4	**.521**
3	Do you feel it is important for your teenage child to own an account and manage it the way he/she feels?	25	16	33	22	9	2.6	**.181**
4	As an adult, do you think you can take alcohol the way you feel even in excess sometimes since it is believed to help people relieve tension and 'relax'?	20	40	63	10	0	3.3	**.401**
5	Do you flog rather than talk to your child at every offence he/she commits?	55	40	9	18	5	3.1	**.012**
6	Do you seek for your children's opinion on some family issues especially the ones that affect them?	40	32	27	28	1	3.2	**.810**
7	Do you exert a strong authoritarian control over the children?	90	32	24	8	2	3.9	**.155**
8	Are your words final in any decisions in the family?	65	40	24	8	2	3.9	**.418**
9	Are you consistent with your rules and regulations in the home or rules that apply one day may not apply the next?	35	24	33	28		3.0	**.215**
10	Do you feel it is necessary to keep promises made to any member of the family?	25	12	15	40	2	2.3	**.332**
	Cumulative Mean						**3.1**	

Decision= 3.00

Table 1 above shows a cumulative mean response of 3.1 which is higher than the decision mean of 3.0. This means that majority of the respondents were in agreement with the question items used to collect data. The table shows that some parents exert a strong authoritarian control over the children. This item score 150 with a weighted mean score of 3.9. It was also shown that some parents words are final in any family decision, as their item score 143 with a weighted mean response of 3.5. The result also shows that the respondents believe that an adult is free to take alcohol the way he or she feels even in excess. This item had a total score of 133 with a weighted mean score of 3.3. The result equally indicated that parents believe they should choose friends for their children as this item had a weighted mean score of 3.4. The item mean scores of the items are higher than the decision mean which is an indication that the items are causes of family dysfunction in the study area.

In view of this, the researchers concluded that the main causes of family dysfunction in Ekpoma, is the authoritarian behavior of the parents and alcohol taking.

Research Qutestion 2: What is the influence of family dysfunction on the social behavior of adolescent children in a dysfunctional family in Ekpoma?

Table 2: Weighted mean score and standard deviation on the influence of family dysfunction on the social behavior of adolescent children.

S/N	Item	Categories					Mean	Standard Deviation
		Always (5)	Most Times (4)	Sometimes (3)	Never (2)	Undecided (1)		
1	Do you find it difficult to express your feelings?	150	60	3	2	0	4.5	**.479**
2	Do you lie when it would just be easy to tell the truth?	100	84	0	12	0	4.1	**.504**
3	Do you have difficulty with intimate relationship?	165	32	0	4	4	4.3	**.80**
4	Do you feel different from other people?	120	60	15	6	0	4.2	**.491**
5	Do you have difficulty being playful?	75	128	0	0	0	4.3	**4.71**
6	Do you find it difficult following a task or project from beginning to end?	155	28	0	14	2	4.2	**.360**

7	DO you find yourself feeling like a false in your academic or professional life?	100	60	15	4	5	3.9	**.485**
8	Do you find yourself having difficulty with authority figures?	125	44	0	10	5	3.9	**.428**
9	Have you ever been drunk?	0	12	78	36	0	2.36	**.605**
10	Do you freely make friends with the opposite sex?	15	20	12	60	5	2.3	**.282**
	Cumulative Mean						**3.8**	

Decision = 3.00

Table 2 above shows that the cumulative mean response of 3.8 is higher than the decision mean of 3.0. The table shows that all the item mean scores are above the decision mean of 3.0 except for items 9 and 10 which has mean scores of 2.6 and 2.3 respectively. The table revealed that the respondents agreed to 8 items out of the 10 items on the table. From the results, it is evident that the adolescents have a great negative influence of family dysfunction on their social behavior. This is seen in the mean score of the different items measured.

In view of this, the researchers concluded that family dysfunction to a large extent affect negatively the social behavior of adolescent children in Ekpoma, therefore proving the fact that family dysfunction is prevalent in Ekpoma, Edo State.

Summary of findings

From the results of the analysis presented, the findings of this study are summarized thus:

1. Family dysfunction in Ekpoma is caused mostly by controlling parent (that is authoritarian parents), alcoholic parents and abusive parents.
2. Family dysfunction influences the social behavior of adolescent children in Ekpoma.

Discussion of findings

The analysis of the data collected for this study provided some insight into the objectives and research questions raised for this study. The findings of Research Question 1 reveals that family dysfunction in Ekpoma is caused mostly by controlling parents (that is authoritarian parenting), alcoholic and abusive parents. The findings agreed with the result obtained by Gil (2016) which

showed that controlling parents are often driven by a fear of becoming unnecessary to their children, so they tend to control both the children and any other person in the family in a manner that becomes a problem to the family, thereby causing dysfunction in the family.

The findings also show that another cause of family dysfunction in Ekpoma is as a result of alcoholic parents. This is in line with what Keer and Bowen (2016) stated that if the type of dysfunction in a family is alcohol addiction, it is because the family has alcoholic parents. Alcoholic families are chaotic and unpredictable (Janet, 2016).

The findings from Research Question 2 revealed that family dysfunction influence the social behavior of adolescent children. These findings concurred with what was obtained by Janet (2016) who opined that family dysfunction influences to a greater extent the social behavior of adolescent children.

Conclusion and Recommendations

This study examined the influence of family dysfunction on the social behavior of adolescent children in Ekpoma, Edo state. Based on the relevant literatures that have been reviewed, and the findings from the study, it is therefore concluded that family dysfunction to a large extent influence the social behavior of adolescent children. The study based on its findings made the following recommendations:

1. Different women and men fellowship groups of different religious bodies and non-governmental organizations (NGOs) should from time to time organize seminars/workshops on parenting to enlighten parents on different parenting styles and the implications of each of them;
2. Government and non-governmental organizations (NGOs) should intensify on the campaign on the dangers of high alcohol consumption. They can organize health tasks using practical examples such as films shows and posters to teach people the social and health risks associated with high alcohol consumption;
3. Government at all levels, NGOs and religious bodies should establish functional counseling unit/family therapy centers where families and adolescents can be helped to get out of dysfunction; and
4. Relationship education should be introduced into the senior secondary schools and also made a general course in the tertiary institution to equip our young ones with the sound knowledge on relationships and prepare them for better marital life.

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Challenges Encountered by Teachers Teaching Basic Technology in Ovia North East Local Government Area of Edo State, Nigeria

By

Dr (Mrs.) Isemede Ose-Ahiante Patricia
Department of Estate Management
Edo state Polytechnic Usen.

And

Mr. Efosa Iyoha
Department of Urban and Region Planning
Edo state Polytechnic Usen.

Dr Mrs Isemede Ose – Ahiante Patricia is a Lecturer at Department of Estate Management, Edo State Polythecnic. Usen.

Mr Efosa Iyoha is a Lecturer at the Department of Urban and Regional Planning, EdoState Polytechnic Usen.

Abstract

The study examined challenges of teaching Basic Technology in Ovia Northeast Local Government Area of Edo State, Nigeria. A total of 20 teachers were selected from 10 schools both in Urban and Rural locations, both male and female teachers were selected randomly. A questionnaire was used for data collection. The data was analyzed using mean and standard deviation. 3 research questions were raised to guide the study. Some of the findings revealed that there is low level of E-learning facilities in public secondary schools in Ovia Northeast Local Government Area of Edo State, though teachers in rural areas are academically qualified to teach the subject but they lack social amenities. Based on the findings the researcher recommended that all students and teachers in public secondary schools in Ovia should be encouraged to own a laptop or a tablet and that the Government should provide social amenities, like electricity in the rural areas in all the Local Government Areas of Edo State.

KEYWORDS: *Challenges, Teaching, Basic Technology, Basic amenities*

Background to the Study

Education is the process by which the society assists individuals to learn about the past, the present and contribute meaningfully to the development of the society. Basic Technology is a

component of pre-vocational education and is one of the compulsory subjects taught in junior secondary schools in Nigeria. The main purpose of Basic Technology at this level is to make the young learners create change in their learning environment. Basic Technology is taught in the Junior Secondary School with the incorporation of many subjects such as, woodwork, metal work, electrical/electronics, mechanics, technical drawings and local crafts to mention but a few to enable students of that school age to be abreast with basic skills for useful living in the society.

The objectives of Basic Technology are:

1) To provide pre-vocational orientation for further training in technology.
2) To provide basic technological literacy for everyday living.
3) To stimulate creativity and innovation (Federal Republic of Nigeria, 2010)

Technical, Vocational Education and Training (TVET) is understood as comprising education, training and skills development relating to wide range of occupational field, production and services. TVET, as part of lifelong learning, can take place at secondary, post- secondary and tertiary levels and its also includes work-based learning, continuing training and professional development which may lead to qualifications. TVET also includes a wide range of skills development, opportunities tuned to national and local contexts. the development of literacy and numeracy skills transversal skills and citizenship skills are integral components of TVET UNESCO (2015).

The objectives of Basic Technology are impressive, but there are certain challenges that can inhibits the proper achievement of these objectives such as teaching facilities and materials that enhance students' academic performance such as school buildings which includes; classrooms, libraries, workshops, laboratories and so on. The classroom provides a safe space for learning, other materials like white boards, good sitting arrangement, good ventilation are provided in the classroom to enhance students' academic performance; workshop and laboratories are vital for the teaching and learning of basic Technology. Students of Basic Technology are exposed to the use of tools and equipment in laboratories and workshops. Library enables the teachers to consult materials, it is also an avenue for the students to have access to textbooks. Library helps to broaden the knowledge of teachers and students. Okwelle (2010) sees infrastructure as the facilities available for instruction which has a strong influence on student's academic performance. It is common knowledge that what is physically touched can easily be remembered. therefore, there is the need to teach students of Basic Technology with tools and equipment in the workshop rather than teaching

them in abstract School facilities, which may have great impact on academic performance of students also utilizing inadequate facilities may yield poor performance among students.

School environment is the place where formal teaching and learning takes place. It is designed to provide for efficient and effective learning. It comprises of the work environment that is: the school atmosphere, quality and style of buildings and the general ethos that pervade the school environment. And technical environment which constitute the physical aspect of the environment comprising of school location and school facilities. Adequate facilities in the classroom/school enhance the comfort, safety of students and teachers, thereby increasing their performances. The classroom provides a safe space for learning. Other materials like white boards, good sitting arrangement, good ventilation is provided in the classroom to enhance students' academic performance. Workshop and laboratories are vital for the teaching and learning of Basic Technology. Students of Basic Technology are exposed to the use of tools and equipment in laboratories and workshops. Library enables the teachers to consult materials, and an avenue for the students to have access to textbooks. Library helps to broaden the knowledge of teachers and students. Equipment and tools simulate students' senses and generate greater interest in the learning system and assist in the retention of knowledge. Nigeria as a country cannot meet the objectives of Basic Technology without teaching facilities and equipment. Olajide S, O, Olanipekun B.V and Obafunmilay A O. (2021) noted that school facilities are crucial to students' academic performance in Basic Science and Technology. Umunadi (2011) noted that lack of facilities and equipment was a significant problem in the Nigerian Education system. He reported that schools are being starved of equipment and facilities. Equipment such as hand tools, power tools are necessary for students' practice. It is common knowledge that what is physically touched can easily be remembered. In Okeojom and others (2016), the authors recommended that the status of Basic technology in Cross Rivers State junior secondary schools, Nigeria. Therefore, there is the need to teach students of Basic Technology with tools and equipment in the workshop rather than teaching them in abstract. The following are some of the challenges that could be faced, and they include:

1. School Environment challenge, 2. Teachers factor Challenge and
3. ICTs related Challenge

School Environment: School environment challenge is mainly the absence of a conducive learning environment which is clean, noise free and have all school facilities, laboratories, tools and equipment that are used for teaching and learning. School environment refers to the materials

resources available to the students and teachers in the school that aids the learning process. Such as classrooms, the libraries, and the laboratories (for sciences) are the three major areas of facilities identified in the school environment (Onyeji, 2019). School facilities play a major role in the actualization of educational goals and objectives by satisfying the physical and emotional needs of the teachers and students of the school. Facilities support academic performance of students, many schools are inadequately provided with the necessary infrastructure. Cases exist where students learn under trees while some others are taught in booths made of palm fronds, still others learn in classrooms where chairs, tables and chalks are grossly inadequate. Physical facilities play a significant role for learners, especially for the children who are just entering the school for the first time. Therefore, the school buildings need to be interesting and attractive influence on the performance of the child towards school. The school building creates its own value to the child by virtue of its appearance, design and general environment in which the school is set (Nwadiani, 2012).

Schools are built for the purpose of teaching and learning. Human and material resources are deployed for this purpose. School facilities are material resources are made available for teachers and students to optimize their productivity in the educational process. The realization that the transfer of knowledge does not take place in the walls of the classroom from the teacher to the students but rather that learning takes place through discovery, exploration, interaction with the internal and external environment has necessitated the creative and innovative development of teaching and learning facilities that reflect these changes. Schools are built to serve socio-economic and political needs of the ever-changing society. Asiabaka (2008) stated that physical facilities are essential resources that are required for the effective operation and maintenance of standard in the classroom/schools. These facilities include the size of the building, furniture, equipment, personnel resources, laboratories, workshops, and other instructional aides. When these categories of school facilities are adequately provided, the classroom activities become effective and efficient. Adequate facilities in the classroom/school enhance the comfort, safety of students and teachers, thereby increasing their performances.

School Facilities and Instructional equipment are expected to be adequately available and sufficient. According to Okorie (2014), equipped environment will expose students to the tools /equipment in such a way that will would them to acquire skills and knowledge that are relevant. Nigeria as a country cannot meet the objectives of Basic Technology without teaching facilities and

equipment. Umunadi (2011) revealed that shortage of facilities and equipment was a major problem in the Nigerian Education system. He said that schools are being starved of equipment and facilities. Equipment such as hand tools, power tools, and consumable materials are necessary for students' practice. School facilities are very important as they make teaching and learning to be less stressful and burdensome. Bolarinwa (2016) carried out a study on availability of instructional resources and its influence on the teaching and performance of students, without functioning workshop, tools, equipment and laboratory the teacher is handicapped and cannot go far in his teaching. Uzongulu (2013) stated that to give training and impact the required skills to students, Workshop, equipment, tools must be utilized. Uzongulu(2013) also pointed out that shortage of facilities and consumables with which to carry out effective practical works in the school workshop is among the factors militating against effective Technical Vocational Education and Training programmers in Nigeria. (Ekundayo, 2015). Baird (2010) revealed in his study that information about arts, craft, music, dance, and culture are found in the school library. He added that knowledge of both general and specific information from books and also provide explanations about different aspects of knowledge and satisfy students' interest in life. He also said that the school library is very important for all staff and students in all discipline and to improve their academic pursuit. That is using materials from the library will help teachers prepare their lessons better. It may also encourage teachers to give students project work that can make students go to the library and find out information for their form work which will encourage them to study, learn and achieve better results as well as give them the confidence to start looking for information on their own.

Teachers Related Challenge: Teachers related challenge are problems related to availability of qualified teachers, staying up to date with learning technology, salary issues, effective classroom management. Good teachers are expected to utilize appropriate method to teach. Providing enough workshop equipment helps the teachers in making basic technology lessons more interesting to the students and makes them to participate in the learning process. In the rural areas most teachers teaching basic technology are constrained with access to good teaching /learning materials. Worthy of note is the schoolworkshop.

The school workshops offer chances for practical training of students in the acquisition of skills in different trade areas. The FRN (2014) in her national policy on education stated that the goals of Technical and Vocational Education shall be to provide trained manpower in the applied sciences, technology and business particularly at the craft, advanced craft and technical levels,

provide technical knowledge and vocational skills necessary for agricultural, commercial and economic development, to give training and impact the necessary skills to individuals who shall be self-reliant economically. This is in line with Uwameiye (2010) who stated that pre-vocational education goes beyond general education and leisure to provide opportunities for the acquisition of skills or gainful employment.

ICT Related Challenge: ICT related challenge in the effective teaching and learning of basic technology. This involve the availability of digital facilities in the teaching and learning. Poor computer literacy level of teachers and students, dearth of ICTs personnel to assist, inadequate infrastructures and lack of fund to procure and manage the basic ICT tools. These and others often, are major challenges in the utilization of basic ICTs in schools,

Purpose of the Study

The purpose of this study is to find out the challenges faced by Basic Basic Technology teachers in Ovia North East local Government Area.

Research Questions

1. What are the school environment related challenges of teaching Basic technology in Ovia North Local Government Area?
2. What are the teacher related challenges of teaching Basic technology in Ovia North Local Government Area?
3. What are the Information communication technology related challenges of technology Basic technology?.

Population for the Study

The population for the study consisted of the 20 teachers teaching Basic Technology selected from 10 schools located in both urban and rural areas of Ovia North East Local Government Area of Edo State.

Method of Study

The 20 teachers from both urban and rural locations were used and they were selected through simple random sampling utilizing the balloting technique.The instrument for data collection was developed by the researcher a questionnaire titled challenges of teaching Basic technology

Questionnaire (CTBTQ). The questionnaire covered the three areas of the study; school environment, teacher and Information communication technology related challenges.

The data that were collected and were analyzed using mean and standard deviation, any mean of 2.50 and above was taken as agree while any mean less than 2.50 was taken as disagree.

Presentation of Results

Research Question 1; What are the school environment related challenges of teaching Basic technology in Ovia Northeast Local Government Area?

Table 1: Mean and Standard deviation of school environment related challenges of teaching Basic technology Ovia Local Government Area

S\N	Needs	SA (4)	A (3)	D (2)	SD (1)	N	X	SD	Decision
1	Lack of Amenities in schools have made the teaching of Basic technology difficult	1	18	0	11	20	3.10	0.30	Agree
2	Lack of conducive environment has made it difficult for teacher to teach practical in schools	1	19	0	0	20	3.05	0.22	Agree
3	Schools in rural locations do not have access to technological facilities	12	2	2	3	20	3.35	1.02	Agree
4	Schools in rural areas do not have basic amenities	11	8	1	0	20	3.50	0.61	Agree

Table 1 indicates that respondents mean in the four items on school environment related challenges were 3.10,3.05,3.35 and 3.50. All these are above 2.5 indicating they agree that the schools lack basic amenities, lack of conducive environment have made it difficult to teach practical in schools, teachers in rural areas do not have access to technological facilities and schools in rural areas do not have basic amenities.

Research Question 2: What are the teacher's related challenges of teaching Basic technology in Ovia North Local Government Area?

Table 2:Mean and Standard Deviation of Teachers' Related Challenges for the teaching of basic technology in ovia northeast

5	Teachers in urban location have the relevant qualifications	12	2	5	3	20	3.25	1.02	Agree
6	It is possible for teachers without relevant qualification to teach Basic technology effectively in rural areas of Ovia North East	1	6	2	11	20	2.85	1.04	Agree
7	Teachers in rural location can access technological essential services for the teaching of Basic technology in Ovia North East.	1	5	14	0	20	2.00	0.59	Disagree
8	The teachers teaching Basic technology need continuous training	5	14	0	1	20	3.15	0.67	Agree

Table2 indicates that the means teachers in rural areas have relevant qualifications(3.25), and that it is possible to teach Technology without relevant qualification(2.85), and that teachers in rural areas cannot access essential amenities(2.00) and that teachers in rural areas need continuous training(3.15)

Research Question 3;What is the I CT related challenges of teaching Basic technology in Ovia North Local Government Area?

Table 3: Means and standard deviation of ICT related challenges for the teaching of Basic technology in Ovia N.Local Government Area.

9	ICT Educational facilities are always available to teach Basic technology in Ovia Northeast	0	4	14	2	20	2.10	0.53	Disagree
10	Teachers in rural locations can access ICT services for the teaching of Basic technology in Ovia North east .	1	5	14	0	20	2.35	0.59	Disagree
11	The teaching of Basic technology during can be easier if technological facilities are available	5	14	0	1	20	3.15	0.67	Agree
12	ICT facilites are not important for the teaching of Basic technology	1	5	2	11	20	1.86	1.05	Disagree

Table 3 states that, ICT educational facilities are not always available (2.10), Teachers in rural areas can't access ICT facilities (2.35), and teaching of basic technology can be made easier if

technological facilities are available (3.15) While ICT is very important in the teaching of basic technology (1.86).

Discussion:

The findings from the research question 1 reveals that the respondents accept that Basic Technology teachers need tools to impact on the learners, The respondents agree that Basic Technology teachers do not teach practicals because of lack of conducive environment. The respondents agree that lack of amenities make the teaching of Basic Technology difficult and teachers in rural location lack social amenities. This finding is supported by Olajide S, O, Olanipekun B.V and Obafunmilay. A O. (2021) who noted that good school environment and facilities are crucial to students' academic performance in Basic Science and Technology likewise, Umunadi (2011) noted that lack of facilities and equipment was a significant problem in the Nigerian Education system.

The findings from research question 2 showed that most teachers in rural locations do not have the necessary qualifications to teach Basic Technology, teachers in rural areas cannot access essential amenities and that teachers in rural areas need continuous training consequently agree that the teaching of Basic Technology can only be possible if technological essential services are available. This is also collaborated by the findings of Eriba and Iwanger (2018) who found out that poor motivation of teachers amongs others are the major challenges faced by teachers teaching basic technology in Nasarawa State of Nigeria.

The findings from research question 3 revealed that ICT essential services are very important for teaching Basic technology, but they are not available in schools. This supported by Uzongulu(2013) who pointed that lack and shortage of facilities and consumables with which to carry out effective practical works in the school workshop is among the factors militating against effective Technical Vocational Education and Training programmes.

Conclusion

Basic technology is important in the present dispensation. Therefore the educational process must be fortified with all essential amenities for emancipation and sustainable development in the country, for no country can survive without technology.

Recommendation

1. The government should provide facilities for schools in Ovia Northeast Local Government Area especially those in rural areas.
2. Qualified Teachers should be made to teach Basic technology subjects in Rural and Urban areas.
3. All students and teachers in public secondary schools should be encouraged to own a laptop or a tablet and that the Government should provide social amenities, like electricity in the rural areas in all the Local Government Areas of Edo State.
4. There is the need to always organized training for teachers teaching Basic technology to update their knowledge.

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Comparative Analysis of Body Mass Index of Male and Female Secondary School Students in Edo South, Edo State

By

Dr (Mrs) Patience Aluyor
Department of Vocational and Technical Education
Faculty of Education
Ambrose Alli University, Ekpoma
Email: pataluyor@yahoo.com

Dr Mrs P.Aluyor is a Senior Lecturer , Department of Vocational and Technical Education. Faculty of Education. Ambrose Alli University, Ekpoma

Abstract

This paper examined and compares anthropometric index using Body Mass Index of male and female secondary school students in Edo South in Nigeria. The population for the study comprised all senior secondary school students in public secondary schools in Edo South. The sample size for the study consisted of two hundred students using random sampling techniques to select five schools. 40 students from each school making a total number of two hundred students were utilized for the study. The instrument used for the study was Body Mass Index. It was used to determine the Nutritional status of the students. Student's Height and Weight were measured according to established standards. The findings shows that male and female students have equal numbers of normal weight, Male students have more underweight while female students have more over weight than male students. It was recommended among others that Government should provide a programme to enlighten the population on the implication of over Weight, under Weight obesity, and the importance of keeping normal weight.

Keywords: Anthropometry – Body Index –Adolescent – normal weight –overweight – normal weight.

Introduction

Anthropometry is the study and technique of taking body measurements, Anthropometric evaluation is inexpensive, non-invasive and provides detailed information on the different components of body structure, especially muscular and fat components. It assists in assessing the nutritional status of a population, (Sanchez – Garcia, Garcia – pefia, Duque-Lopez, Juarez-cedilkio, Wunez, & Revesbeaman, 2007).

Anthropometric measurements are combined with each other or with other data to calculate anthropometric indices Anthropometric measurements include body height, body weight, hip

circumference, waist – to hip, triceps or skin fold thickness, scapular skin fold thickness and wrist girth. The most common indices used include height –for- age, weight-for - age, weight-for- height. Most emergency nutrition surveys measure sex, heights, weight and age. (Chuang & Pam, 2009). The use of anthropometry requires two essential items, an anthropometric indicator which is also called an anthropometric index and cut-off point. Anthropometric index is a measurement or measurements with additional data such as age. Cut off points for anthropometric indices can be determined statistically when measured child is compared to the reference population (Woodruff & Duffild, 2000). The basic anthropometric measurements are, simple, straight forward, inexpensive and safe – Anyone can do them for growth and research purposes, weight and height are measured, for clinical work, other measurements such as urine test, blood test are made (Trust well, 2007). Body Mass Index is the number calculated from height and weight to investigate weight problem. Body Mass Index is a tool used for nutritional assessment. World Health Organization (WHO, 2007)

BMI provide a simple numeric measure of a person's fatness or thinness, allowing health professionals to discuss over and under height weight problems, more objectively with their patients. The higher the BMI, the higher the risk of certain diseases, such as heart disease, high blood pressure, type 2 diabetics, gallstones, breathing problems and certain cancers (Woodruff and Dufield, 2000). BMI number is plotted on the BMI for-age growth charts for either boys or girls to obtain a percentile ranking. BMI is calculated for teens and children and classified their nutritional status as normal weight, underweight, over weight and Obese (Kuczmarsk; 2001).

The calculated BMI and the age are related to the World Health Organization (WHO) recommended percentile chart because adolescent are still growing. The BMI from age percentile is used to interpret the BMI number because it includes both sex and age specifics for teenagers and children which are not the same used to interpret BMI for adults. BMI for adult do not take sex or age into consideration (Maruf, Akinpelu, Aronu & Akinpelu, 2011).

Sex and age are considered for teens and children due to the amount of body fat which is different between boys and girls, also the amount of body fat changes with age, when BMI – for – age weight status categories and the corresponding percentiles are less than 5^{th} percentiles is under weight, 5^{th} percentiles to less than 85^{th} percentiles is Healthy weight which is also called normal weight, 85^{th} to less than 95^{th} percentiles is overweight, and Equal to or greater than 95^{th} percentiles is Obese (CDC 2012).

Kuan, Ho, Shuhaili, Siti, and Gudum (2011) carried out a research work on gender Differences in Body Mass Index, Body Weight, Perception and weight loss strategies among undergraduates in University Malaysia sarawak. The population consisted of 600 undergraduates (300 males and 300 females) findings showed that 52.8% students had normal Body Mass Index, with approximately an equal number of both sexes. More males than females were overweight (33.7%) while more females were underweight (25.3%).

Rafael and Mikolajczyk (2010) carried out a research work on the relationship between percentage body weight and body mass index based on self –reported height and weight among University students, a cross –sectional study in seven European countries. The findings showed that majority of the students have a normal BMI (72 – 84%) of males, 65-83% of females), only 32% to 68% of students considered their weight "just right" around 20% of females with BMI of 20 Kg/M^2 considered themselves a little too fat" or "too fat" below BMI of 22.5kg/M^2. Male students rarely felt a little "too fat" or too fat below BMI of 22.5 kg/M^2, but most felt two thin with a BMI of 20kg/M^2. They found gender differences with regards to perceive weight related to BMI. Female students were more likely than male students to perceive themselves as "too fat", while male students were more likely to perceive themselves as "too thin".

Alblooshi, Shaban, Altunaiji, Fares, Alshehhi, Alshehhi, Almazrouei (2016) carried out a research work on increasing obesity rates in school children in United Arab Emirates. The study investigated the prevalence of obesity in 44, 942 students attending governmental schools in Ras Al-khamah. Body Mass Index was calculated. World Health Organization and centers for disease control (CDC) reference methods were used to identify overweight, obesity, and extremely obesity, the findings revealed that BMI 95th percentile 24.3% and BMI 99th percentile, 5.7%. The rate of extremely obesity was 9.6 fold higher in boys than girls.(0.58% vs 0.06%). The result confirmed a steady rise in obesity in children 3 – 18 years, the rising rate of extreme obesity is also alarming especially among boys. Under-weight can result to low immune system, Osteoporosis and general weakness of the body. Therefore, there is need to have adequate knowledge on the important of keeping normal weight.

Diet influences cognition and behavior in a number of ways, these include the condition of not having access to adequate food and insufficient intake of particular nutrients. Diet plays an important role in the life of adolescent. The body changes from childhood to adulthood, the nutrient intake influences mental and physical development. Adolescents that consume the right proportion

of foods both in quality and quantity can be a healthy person. Turconi, Euarcello Maccarrini, Cignoli, Setti, Bazzano & Roggi (2008).

Peer pressure about appearance and body size motivate adolescents a practice which can lead to negative health consequences. Bashour 2004 revealed from his work, that the evidence from studies of the eating habits of young people raises concern about the implication on the future health. Adolescents may not think of the long term consequences of their health practices, rather, they consider only short term consequences.

Varinil (2005) explained that adolescent prefer eating snacks, fast food including food items in advertisement. Many adolescents believed that being fat can affect them socially and damage self- esteem. These lead to many adolescents suffering from health problems. The study investigates the BMI of secondary schools students and comparative between body BMI of boys and girls students. The findings of this study could assist the parents to provide adequate food, both in quality and quantity to their adolescent children, the findings could also assist the adolescent on the improvement of taking healthy foods. Also the study could help the public to know what BMI is, the categories of BMI, and the consequences of not obtaining normal weight.

Purpose of the study

The purpose of the study is to compare the body Mass Index of male and female secondary school students.

Research Question

The research question that guided this study is:

Research Question 1: Is there any difference between the Body Mass Index of male and female secondary school students?

Methodology

The study used survey design. The population for this study comprised all senior secondary school (ss1) students in public secondary schools in Nigeria, in Edo South Senatorial distinct. The study focused mainly on food and nutrition students in senior secondary school (SSS1). The study focused mainly on food and nutrition students in senior secondary school (SSS1). The total population of students offering food and nutrition in senior secondary school one in Edo South was 8,687.

The sample of this study consisted of eight hundred and seventy students which is 10% of 8,687. Multistage sampling technique was used for the study, stratified random sampling technique was used in selecting schools from location, random sampling technique was used to select six schools, proportional technique were used to select students from each of the selected schools. The instrument used for the study was anthropometric measurement. It was used to measure the student weight and height to determine Body Mass Index of the students. BMI is used to determine nutritional status of the students. Student weight and height were measured according to established standards by World Health Organization (WHO) .BMI was calculated as a ratio between weight and height in meters. The calculated BMI and age were related to the World Organization recommended percentile chart to classify the BMI result as normal weight, under -weight, overweight and obesity. The data collection was carried out by the researcher and two research assistants. The instruments were administered within a period of four weeks. The data used for this study was analyzed using T-test.

Is the significant difference in the BMI of male and female Home Economics students in secondary school in Edo state?

Table: t-test of Difference in The BMI of Male and Female, Food and Nutrition Secondary Schools Students in Edo South

Comparism of BMI	N	Mean	Std Dev	t-statistic	Df	P-value	Sig
Male	440	19.23	2,42	-5.157	868	.000	Significant
Female	430	20.19	3.08				

The t-test analysis revealed that there is no significant difference in the BMI of male and female food and nutrition secondary school students in Edo South.

The table 2 shows the T – test analysis of difference in the comparism of body mass index of male and female students secondary students in Edo state. The result shows that t – calculated is -5.157 while the P- value is .000 at 0.05 level of significance is less than t- calculated value of 1.96. Hence, the null hypothesis was rejected.

Discussion of Finding

The table above revealed that there is no significant difference in the BMI of male and female home economics students in secondary schools in Edo state. This study is in line with

pavlovic et al (2018), which carried out a study on the body composition analysis; Differences between students and the trend of their change. The study covered the students of high school in pale, East Sarajevo, (Bosnia and Herzegovina). They found in their study that BMI values of male and female students did not make a significant difference. This study is not in consonance with kuan et al (2011) which carried out research work on gender differences in body mass index, body weight, perception, and weight loss strategies among undergraduates in universities. Their findings revealed that more males than females were overweight while more females were underweight. This study is not in line with the result of Maruf et al (2013) who carried out a study on the influence of gender on prevalence of overweight in Nigerian school children and adolescents. The result revealed that females had significantly higher BMI than males at age groups of 11-18 years. Alblooshi, Shaban, Altunaiji, Fares, Alshehhi, Alshehhi, Almazrouei (2016) findings disagreed with the finding of this study, whose study investigated the prevalence of obesity in 44, 942 students attending governmental schools in Ras Al-khamah. World Health Organization and centers for disease control (CDC) reference methods were used to identify overweight, obesity, and extremely obesity, the findings revealed that BMI 95th percentile 24.3% and BMI 99th percentile, 5.7%. The rate of extremely obesity was 9.6 fold higher in boys than girls. (0.58% vs 0.06%). The result confirmed a steady rise in obesity in children 3 – 18 years, the rising rate of extreme obesity is also alarming especially among boys.

Conclusion

Based on the findings, the study has revealed that there is no significant difference between BMI of male and female secondary school students. Generally from the study some students are categorized under normal weight, overweight, underweight and obesity. Apart from normal weight others are associated with health consequences throughout life time, cardiovascular diseases can occur as a result of overweight and obesity, while underweight can result to low immune system and low performance.

Recommendations

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

1. Government should provide more enlightenment on the implication of overweight underweight and Obese. For healthy nation is a wealthy nation.

2. Adequate effort should be made by every individual to keep normal weight.
3. Parents should ensure that every member of the family is well fed. With the right quality and quantity of diets.

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Gender Differences and Students' Academic Performance in Selected Subjects in Public's Secondary Schools in Ekpoma, Edo State

By

Abhulimen, Josephine

Department of Vocational and Technical Education
Ambrose Alli University
Ekpoma-Edo State
Tel: 08077786257
Email:jossyabhus@gmail.com
and

Aigboje, Juliana Oyida

Department of Curriculum and Instruction
Ambrose Alli University
Ekpoma-Edo State
Tel: 08038613935
Email: julianaaigboje@gmail.com

Abhulimen, Josephine is an Assistant Lecturer, Department of Vocational and Technical Education, Ambrose Alli University, Ekpoma.
Aigboje, Juliana Oyida is an Assistant Lecturer, Department of Curriculum and Instruction, Faculty of Education. Ambrose Alli University, Ekpoma.

Abstract

This study investigated the influence of gender on students' academic performance in Home Economics and Basic science in public secondary schools in Ekpoma, Edo State. Survey method of the descriptive research design was adopted in the study. The population of the study covered all the 3478 Junior Secondary School (JSS) students in the 16 public secondary schools in Ekpoma metropolis of Edo State. Eight (8) schools were randomly selected by lottery method in the study area. Data on students' performance in Home Economics and Basic science were collected from the academic record of selected schools in the study area. Mean ($\bar{X}$) and standard deviations (S.D) were used to analyze the research questions while the t- for independent sample mean was used to test the hypothesis. Findings showed that the average performances of students in Home Economics and Basic Science are 61.6% and 50.3% respectively. Results further showed gender based differences in students' academic performance in Home Economics (in favor of female students) and in Basic Science (in favour of their male counterparts). It was recommended that Teachers teaching these subjects should take cognizance of sex differences in students' performance in Home Economics and Basic Science and therefore, Endeavour to encourage male students with the necessary morals they need to compete favorably with the females in Home Economics.

Keywords: Basic Science, Home Economics, Selected Subjects, Academic Performance, Gender, Differences,

Introduction

Basic education is the early childhood education that is given to children aged 0-15 years. It is segmented into ages 0-4 years, situated in daycare or crèches, fully in the hands of the private sector and social development services, whilst ages 5-6 are within the formal education sector (Federal Republic of Nigeria, 2013).The goals of basic education as succinctly spelt out by the Federal Republic of Nigeria (FRN) (2013) are to:

a. provide the child with diverse basic knowledge and skills for entrepreneurship, wealth generation and educational advancement;
b. develop patriotic young people equipped to contribute to social development and in the performance of their civic responsibilities; and
c. inculcate values and raise morally upright individuals capable of independent thinking, and who appreciate the dignity of labour

In other to achieve the aforementioned goals, the federal government recognizes the roles of a selected group of subjects that help to equip learners at the junior secondary education level with the manipulative and innovative skills needed for the world of work. These subjects are Home Economics and Basic science. The FRN (2004) under the National Policy on Education outlined the following as the objectives of junior secondary as to;

equip students to live effectively in the age of science and technology, develop and project Nigeria culture; raise a generation of people who can think for themselves, have respect for dignity of labour and foster unity of Nigerian .Consequently, subjects like Home Economics and Basic Science are taught at the junior secondary school level in Nigeria to actualize these objectives.

Home Economics and Basic Science are two notable subjects in the curriculum for junior secondary education. The former (Home Economics) deals with the study of the relationship of people and various aspects of their environment such as clothing, housing, the management of the home and finances while the latter (Basic Science) is a subject which is devised and presented in such a way that students gain the concept of the fundamental unity of science, the commonality of approach to problem of scientific nature and helps students to gain an understanding of the roles and functions of science in everyday life and the world in which they live (Ugwuanyi, 2022). It is the bedrock to advance studies in science, technology and engineering (Bukunola & Idowu, 2012).

Home Economics is the study of the relationship of people and aspects of their environment such as clothing, housing and finance. Okpala (2005) described it as a skill-oriented, decision-making

subject that equips learners with skills and knowledge which will help them to be self-employed and at the same time, contribute effectively to the socio-economic development of the family and society. On the other hand, Basic Science programme started in July, 2006 with the appropriation of the Universal Basic Education (UBE) fund to the Universal Basic Education Commission (UBEC) and subsequent disbursement to States. The education programme is regarded as a reinforcement of the 6-3-3-4 policy on education rather than a new policy in itself. The main objectives of the basic science programme are to prepare students to acquire adequate laboratory and field skills and also to inculcate in learners the meaningful and relevant knowledge in basic science, the ability to apply scientific knowledge to everyday life in matters of personal and community health, and agriculture; reasonable and functional scientific attitudes (Ugwuanyi, 2022).

It is clear from the above, that the basic desire of government on these school subjects is to facilitate the process of economic, innovative and creative thinking among citizens in the country. Hence, these subjects are very unique among various other subjects taught in Nigeria secondary schools. Unlike other school subjects, students are required to work with equipment in the metal/wood workshop, computer and typewriter in the typing pool, cutleries and utensils in the 'Home Economics' laboratory. Despite the laudable objective of secondary education in Nigeria, scholars like Udoukpong, Emah and Umoren (2012) and Adeleke, Binuomote and Adeyinka (2013) still reported that academic performance among school subjects is on the decline among learners of both sexes in secondary schools.

Sex and gender are two terms often used interchangeably or synonymously in the academia. The latter (gender) is a sociological construct that refers to a wide range of biological, emotional mental, behavioural, and physical characteristics that can be attributed to "maleness" or "femaleness" of an individual while the former (sex) is the biological classification of all individuals into two mutually exclusive outcomes of male or females based on their "XX', 'XY- chromosome make up respectively (Sun, 2022). This study operationally concerns itself with the biological categorization of sex. Hence, the term sex of student in this study is used in relation to gender of student.

Adigun, Onihunwa, Irunokhai, Sad aand Adesina (2015), described gender as the range of physical, biological, mental and behavioural characteristics pertaining to and differentiating between the feminine and masculine (female and male) population. According to them, the importance of examining performance in relation to gender is based primarily on the socio-cultural differences between girls and boys that often make people attribute some vocations and professions such as

engineering, construction works, arts and crafts, etc to men while catering, typing, nursing, secretarial duties are classified as a female domain.

This subconscious gender concept sometimes influences parents' perception of what their child(ren) can do,the errands they are sent to run and domestic chores they are assigned to do. Consequently, it is not uncommon to have parents send their sons to weed the garden, fix a damaged appliance, go harvesting deep rooted tubers on the farm, or even go fetch some firewood with a truck. These errands are quite different from the domestic chores they assign to the girl-child such as washing of dishes, sweeping the bedroom, cleaning the kitchen, fetching water, or bathing their younger siblings. This seeming shows that the male children are often engaged with more tedious outdoor activities compared to domestic chores that are often assigned to girls at home. This is perhaps responsible for the self-concept, stereotypes and fixed role perceptions of individuals in career, business, ministry, and even at school levels.

Studies on students' academic performance in school subjects with respect to gender are equivocal with mixed results. William, Walducer rand Vijaya (1992) found no evidence to support the hypothesis that significant and consistent gender difference exist in college student performance in Economics. Anderson, Benjamin & Fuss (1994) observed that Introductory Economics course was the overall performance level of those that are taking a course in Calculus in University. The result also showed that male students outperformed the female in Introductory Economics. In a study of Student characteristics and academic performance in Business Studies in Junior Secondary Schools in Akwa Ibom State, Ekanem (2008) used a total of 600 junior secondary students (300 males and 300 females). The finding of the study indicated that the performance mean score for the males was 25.07 as against the female performance mean score of 25.87. The calculated t-test value showed no significant difference between the mean scores of male and female students.

Jebson (2003) investigated on gender difference in relationship between students' academic achievement. Six years were considered to determine difference to gender in relation to Junior Secondary Certificate Examination (JSCE) Integrated Science and Secondary School Certificate Examination (SSCE) in Biology, Chemistry and Physics. The results revealed that there is no significant difference in the relationship between grades in JSCE integrated Science and SSCE in Biology, Chemistry and Physics. Ballard & Johnson (2004) further observed that there is gender imbalance which is 42 percent women and 56 percent men, and women received a disproportionate

percentage of the higher grades. 82 percent of the high distinctions and 74 percent of the distinctions went to male students in Introductory Economics

In Udoukpong, Emah and Umoren's (2012) study, they examined the differences in the academic performance in Business Studies of junior secondary school students in Akwa Ibom State of Nigeria. A sample of 290 (138 male and 152 female) Junior Secondary Three (9th grade) students was surveyed. The students' variables' being examined vis-à-vis academic performance in Business Studies were gender and self-concept. Results showed that students' academic performance in Business Studies differed significantly on the basis of gender and self-concept.

Adigun, Onihunwa, Irunokhai, Sada and Adesina (2015) studied the relationship between student's gender and academic performance in computer science in New Bussa, Borgu local government of Niger State. Questionnaire which consist of 30 multiple-choice items drawn from Senior School Certificate Examination past questions as set by the West Africa Examination Council in 2014 multiple choice past question was used as the research instrument consist. The questionnaire was administered to 275 students from both private and public schools in the study area. The students' responses were marked and scored, afterward analysed using independent t-test. The results of the study showed that even though the male students had slightly better performance compared to the female students, it was not significant.

Amuda, Ali, and Durkwa (2016) determined gender difference in the academic performance in Senior Secondary Certificate Examination (SSCE) Economics subject among senior secondary school students from 2006 to 2010 sessions in Maiduguri Metropolis, Borno State, Nigeria. Two objectives were stated, two research questions were answered and two hypotheses were tested. Ex-post facto research design was used. A total of 8699 students' results were used for academic performance, 5679 male students and 3020 female students, results in West African Senior Secondary Certificate Examination (WASSCE) while in SCCE, National Examination Council (NECO) the total results used was 9074. Males results was 5491 and females was 3583 in economics for 2006 to 2010 sessions. Descriptive statistics of percentages was used to answer the research questions while t-test statistics was used to test the hypotheses. The results of the analysis revealed that male students in senior secondary schools in Maiduguri metropolis have better grades than their female counterpart in economics for 2006-2010 sessions. The results further showed that there was no significant gender difference in the academic performance of students in SSCE, WAEC and NECO in Economics while SSCE, WAEC and NECO for 2006/2007 session in

Economics for 2008 to 2010 sessions showed consistent significant gender difference in the academic performance of students in favour of male students.

From the foregoing, it is evident that studies in Nigeria on gender differences on students' academic performance are quite equivocal as reported on various subjects in diverse states of the federation. However, a knowledge gap exists on the influence of gender on prevocational studies in Ekpoma, Edo State.

Method of Study

Descriptive design based on the survey method was adopted in this study. The population of the study covered all the3478 Junior Secondary School (JSS) students in the 16 public secondary schools in Ekpoma metropolis of Edo State. Eight (8) schools were randomly selected by lottery method in the study area. This was done by picking eight in sixteen pieces of folded paper with each paper containing the name of one public school in the metropolis.

The instrument used for the collection of data was a Prevocational Studies Inventory Score (PRESIS) sheet. The instrument was used to collect data on sex and academic performance of junior secondary school students in Home Economics and Basic Science on their promotion examination. The scores of students collected with PRESIS were adjudged to be standardized scores on a continuous or interval scale ranging from 1-100%. Hence, the instrument and data collected were not subjected to any form of validation or reliability investigation.

In other to collect data on students' scores in Home Economics and Basic Science, due permission was taken from necessary authorities in secondary schools in the study area with the aid of a draft letter written to the principal. This was done to clearly explain the purpose of the research exercise and solicit the cooperation of the school authorities in providing the data required for the analysis. Data collected were descriptively analysed with mean ($\overline{X}$) and standard deviations (S.D). The t-test for two independent samples was further used to test their mean score for differences with respect to gender. The hypothesis was tested at 0.05 alpha level using Statistical Package for Social Science (IBM SPSS®).

Results

Results from the analyses of research questions and test of hypothesis are presented below:

Research Question 1: What is the academic performance of junior secondary students in Home Economics and Basic Science in public secondary schools in Ekpoma metropolis?

Table 1: Mean score of students in Prevocational subjects with respect to their sexes

Gender		Home Economics	Basic Science
Male	N	48	75
	$\bar{X}$	**56.3 ****	**57.2****
	S.D	13.9	13.6
Female	N	63	63
	$\bar{X}$	**65.7*****	**41.9 ***
	S.D	13.2	6.2
Overall	N	111	138
	$\bar{X}$	**61.6 *****	**50.3 ****
	S.D	14.2	13.3

***60-69% (Very Good) **50-59% (Good/Credit/Average) *40-49% (Pass)

Data in Table 1 indicates that male students in Home Economics scored less ($\bar{X} = 56.3\%$) than female students ($\bar{X} = 65.7\%$) while in Basic Science, male students scored higher ($\bar{X} = 57.2\%$) than female students ($\bar{X} = 41.9\%$). However, the overall average performances of students in Home Economics and Basic Science are 61.6% and 50.3% respectively. This indicates that students' performance in Home Economics in Ekpoma metropolis is above average while their performance in Basic Science is just at the average level.

Hypothesis 1: There is no significant difference between male and female junior school students on their academic performance in Home Economics and Basic Science in public secondary schools in Ekpoma metropolis

Table 2: Summary of t-test analysis on Students' Performance in Home Economics and Basic Science by Sex

Variables	Gender	N	$\bar{X}$	SD	t-cal.	p-value	Remark
Home Economics	Male	48	56.27	13.87			Null hypothesis rejected (p<0.05)
					3.64*	0.000	
	Female	63	65.67	13.21			
Basic Science	Male	75	57.24	6.18			Null hypothesis rejected (p<0.01)
					8.22*	0.000	
	Female	63	41.97	13.61			

** t-value is significant at 0.05alpha level*

Result in Table 2 shows that the calculated t-value of 3.64 for Home Economics and 8.22 for Basic Science are statistically significant ($p < 0.05$). Thus, the null hypothesis which states that there is no significant difference between male and female junior school students on their academic performance in Home Economics and Basic Science in public secondary schools in Ekpoma metropolis is rejected while the alternate is accepted. This implies that students' academic performance differs by gender (sex) of students in Home Economics and Basic Science in secondary schools in Ekpoma, Edo State.

Discussion

The results from the analysis shows that students' performance in Home Economics in Ekpoma metropolis is above average while their performance in Basic Science is just at the average level. The result further showed gender based differences in students' performance in Home Economics and Basic Science in favour of female and male students respectively. Consequently, result from the test of hypothesis indicated that students' academic performance on Home Economics and Basic Science subjects in secondary schools in Ekpoma metropolis differ significantly by gender (sex) of students.

This is in consonance with the findings of Udoukpong, Emah and Umoren (2012) in Akwa Ibom, who found that students' academic performance in Business Studies differed significantly on the basis of their gender and self-concept. Similarly, Amuda, Ali, and Durkwa's (2016) study on gender differences on students' academic performance in Senior Secondary Certificate Examination

(SSCE) Economics subject in Maiduguri Metropolis, showed consistent significant gender difference in the academic performance of students in favour of male students.

On the other hand, Adigun, Onihunwa, Irunokhai, Sada and Adesina (2015) who studied the relationship between student's gender and academic performance in computer science in New Bussa, Borgu Local government of Niger State and found that even though the male students had slightly better performance compared to the female students, it was not significant. Similary, William, Walducer &Vijaya (1992) who found no evidence to support the hypothesis that significant and consistent gender difference exist in college student performance in Economics examination.

Conclusion

The role of technology based subjects cannot be undermined in equipping students with scientific skills and preparing them for self-reliance. The performance of Junior secondary school students in Home Economics in Ekpoma, Edo State is above average while their performance in Basic Science is just at the average level. Based on results, it is concluded that their performance differs with respect to the gender of students

Recommendations

The following are recommendations for the study:

1) Home Economics and Basic science subject teachers should take cognisance of sex differences in students' performance in Home Economics and Basic Science and therefore, endeavour to encourage male students with the necessary morals they need to compete favourably with the females in Home Economics.
2) The government should introduce a sensitization programme that would help give parents and students the right orientation and perspective about female and male-dominance in Home Economics and Basic Science respectively. This is expected to help them make informed decisions and accept the subject based on their passion and not just sex dominance debates.

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Effect of Problem-Based Instructional Strategy on Students Performance in Auto-Mechanic Works in Edo and Delta States

By

Aifuwa, O. Lucky Ph.D.

Department of Mechanical Engineering

Edo State Polytechnic, Usen

Edo State

E-mail Address: Aifuwal 11@gmil.com

Abstract

The study investigated the effects of problem-based instructional strategy on students' academic performance in auto-mechanic works in Technical Colleges in Edo and Delta States. One research question guided the study and one hypothesis was formulated and tested at 0.05 level of significance. Quasi experimental research design non-randomized control groups were used for the study. The population of the study was 177 Voc. II Auto-mechanic Works students of Government Science and Technical Colleges (GSTC) in Edo and Delta States. A sample of 85 was purposively selected for the study. The instrument for data collection was Auto-Mechanic Achievement Test (AMAT). The instrument was subjected to content validity by three experts, from Department of Vocational and Technical Education. The reliability of the instrument was established by using 20 year II Auto-mechanic Works students. The reliability coefficient of .81 was achieved. Mean ($\bar{x}$) was used to answer the research questions while Analysis of Covariance (ANCOVA) was used to test all the hypotheses at .05 level of significance. Findings reveals that the post-test mean scores of students who were taught Auto-mechanic Works using problem-based instructional strategy was higher than those taught using conventional teaching method in Auto-mechanic Works. Based on these findings, the recommendations were made amongst which is that problem-based instructional strategy should be adopted as instructional strategies in learning Auto Mechanic Works in technical colleges in Edo and Delta States.

KeyWords: Problem Based, Academic Achievement, Instructional Strategy, Conventional Teaching Methods

Background to the Study

Vocational Education is the education that is designed to prepare both the youths and adults for employment in a specific discipline or occupation. It enables them to develop competencies for employment. Vocational Education can also be seen as the education which provides training and re-training for adults in employment whose skills may have become obsolete, and therefore, updating their skills. Vocational Education is also seen as the part of education which makes an

individual more employable in one group or occupation. Vocational education can be explained in terms of training designed to advance individuals' proficiency in their present or future occupations. It is training or re-training which is given in schools or classes under public supervision and control, provision of systematically trained experience which is redesigned to fit individuals in recognized occupations. Thus, Vocational Education offers courses leading to the acquisition of specific skills to enable one to perform a certain job. It is directed towards the preparation for occupational life since its recipients are equipped to face the world of work (NABTEB) (2010).

Government Science and Technical Colleges (GSTC) are specialized institutions of learning where trades and modular courses in vocational education are offered in addition to general education and science subjects. They are post basic institutions established by Federal and State governments to implement vocational education programmers at that level. The graduates of Government Science and Technical Colleges are expected to be equipped with knowledge, understanding, and skills that would make them employable or self-reliant.

Auto-mechanic Works is one of the trade subjects offered in Technical Colleges. Auto-mechanic is the study of petrol/gasoline engines and compression ignition engines. Amen (2013) stated that the objectives of Auto-mechanic Works include that the graduates of the programe should be able to:

1. diagnose, repair, and maintain a motor vehicle of light and heavy gasoline and diesel power-driven engine.
2. diagnose, maintain, effect repair on electrical component, ignition system, alternators, starters, and batteries
3. diagnose and repair front and rear axles drive, driven component, like belt gear and chain drives

There is the need for an appropriate teaching strategy for the teaching of Auto-mechanic Works that may foster the academic performance of students in Technical Colleges. Most Auto-mechanic teachers in Technical Colleges do constantly face the decision on how to design instruction, which will meet the needs of the students. As technology is changing, the teaching of Auto-mechanic Works must change with the technology so that the level of students thinking in dealing with various diagnoses, repair, and maintenance of motor vehicles would be commensurate with the maintenance needs of today's Automobile. In other words, students need to be equipped with high-order thinking skills for easy adaptability. Campbell (2010) stated that traditional teaching methods

do not adequately equip teachers with contemporary views of students' intelligence and their vast learning capabilities. The National Business and Technical Education Board (NABTEB) May/June Chief Examiner's Report (2010) indicated that the shortcoming of the present teaching method partly accounted for the poor performance of students in Auto-mechanic Works in the National Technical Certificate Examination in recent years. According to (NABTEB) 2010, the performance of students in National Technical Certificate (NTC) Examination was poor; the report indicated that the level of student's performance in Auto-mechanic subjects was lower than expected, as most students scored less than 50 percent in the subject. This poor performance could be attributed to the traditional method of teaching adopted to rather than using the modern teaching method by Auto-mechanic teachers in the Technical Colleges while teaching petrol engines in the classroom.

The peculiarity of Auto-mechanic Works is that the concepts are so abstract that students find them difficult to comprehend and concretize. Therefore, if the stated objectives must be achieved for students to perform well in their certificate examination and demonstrate acquired knowledge and skills in employment, they must be adequately equipped with the modern way of teaching Auto-mechanic Works theoretically and practically. With the continued use of the conventional teaching method, where the teacher uses the chalkboard and textbooks as the teaching aids; the teacher is thus, the active participant in the class, while the students are mere observers who watch the teacher. Asogwa (2011) posited that the conventional teaching method encourages laziness, rote memorization and could eventually kill students' interest and attitude towards the subject. The need to use a teaching method that can enhance the academic performance of Auto-mechanic students is very important. The researcher hopes that using the Problem-Based and Jigsaw Instructional Strategies may help to enhance and improve the academic performance of students of Auto-mechanics works in Technical Colleges in Edo and Delta States.

To realize the objective that is needed to enhance the Academic Performance of Auto-mechanics students, there is the need for the use of the modern instructional method. One of the instructional methods is the Problem-Based (PB) Instructional Strategy. In this instructional strategy, the students are the main drivers of learning while the teacher acts as the facilitator of the learning process. The PB process is hinged on the students being able to research a problem and come up with solutions, with the teacher guiding and facilitating the process. Problem-Based learning is dependent on the students getting involved and directing their learning. The facilitator of

the PB group is not there to give answers, but rather to ask pointed questions, to stimulate students thinking, to draw on their knowledge, and to guide the appropriate resources.

Problem-Based Instructional Strategy is a student-centered teaching method that begins with the assumption that learning involves an active, integrated, and constructed process (Hay, 2011). It means that this method of teaching involves students' active participation and social interaction of students in the group such that individual students can construct knowledge and skills. That is, students: must learn to be conscious of what information they already know about the problem, what information they need to know to solve the problem, and the strategies to use to solve the problem. This process of learning will create in the students' the skills that would make them become problem-solvers and learn independently. The role of the teacher is to guide the students as they work in groups. The use of PB could be very effective for teaching since it involves practical exercises in the workshop.

Problem-Based Instructional Strategy can also be seen as a method of learning and teaching which allows students to focus on how and what they will learn when a situation or task is presented to the students and they are required to determine for themselves how they will go about solving the problem. This usually occurs through small group work and allows students to utilize their prior knowledge in the topic area and identify the gap in their knowledge as they attempt to solve the problem. PB is a student-centered approach to learning that encourages students to be self-directed, interdependent, and independent as they attempt to solve a set of problems. In PB, rather than teaching relevant material and subsequently having students apply the knowledge to solve problems, the problem is presented first.

Students' performance in a school subject is symbolized by scores or marks on an achievement test. Students performance can also represent the performance outcome of students that indicates the extent to which he or she has accomplished specific goals that were the focus of activities in instructional environments, specifically in schools like Technical Colleges. School systems mostly define cognitive goals that either apply across multiple subject areas like critical thinking or include the acquisition of knowledge and understanding in a specific intellectual domain. Therefore, students' performance is considered a multifaceted construct that comprises different domains of learning. The definition of students' performance solely depends on the indicator used to measure it. Students' performance is the criteria used in determining the grades or performance on an educational achievement test. It is also a cumulative indicator of students'

performance such as educational degree and certification with Technical Colleges inclusive. Based on these, the researcher is determining to investigate the Effect of Problem-Based Instructional Strategy on the Students Performance of Auto-mechanics Works Students in Technical Colleges in Edo and Delta States.

Statement of the Problem

Many students find it difficult to study Auto-mechanics Works because they see the engine as being complicated. Those students who eventually study Auto-mechanics in the Technical Colleges do not perform well in National Business and Technical Education Board (NABTEB) examinations (Okoye, 2010). The National Business and Technical Education Board (NABTEB) May/June Chief Examiners Report (2010) indicated that the shortcomings of the present method of teaching partly accounted for the poor performance of students in Auto-mechanic in the Technical Colleges Examination in recent years. The report also showed that the level of achievement in Auto- mechanic subjects was lower than expected as most students score less than 50 percent in these subjects. Okoye (2011) identified lack of good methodology as the major reason for low achievement and drop outs in the Technical Colleges. NABTEB (2012), the performance of students in National Technical Certificate (NTC) Examination was poor. Amen (2013) observed that the low level of achievement has been attributed to certain factors, which are inadequate qualified Auto-mechanics teachers; lack of student's interest; non-exposure to field trips; non-inclusion of Technical College Students in Students' Industrial Work Experience Scheme (SIWES), and above all poor method of teaching.

These indicated that the level of students' performance of Auto-Mechanic Students is on the decline and less than 40 percent passed. The implication of this to the nation's economy is that it will impede development, and therefore, the problem of this study is the low and receding performance of students in Auto-Mechanic Works. It is against this background that this study seeks to determine the effect of Problem-Based and Jigsaw Instructional Strategies on Students Performance in Auto-Mechanic Works in Technical Colleges in Edo and Delta State.

Method of Study

Quasi-experimental research design was adopted for this study. Specifically, the researcher adopted the non- randomized control group design which involved two groups (experimental 1 and

control). The schools assigned experiment 1 and control group, had more male and female students offering Auto-mechanic Works. This design is considered suitable for the study because there was no room for randomization. Therefore, intact classes were used to avoid disruption of normal class lesson.

Akuezuillo (2018) posited that in the school setting, it is not always possible to use true experimental research design in conducting educational research. This is because the school authorities may not allow the control or manipulation of intervening variables that might affect the result of the research study such as equating the two groups by assigning students to experimental and control groups.

Results

The results of the analysis are presented according to the order of the research question and hypotheses that guided the study. The research questions were answered and hypotheses tested with proper inferences.

Presentation Question 1: Is there any difference between pre- test and posttest of student taught Auto-mechanic works using problem based instruction strategy and the conventional teaching method in technical colleges in Edo and Delta State?

Table 1: The Pretest and Posttest mean Scores of Students Taught Auto- mechanic Works using Problem-Based Instructional Strategy and Conventional Teaching Method

Treatment Method	N	Pre-Test Mean Score	Post-Test Mean Score	SD
PB	35	32.89	65.54	11.1
CTM	25	30.80	46.40	7.02
Difference			19.14	

Source: Field Study 2020

Results presented in Table 1, show a pre-test and post-test of students' taught Auto-mechanic Works using Problem-based Instructional Strategy and conventional teaching method in Technical Colleges in Edo and Delta State. The pre-test and post-test mean scores of students

exposed to problem-based instructional strategy was 32.89 with a standard deviation of 11.1. The post-test mean score was 65.54, indicating a difference of 19.14. While, the pre-test and post-test mean scores of students exposed using conventional teaching method was 30.80 and 46.40 respectively, with standard deviation of 7.02. This analysis shows that problem-based instructional strategy had the higher mean than the conventional teaching method in technical colleges in Edo and Delta States

Table 2: ANCOVA table for test of Difference Between Variables: Problem Based and Conventional Method with Interaction Effect of the Treatment by Sex

SOURCE OF VARIATION	TYPE III SUM OF SQUARE	DF	MEAN SQUARE	Fr	SIG
Corrected model	17505.187	5	3501.937	48.084	.000
Intercept	9675.229	1	9675.229	132.881	.000
Pretest (Covariate)	4518.496	1	4518.496	62.658	.000
Instructional Strategies:					
PROBLEM BASED*	6163.091	1	6163.091	*85.824	.000
CONV. METHOD*	5407.034	1	5407.034	*74.261	.000
PB* CM*	12986.691	2	6493.346	*89.180	.000
Interaction Effect:					
PB* CM	322.007	2	161.003	*2.211	.746
Error	5388.001	74	72.811		
Total	289121.000	85			
Corrected total	22893.187	79			

R Squared = .746 (Adjusted R Squared = .739)

Interpretation of Results

Pre-test and Post-test of Problem-based Instructional Strategy and Conventional Teaching Method

Hypothesis 1: There is no significant difference between the Pre-test and Post-test score of Students taught Auto Mechanics Works using Problem-Based Instructional Strategy and Conventional Teaching Method in Edo and Delta States.

Table 2 indicates that F ratio of 85.824 for Problem-based Instructional Strategy at .000 level of significant. Thus, the null hypothesis was rejected. This implied that the alternate hypothesis of a significant difference between post-test mean score of students taught auto-mechanic works with Problem-based Instructional Strategy and those taught auto-mechanic works with conventional teaching method was retained.

Discussion of Findings

The findings from this study revealed that instructional methods had a significant effect on the performance of students. The results showed that, students who were taught Auto-mechanic Works using problem-based instructional strategy performed higher in post-test mean scores than those taught using the conventional teaching method. From this study, there was a difference in the performance Mean scores of students taught with problem-based instructional strategy and those taught with the conventional method. The findings of the study are in agreement with the findings of Johnson, Johnson (2015); Eghbal and Sima (2014) who found that problem-based instructional strategy had significant effect on the post-test academic achievement scores of students than the conventional teaching method. The findings of study are also in consonance with the finding of Duyilemi (2015), who conducted research on the effects of problem-based teaching method and conventional lecture methods on the achievement of Senior Secondary School Students in biological taxonomy. The study found that students taught with problem-based teaching method achieved significantly higher than those taught with conventional lecture method. The findings of this study are also in line with the finding of Osuyi (2021), who carry out a study tittle the effects of the Problem-Based Teaching Method (PBTM) on students' academic achievement in basic technology. The finding revealed that students taught basic technology with problem-based teaching methods performed better in their post-test mean scores than those taught with the conventional teaching method. Also, the finding indicated that the problem-based teaching method was more effective in enhancing the academic achievement of male and female students in basic technology. The findings of this study is also in agreement with the study of Hooker (2011) who carried out a study on the use of a Problem-based learning groups in developmental Mathematics classes to change the students' perceptions of mathematics and their success, the results show that there was an 80% increase in student completion rate compared to the control group. The findings of this study is also in agreement with the findings of Mkpama (2018) who carried out a study titled effects of using the class-wide problem-based and jigsaw teaching method on students mathematical problem-solving performance in elementary concepts in physics, the findings show that students taught with class-wide problem-based strategy performed significantly higher than students taught with jigsaw teaching method and the conventional teaching method. Similarly, Nnorom (2019); Bukari and Asiedu-Addo (2019) found that students taught using problem-based instructional

strategy performed significantly better than those taught using conventional teaching method which supported the finding of this study. The findings of the study are also in agreement with the findings of Majoka, Khan and Shah (2011) in their studies titled impact of Problem-based learning group and conventional teaching method on social studies, the study revealed that students taught social studies with problem-based learning groups performed significantly better than the conventional learning groups. The findings of this study is also in agreement with the finding of Nur (2015) who examined the effect of problem-based cooperative learning method on students' performance in the general certificate of education advanced level psychology, the result show that students taught psychology using problem-based teaching method performed significantly better after an interaction. The findings of this study is in consonance with Uygun and Tertemiz (2014); Espinoza and Sanchez (2014); Olpak, Balkaci and Arican (2018) who attested that problem-based instructional strategy students performed better than the conventional teaching method. The findings of this study also concur with the findings of Ebrahim (2016) in his study comparing the effect of teacher centered learning and problem-based collaborative learning the posttest was higher in the experimental group over the control group. The findings also coincide with the findings of Martins and Oyebanji (2015) who examined the effects of problem-based and conventional teaching methods on the cognitive achievement of integrated science students. The study revealed that students who were taught by using the problem-based method performed significantly better than those taught using conventional teaching method. The result of this study is also in line with Aidoo, Boating, Klssi and Ofori (2015) who found out that students taught chemistry with problem-based learning perform better than those students taught with conventional teaching method. Finally, the findings disagreed with the findings of Dalrymple (2016) who found no significant improvement in GPA grades of students as regards to the amount of group studying the subject.

Conclusion

In this study, it was found that problem-based and jigsaw instructional strategies had more positive effects on students' academic performance. This implies that problem-based and jigsaw instructional strategies are very effective in the teaching of Auto-mechanic Works. These strategies give students the opportunity to practice what they have learned to enhance their understanding while gaining one-on-one attention and discussion. In addition, these strategies enhance students' performance across all levels of cognitive and psychomotor domains, thus

establishing the efficacy in bridging the performance gaps among learners of various leaning abilities. Therefore, problem-based instructional strategy could be used in the teaching and learning of Auto-mechanic Works to enhance students' academic performance and mastery of knowledge and skills in Auto-mechanic Works.

Recommendations

From the findings of the study, the following recommendations were made:

a) Auto-mechanic Works teachers in Government Science and Technical Colleges (GSTC) should use Problem-based instructional strategy in the teaching of Auto Mechanic Works to enhance students' performance.
b) Government should provide training for teachers of auto mechanics on the use of Problem-based teaching strategy.
c) Government Science and Technical College administrators should provide instructional facilities for using PB instructional strategy. Also, Auto-mechanic Works teachers should be given opportunities for in-service training to equip them with the skills required in the use of PB and jigsaw instructional strategies for teaching Auto-mechanic Works.

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Teachers Qualification and its influence on Students' Academic Performance in Basic Technology in Edo State, Nigeria

By

Isemede Ose-Ahiante Patricia

Dr Mrs Isemede Ose–Ahiante Patricia is a Lecturer at Department of Estate Management, Edo State Polythecnic. Usen

Abstract

The study examined the influence of teachers' Qualification on students' academic performance in Basic Technology in Edo State. The Co relational research design was adopted for this work. The population of the study consisted of 37 teachers, drawn from junior secondary school in Edo State. The sample size was 37 teachers were selected for this study through simple random sampling technique. The instrument for data collection was "Basic Technology Teachers and Environmental Factors Questionnaire (BTTEFQ)". The teachers were required to tick the appropriate responses applicable to them and answer questions like: sex of the teacher. One of findings of study reveals that teachers' qualification does influence academic performance of students in Basic Technology in Edo State.. From the results of the study, researcher recommends that government should provide and equip science laboratories and workshops in all secondary schools.

Key-Words: *Qualification, Academic Performance, and Motivation*

Background to the Study

Education is the process by which the society assists individuals to learn and understand the heritage of the past, participate productively, take part productively, positively, and contribute to the development of the society. Education is the wise, hopeful and respectful cultivation of learning undertaken in the belief that all students have the chance to share in life, it is cultivating hopeful environments and relationships for learning. Educators need to pay attention on creating environments and relationship for learning in a more friendly way. Education is all about the belief that all share in life and a picture of what might allow people to be happy and flourish which is a concern to act respectfully, knowledgeably, and wisely, joining with others to build relationships and environment for learning, at the various levels of education (Smith, 2015). Technical, Vocational Education and Training is a type of education which provides the learner with knowledge, competencies, and power to be self-employed (UNESCO & ILO, 2018).

Pre-vocational education is a component of Technical, Vocational Education and Training that is at the junior secondary school level in Nigeria, it is an aspect of TVET that introduce children and youth to the world of work through exploratory activities with tools and machinery,

materials, and processes of modern technology as part of general education for effective living in an environment which has become a technologically built (Uwameiye, 2010). The exposure of students to pre-vocational education also helps them explore their interests and aptitude, through prevocational education, students may also develop desirable traits and aptitudes such as pride in productive work and respect for authority (Uwameiye, 2017). At the junior secondary school stage of education in Nigeria, Basic Technology is a component of pre-vocational education and is one of the subjects that is made compulsory in Nigeria. The main purpose of Basic Technology at this stage is to make the young students to make change in the environment where they are learning. Basic Technology is taught in the Junior Secondary School level providing broad field of knowledge for a linkage for basic electronics, automobile, airflow, water flow, physics, chemistry, food preservation, ceramics, plastics, and building. The objectives of Basic Technology are to:

i. provide pre-vocational orientation for further training in technology;
ii. provide basic technological literacy for everyday living; and
iii. stimulate creativity and innovation (Federal Ministry of Science and Technology, 2010)

Whereas these objectives of Basic Technology are laudable, the environmental impediments such as school buildings, workshops, classroom, laboratories, equipment, furniture, library, schoolteachers etc., that may not allow for easy realization of the objectives.

Qualification of teachers teaching Basic Technology in Junior Secondary Schools is a major factor that can influence the academic outcome of students. A professional and competent teacher impacts knowledge effectively to students in their given field. It is what the students can achieve after being taught that provides a valid measure of the quality of teaching. Teachers teaching Basic Technology possess N.C.E, B.Sc. (Ed), M.Ed. and others in the relevant areas. The implication is that Basic Technology needs qualified teachers with good personal quality to guarantee a robust student academic performance. Oyanoafoh (2013) stated that good teachers are those that have both personal and academic qualities, and they can assist the learners to attain high academic performance.

Academic performance of student is the learning outcomes of the students which includes knowledge, application, skills, and ideals acquired and retained through their course of studies within and outside the classroom situation Himan, (2018). The variables that are capable of influencing the academic performance of students includes teachers and environmental factors

Udoh, (2013).The student's academic performance is measured in definition and objective of the subject, the graduation time rates of the students, the total time taken to complete the task and the educational system, this is measured using grade point average (GPA) Abdullah (2016) Stated that academic performance is the knowledge gained by the students through marks awarded by the teacher to be able to achieve educational goals over a specified time.

Difference exists in the learning outcomes of different group of students, for example, male and female, Students' academic performance is usually the result to show the extent to which a student has achieved as to specific goals in any academic environment such as schools, Colleges and University. If any educational institution must succeed the academic performance of students most have high rate when measured. Apart from the educational institution, parents also have high expectations from their children in regard to their academic performance because they have the understanding that better academic results may on the long run lead to better career option and future security,

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Purpose of the Study

The purpose of the study was to find out the influence of Teachers Qualification on students' academic performance in Basic Technology in Edo State. Specifically, the objective of the study is to find out the: Influence of teachers' qualification on students' academic performance in Basic Technology in Edo State.

Population of the Study

The population of the study consists of all the teachers (886) teaching Basic Technology in the three senatorial districts of Edo State drawn from both the urban and rural schools in each of the three senatorial districts.

Sample and Sampling Technique

The sample size for this study was 33 teachers of Basic Technology. They were selected through simple random sampling technique. A Local Government Area from each senatorial District which was selected from the following; Owan East from Edo North, Esan Central from Edo Central, Egor from Edo South, From the local government areas, 10 schools were randomly selected from each L, G. A. through balloting without replacement sampling technique from urban and rural secondary schools.

Instrument for Data Collection

The Data that was used for this study was collected with the following instrument:

1. Basic Technology Teachers and Environmental Factors Questionnaire (BTTEFQ)

Basic Technology Teacher and Environmental Factors Questionnaire (BTTEFQ)

The Basic Technology Teacher and Environmental Factors Questionnaire (BTTEFQ) was demographic in nature to collect data from teachers. The teachers were required to tick the appropriate responses applicable to them and answer questions like: sex of the teacher, location of school, highest qualification whether, NCE, B.Scs. (Ed), M. Ed, Ph.D. in Vocational and Technical Education.

Method of Data Analysis

The data collected from the schools were analyzed using descriptive statistics such as frequency/percentage, mean/standard deviation and inferential statistical tools.

Presentation of Data

1. **Research Question:** What is the influence of teachers' qualifications on students' academic performance in Basic Technology in Edo State?

Table 1: Influence of teachers' qualification on students' academic performance in Basic technology in Edo State
Percentage Distribution of Teachers' Qualification

		Frequency	Valid Percent	Cumulative Percent
ValidNCE		29	87.89	87.89
	M.Ed.	2	3.03	3.03
	B.Ed.	3	9.09	9.09
	Ph.D.	0	0	0
Missing System		0		
Total		33		

Table 1: indicates that 29 NCE teachers responded to the questionnaire representing 87.89%, two M.Ed. teachers responded representing 3.03%, 3 BSc, Ed teachers responded representing 9.09%. Ph.D. teachers did not respond.

Analysis:
Table 2: linear Analysis of Teachers' Qualification and Academic Performance

Model	Sum of squares	Df	Mean Square	F	Sig.	Decision
Regression	2.74	1	.914	1.677	.0427[a]	Rejected
Residual	850.54	1680	.545			
Total	900.35					

a. Predictors: (Constant), Teachers' Qualification
b. Dependent Variable: Academic Performance

Table 2: above shows F-value of 1.677 and a P -value of .0427 testing at an alpha level of .05; the P-value is less than the alpha Level of 0.25. This goes to show that teacher's qualification is an

important factor that influence academic performance.The analysis revealed that teachers' qualification significantly influences school students' academic performance in Basic Technology in Edo State.

Discussion of Result

The findings of the analysis show that there was no significant influence of qualification of the teacher and students' academic performance in Basic technology. The findings are in line with the findings of the study carried out by Kosgei, Jairo, Odhiambo and Ayugi (2013) and that of Sarwal and Muhammad (2014) which revealed that there is no significant relationship between teachers' qualification and students' performance. The study of Yusuf and Dada (2016) contradicts the current finding; their work revealed that there was a difference in the performance of students taught by professional and qualified teachers. Similarly, this study supports Ewatan and Ewatan (2015) revealed that qualification of the teacher has significantly influence students' academic performance also contradicts the results of this study. The results of this study contradict Abe (2014), which found that a significant difference exists in the performance of students who were taught by professional teachers and those taught by non-professional. Ojera (2016) and Jacobson (2012) also revealed that there is a significant influence between trained teachers and students' performance. In related studies of Akinsola (2010) and that of Agharuwhe (2013) showed that teachers qualification influence students' academic performance significantly

Conclusion

The objective of this work was to examine the influence of teacher qualification on students' academic performance in Basic Technology in Edo State. The finding showed that teacher qualification is very important to students' academic performance.

Recommendations

Based on the findings of this study, researcher recommends that:

i. Edo State Government should ensure that only professional and qualified teachers are employed to teach Basic Technology.

ii. Teachers should be employed based on their qualification irrespective of whether they are male or female.

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Critical Competencies Needs in Heavy Duty (Diesel) Engines Repair/Maintenance for Youth Employment and Nation Development in Lagos State

[1]Uwaifo Victor Oziengbe (Ph.D)*,[2]Oviawe Jane Itohan(Ph.D), [3]Ajao Adeyemi Sarafa (Ph.D)

[1] vuwaifo2009@gmail.com*, [3]yemiajao2003@gmail.com

[1,2,3]Department of Technical and Vocational Education, Ambrose Alli University, Ekpoma, Edo State,Nigeria.

Abstract

This paper investigated critical competencies needs in heavy duty (diesel) engines repair/maintenance for youth employment and nation development in Lagos State. Three research questions guided the study with survey research used to obtain responses from the target population of 69, comprising 24 lecturers/instructors of automobile technology in public colleges of education and technical colleges as well as using 45 informally trained heavy duty diesel engine mechanics, structured questionnaire was used as instrument. Validation of the instrument was carried out by experts; sample size was determined by the use of Yaro–Yamane formula. There were 79 items with sixty–nine copies of the instrument were administered while all these copies were retrieved. Analysis of the retrieved copies was done using mean and standard deviation to find out the needed competencies in the repairs and maintenance of heavy duty diesel engines for youth employment and national development. It was concluded that all the identified competencies on maintenance, repairs, tools and equipment in this study needed to be provided to conduct meaningful and result–oriented competency training in heavy duty diesel engine repairs and maintenance in Lagos State South- West, Nigeria.

Keywords: *Diesel Engines, Youth Employment, National Development*

Introduction

Commercial production of goods in organized industries leads to the various economic activities which boost the economy of a country. Derived from these productive ventures are youth employment, economic empowerment, reduction in criminal activities, and economic stability in commensurate proportion and general poverty reduction (Adebayo, 2013).One of the essential requirements for meaningful industrial activities is the availability of the right type of transportation (Badejo, 2005). Haulaging and movement of heavy goods including petroleum products, the Nigerian main source of economy are synonymous with the use of heavy goods vehicles (HGVs). Because of the rugged, heavy nature and space/distance needs of these transport services, petrol or

spark ignition engines are not suitable to be used as the prime-movers of the heavy goods vehicles. Diesel or compression ignition engines are used instead.

Most developed and developing economies are heavily investing in their youth in form of entrepreneurship training and skill development. In a country like Nigeria, where unemployment, under employment rates are high among nations of comparable statistics, it is only wise and pertinent to grasp the opportunities that are abound in the repair and services of diesel engines without which no meaningful economic planning, especially in distribution can thrive optimally (Dumbiri, 2011). Unfortunately, this has not been so.

According to Sowande and Olaitan, (2000), youths are young persons in their teens or early twenties. Youth unemployment is today recognized globally as one of the problems that could attain risky proportions, especially in developing economies in years to come, Famino and Okeke, (2009). The United Nations General Assembly Report (1995) puts the age range of youths at 15 – 24 years. This may slightly vary from culture to culture, from economy to economy, but one common factor remains that youths, according to UNGAR, (1995) have characteristics that can be exploited for skill acquisition. These may include, but not limited to less fear of failure, more energetic, more forthcoming for idea sharing and generation, healthier than adults, have sound memory and less prone to destructive tendencies of an adult. Consequently, upon this, UNESCO ,(2002) advocated for youth training in competency areas that are society needs especially in agriculture and technology as a way of minimizing unemployment, underemployment, poverty, crime rates, and youth restiveness (LASTVEB, 2010).

When there is shortage of skilled manpower required in a particular occupation and demand is prevalently seen to outweigh supply, the skill needed in this occupation is said to be critical, especially when an alternative supply is difficult to come by; this according to Mukora, (2008) will sooner than expected lead to sectional deficiency and economic imbalance.

The Highly Qualified Manpower Immigration Programmes (HQMIP) used by the British, Australian and Canadian Governments are the result of critical skill shortages which are mainly meant for artisans and tradesmen concessional immigration to these countries. Critical skills in the word of the National Board for Technical Education (NBTE), (2014) are those occupational areas that have great impact on the socio–economic wellbeing of the country and which have in the recent times, experienced very little training participation among the youths while current job holders are aging and becoming depreciated in strength, this resulting in sustained scarcity of such skills.

Sowande, (2002), defined competency as the needed skills, habits, attitudes, value – system and occupational appreciation by a workman to render his expected services to his clients or employers.

Characteristics and Peculiarities of Diesel Engine

Diesel engine as popularly called is a prime mover which derives its power from the burning of air and fuel; this is known as combustion according to Giri, (2011). It is technically called compression ignition (CI) engine because its combustion depends on the compression of charged air and fuel sprayed into an engine compartment called the combustion chamber with no use of electric spark, but only mechanical devices of injection pump and injection nozzles. The fuel used for the diesel engine is called Automotive Gas Oil (AGO) Hilier, (1985). It is made from crude oil just as gasoline or premium motor spirit (PMS). Diesel fuel used undergoes distillation and cracking process to obtain the end (fuel) product from the crude oil, Yadav, (2009).

The use of diesel engine cuts across the various industrial, civil engineering, transportation and power plants, industrial plants such as cranes, forklifts, hydraulic lifts, heavy duty generators, for civil engineering, graders, bulldozers, angledozas, motorized sweepers, jackhammer, tractors, concrete mixers, dumpers and others. In transportation, diesel engines are used for prime movers that pull the train coaches, ship engines, trucks, trailers, fuel tankers, mini trucks, buses, mini buses, cars and tricycles are installed with diesel fuel powered engines.

Diesel engines were not widely used till the tail end of 1960's as they are today, but the tide began to turn according to Horbye, (1987) when the Clean Air Act forced researchers to direct their attention to the diesel powered engines. The turns of tide increased during the fuel crises in the winter of 1973/74 during the Arab Oil embargo. Cars powered by diesel engines began to emerge in addition to heavy equipment and machinery use, Duffy, (2005), American companies such as caterpillar, Detroit – Diesel Allison, Cummins, Mack, international Harvesters Company Continental, J. I Case, John Deere, Allis – Chalmas and Waukesha were globally known for the production diesel engine and its related equipment, machines etc. just as Ingesoll-Rand, Cooper-industries, Studebaker – Worthington, Fairbanks-Morse, Dresser Industries and general Electric.
Diesel fuel is a self–igniting, not using electric spark plug, but engines that run on it have the following characteristics, Dolan, (1983).

a) They enjoy unrestricted inflow of oxygen
b) Heavy component parts for a more rugged operations

c) Use of mechanical equipment for fuel injection
d) Noisy engine partly due to cracking of dirty fuel particles and movement of reciprocating parts
e) Smelling, thick but less toxic exhaust fume than gasoline
f) Engine attracts both internal and external deposits of dirts and carbon deposit requiring up to date attention (maintenance)
g) Component parts are bigger and occupy more space
h) Initial cost is higher
i) Repair/maintenance requires more specialized training, especially with the use of Electronic Control Unit (ECU)

Because of its commercial and industrial importance, diesel engine is installed to prime–mover train coaches, ship, haulage vehicles called "heavy goods vehicles (HGVs)", trucks, agricultural implements, mini – trucks, buses, fuel tankers, cars, high capacity generators.

As it is today, Nigeria's electricity supply system is in a state of disarray. This has given room to indiscriminate ownership of various sizes, makes of electric generators which some elites have also used as status symbol, has also pushed prices of consumer products high due to operating cost. Some entrepreneurs and public/civil servants have also seen it as a conduit pipe since government business is also mainly carried out with the use of generators that operate on diesel fuel as main source of power supply.

Imported goods from Europe and America are loaded with heavy goods vehicles from the sea ports to various destinations. Fuel bearing tankers are also major mode of nationwide distribution of these essential liquids. These are some major sources of consumption of automobile gas oil popularly called diesel fuel used to power compression ignition (diesel) engines which also enjoys the use in few cars and tricycles.

Dolan, (1983) stated that the repair/maintenance requirements for diesel engines far outweighs those for gasoline installed engines, he therefore, posited that various specialization areas in diesel repairs/maintenance are:

a. Injection equipment maintenance/repair
b. Turbo/supercharger repairs
c. Engine servicing

d. Engine repairs
e. Electrical repairs for starter motor, charging system and wire houses
f. Electronic diagnosis/repair (for ECU installed engines)
g. Radiator repairs (for water cooled engines)
h. Machining (for crankshaft/camshaft, boring and extractor of broken bolts)

Compression Ignition (diesel) engines are used in a variety of ways globally.

The major areas are in the industrial machines, transport, power civil engines and agriculture. One of the operational characteristics of this important type of internal combustion (heat) engine is the emission of toxic smoke, mainly Nitrogen Oxide (NOx) and Carbon Monoxide (CO), which have negative effects on animals and plants. This has been an addition to the issue of global warming as a result of depletion of the Ozone layer. Consequent upon these, there had been global campaign, John, (2002) for radical strategies for the reduction of toxic contents of exhaust fumes, as end products of diesel engine combustion, and other causal factors. Many strategies have been technologically cleansed for emission control in diesel engines, they include, but not limited to; use of catalytic converter to neutralize the toxic content in exhaust smoke, exhaust gas recirculation system, positive crankcase ventilation system, heated air – inlet system, air injection system and computerized emission control system. Ajao (2011). This has placed a lot of global importance on the legal ad commercial necessity of prompt diesel engine repair and maintenance thereby, making available occupational opportunities.

This has placed a lot of global importance on repair and servicing of diesel engines, Nigerian inclusive in spite of the enormity of available specialized occupational areas in diesel engine technology, industrial and domestic importance, youths in Nigeria have shown very little interest in these money spinning job areas.

Statement of the Problem

Engaging in employment and employable skills by youths of this country has become a major problem as most of them are grossly involved in anti-social vices. The various introductions of Electronic Control Units (ECU), and On-Board Diagnostic System (OBD) into diesel engine operations has brought modernity which school leavers and graduates alike can explore in choosing an occupational specialization that will earn a living for them. Fortunately also, issues like heavy

parts, associated dirty characteristics of diesel engines have been partly addressed by the introduction of computer and information technology by size and weight reduction of parts.

Youths can take the advantage of the opportunities available in the maintenance and repairs of diesel engines not only to be occupied legally, but also to earn reasonable living, help to reduce youth restiveness and unemployment currently prevalent in the country today and contribute to the overall development of the society.

Purpose of the Study

The main purpose of this study is to highlight diesel engines repair/maintenance needed competencies in Lagos State. Specifically, this paper:

a. find out required competencies needed by youths to repair diesel engines
b. identify required skills and competencies needed by youths to carry out maintenance in diesel engine
c. identify some basic tools/equipment required to repair/maintain diesel engines.

Research Questions

This study was guided by the following research questions

(1) What competencies are required by youths to carry out maintenance works in diesel engines?
(2) What competencies are required by youths to carryout repair works on diesel engines?
(3) What competencies are required to identify the basic tools/equipment required to carry out maintenance/repair of diesel engines?

Methods

This study employed the descriptive survey research design. According to Uzoagulu (2011), survey research used to collect, organize and analyze data, describing them as they are in their natural setting with focus on people, their opinions, attitudes, motivation and behaviour.

The choice of this design was to allow for collection of requisite data for the study from automobile technology lecturer/instructors and the informally trained heavy duty mechanics in Lagos State on the critical competencies needed by youths for diesel engine repair and maintenance for their self or paid employment. Population sample for this study was drawn from lecturers/instructors of

automobile technology in the two colleges of education and technical colleges as well as the informally trained practicing automobile technology mechanics. This comprised 24 heavy duty automobile technology lecturers and 45 informally heavy duty mechanics. The selection of informally trained mechanics was done with stratified sampling because there would be bias if mechanics handling only one type of diesel engine were included. Consideration was given to five types/makes of diesel engines to ensure brand representativeness.

For this study, 78 question items on critical competencies in repair maintenance and tools/equipment were developed in a structured form. A, B and C. Section A contained a letter of introductions to the respondents, section B contained personal details of respondents while section C comprised the critical competencies needed by youths in Lagos State for the repair/maintenance of heavy duty diesel engines and the required tools/equipment. The question items were structured and each item of question was assigned a four – point likert scale of highly necessary, (4) necessary (3) seldomly necessary (2) and not necessary (1). A target population of 69 was taken from the 84 available respondents through the Yaro – Yamane formula ($n = N/I + N(e)^2$). The validation of the instrument was done by two lecturers from Adeniran Ogunsanya College of Education automobile technology department and one lecturer in the Faculty of Mechanical Engineering of Lagos State University, Epe Campus. All the copies of the questionnaire delivered to the respondents, 69 copies by two research assistants were retrieved, giving a 100% return rate.

Data collected for this study were collated, analysed and presented with the use of mean statistics to answer the research questions. Items that rated from 2.5 and above were accepted as needed, while any item that rated below 2.5 were rejected.

Results

Table 1: Competencies required By Youths to carryout Maintenance Works in Diesel Engines

S/No.	Items	X	SD	Remarks
1.	Check battery for current connection	3.52	0.89	Accepted
2.	Check the battery voltage	3.14	0.83	Accepted
3.	Stop fuel leakage from tank, filter or connection	3.54	0.93	Accepted
4.	Replace fuel filter as necessary	3.80	0.47	Accepted
5.	Manually determine oil change due time/date	3.03	0.68	Accepted
6.	Change the oil filter, engine oil and refill correctly	3.67	0.58	Accepted
7.	Bleed the fuel system to eliminate air lock	3.81	0.30	Accepted
8.	Replace battery terminal clips	3.56	0.69	Accepted
9.	Check radiator for leakage manually	3.62	0.73	Accepted

10.	Fill the radiator to required coolant level	3.68	0.74	Accepted
11.	Mix water and additive in correct ratio	3.34	0.82	Accepted
12.	Manually determine bad air cleaner	3.40	0.86	Accepted
13.	Replace air cleaner element with new one	3.83	0.38	Accepted
14.	Check drive belt tension	3.74	0.72	Accepted
15.	Replace bad drive belt	3.81	0.64	Accepted
16.	Manually determine non–working injectors (engine miss)	3.31	0.74	Accepted
17.	Know operative/inoperative fuel shut–off solenoid	3.32	0.81	Accepted
18.	Recognize dash – board fault code	3.30	0.43	Accepted
19.	Observe necessary safety precautions	3.26	0.78	Accepted
20.	Recognize right tools for jobs	3.55	0.79	Accepted
21.	Be able to replace fuel pipes, hoses and clips	3.19	0.94	Accepted
22.	Be able to eliminate noise resulting from drive belt/pulley friction	3.67	0.61	Accepted
23.	Use AVO meter for circuit test	2.89	1.15	Accepted
24.	Use scanner for further diagnosis	2.88	1.14	Accepted

All the 24 items of question as represented by the data were accepted as needed as critical competency items for youth employment in Lagos State in the repair and maintenance of heavy duty diesel engines. The mean values in this table range from 3.8 – 2.88. The standard deviation also revealed that they are within level of variability as shown in the range 0.30 – 1.15. This however, is still in agreement that all the skills itemized are needed for critical competency for youth training in heavy duty automobile mechanics in Lagos State.

Table 2: Competencies Required by Youths to Carry out repair Works on Diesel Engines

No.	Items	X	SD	Remarks
25.	Be able to check for battery voltage, current and resistance using AVO meter	3.33	0.83	Accepted
26.	Determine immediate and remote cause(s) of fuel leakages	3.54	0.87	Accepted
27.	Remove, check on – site some injector pump and nozzle components	3.26	1.03	Accepted
28.	Time injector pump and connect high pressure pipes correctly	3.17	1.1	Accepted
29.	Know how to use AVO Meter for detecting electrical faults	3.21	0.81	Accepted
30.	Be able to use engine scanner to detect ECM/engine related faults	3.01	1.41	Accepted
31.	Interpret fault diagnosed or codes for necessary repairs	2.94	0.99	Accepted
32.	Be able to dismantle and reassemble the engine parts	3.52	0.68	Accepted
33.	Recognize wears, broken parts, unwanted deposits etc.	3.20	1.29	Accepted
34.	Clean, grind and assemble valve mechanism.	3.14	1.11	Accepted
35.	Test and set the valve after assembly for possible leakage	3.72	0.48	Accepted
36.	Assemble the engine parts correctly	3.28	0.87	Accepted

37.	Time the crankshaft/camshaft gear correctly	3.48	0.83	Accepted
38.	Time the injector pump system correctly	3.69	0.95	Accepted
39.	Time the valves correctly	3.30	1.01	Accepted
40.	Mount the engine on applicable chassis	3.03	1.05	Accepted
41.	Start the engine, tune and test	3.18	0.66	Accepted
42.	Know how to mount injector pump on test bench	3.45	0.78	Accepted
43.	Know how to connect nozzle on tester	3.19	0.79	Accepted
44.	Be able to recognize bad fuel/oil	3.26	0.83	Accepted
45.	Use the right tools for the right job	3.79	0.41	Accepted
46.	Know and apply safety precautions appropriately	3.16	0.96	Accepted
47.	Ready to know more on the job	3.13	0.97	Accepted
48.	Carry test/repairs on charging system	3.03	1.01	Accepted
49.	Carryout test/repairs on starting system	3.36	0.84	Accepted
50.	Correct cooling system faults through repairs and replacement	3.17	1.11	Accepted
51.	Be aware of part–selling locations	3.51	0.69	Accepted

All the 27 items of questions in this table are accepted as being needed having satisfied the criteria for selection. The mean values range between 3.79 – 2.94 while there also occurred some level of within variability as shown by the standard deviation which ranged between 0.41 – 1. 41. It can also be submitted that all the items met the selection criteria of 2.50 and above. This by interpretation means all the items are required for critical competency in heavy duty auto mechanic repairs and therefore, are accepted.

Table 3: Competencies Needed for Identification of the Basic Tools/Equipment required to carry out Maintenance/Repair of Diesel Engines

S/No.	Items	X	SD	Remarks
52.	Heavy duty open wrenches 6by 7mm – 42mm	3.59	0.75	Accepted
53.	Heavy duty close wrenches 6by 7mm – 42mm	3.44	0.91	Accepted
54.	Combination wrenches 6by 7mm – 42mm	3.51	0.72	Accepted
55.	Adjustable wrenches 27, 29, 12, 1	3.19	0.77	Accepted
56.	Allen (Key) wrenches 38, 11, 17, 2, 15	3.20	1.0	Accepted
57.	Socket wrenches 41, 10, 9, 9	3.20	1.0	Accepted
58.	Socket handle 41, 11, 7, 9	3.24	1.0	Accepted
59.	Ratchets for sockets 51, 3, 6, 9	3.39	1.10	Accepted
60.	Extension for sockets 47, 16, 5, 1	3.58	0.79	Accepted
61.	Screw drivers (various types)	3.74	0.61	Accepted
62.	Plier (set)	3.69	0.46	Accepted
63.	Hammers (set)	3.08	1.03	Accepted
64.	Chisels	3.05	0.98	Accepted
65.	Pinches	2.89	1.18	Accepted
66.	Files	3.36	0.78	Accepted
67.	Saw with blades	3.69	0.57	Accepted

68.	Vice (for holding/cutting)	3.30	0.87	Accepted
69.	Work bench	3.26	0.90	Accepted
70.	Jacks	3.60	0.89	Accepted
71.	Flaring tools	3.30	1.05	Accepted
72.	AVO meter	2.70	1.40	Accepted
73.	Scanning tools	3.23	1.98	Accepted
74.	Nozzle tester	3.78	0.57	Accepted
75.	Injector pump calibrating machine	3.50	0.65	Accepted
76.	Safety wears	3.30	0.86	Accepted
77.	Battery charger/jumper	3.13	0.92	Accepted
78.	Hydrometer	3.01	1.0	Accepted

All the 27 question items in this table were accepted based on their mean ratings ranging from 3.78–2.70. The standard deviations range between 0.57–1.98 which indicates that there was some variability in the agreement among the respondents on some items. All the items were however accepted as being necessary for tools/equipment needs in the repair/maintenance of heavy duty diesel engines in Lagos State.

Result and Discussions

Results of this study showed that the 24 competencies for the maintenance of heavy duty diesel engines were necessary and agreed with. 27 competencies for heavy duty diesel engines repair were also necessary and agreed with. Findings also revealed that the 27 competencies on recognition of tools/equipment needed to carryout maintenance and repair works on heavy duty diesel engines were also agreed with.

These findings corroborate the findings of a study carried out by Ogbuaya, Bakare and Adelaja (2010) in mechatronics skills required for integration into Electrical/Electronic Engineering programmes in Polytechnics for sustainable employment of graduates in contemporary Nigeria where the importance, economic benefits and industry necessities of the mechatronics skills were highlighted.

Also, supporting the findings of this study is the study carried out by Owodunni, Baba Doma, Simeon and Onatunde (2014) on maintenance of vocational and technical education workshop tools and equipment for effective strategy for educational growth and nation development. They concluded that the major problem faced by Nigerians was how to imbibe maintenance culture into our daily lives leading to wastage of government, institutional and

personal properties which has led to closure of many companies/industries and also resulting in unprecedented rate of unemployment and its associated negative consequences.

Conclusion

As supported by the results of this study on the "critical competencies needed in heavy duty (diesel) engines repair/maintenance for youth employment and nation development in Lagos State, the competencies are needed to empower the youth, contribute to the nation's economy, reduce restiveness resulting from unemployment and keep both environmental and industrial assets in healthy state.

Recommendations

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

1. Government at the three tiers should encourage youth entrepreneurial ventures to encourage youths' interest in skill acquisition
2. Parents' should be involved in seeking career guidance for their children to prevent occupational mismatch.
3. Private organizations should include youth skills acquisition programmes as part of their corporate social responsibility (CSR)
4. Trade Associations and Professional Bodies relating to Automobile Mechanic Works should participate in the process and efforts at training more youths in the identified important occupational areas.

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Effects of Demonstration Teaching Method on Students Academic Performance in Electrical Installation and Maintenance Works in Technical Colleges in Edo State

By

Ogbebor Samuel Osamede
08078180039
Ogbebor@aauekpoma.edu.ng
Dr (Mrs) Jane Itohan Oviawe
08055601983
Janeoviawe@aauekpoma.edu.ng
Department of Vocational and Technical Education
Faculty of Education
Ambrose Alli University

Abstract

This study investigated the effect of demonstration teaching method on the academic performance of electrical installations and maintenance works students in technical colleges in Edo State. The aim was to find out if there is difference in the performance mean scores of electrical installations and maintenance works students taught with demonstration teaching method and those taught with lecture teaching method. Two research questions were raised and their corresponding hypotheses formulated to guide the investigation. Quasi experimental design was adopted for the study. The population of the study comprised all one hundred and twenty-seven (127) technical students currently in vocational 11 offering electrical installations and maintenance works in the six (6) technical colleges in Edo State. The sample was made up of 61vocational 11 electrical installations and maintenance works students in the 2022/2023 session. Purposive sampling technique was used to select the sample. The instrument used for the study was student's achievement test titled Electrical Installation and Maintenance Works Achievement Test (EIMWAT). The data were collected with the instrument administered on the sampled students and analyzed using t-test and ANOVA statistics. The study established that there was a significant difference in the performance means scores of students taught with demonstration teaching method and those taught with lecture teaching method. It was also revealed that there was no significant difference between students taught demonstration method with respect to gender. Based on the findings, it was recommended that government should provide equipment's and facilities to enhance learning via demonstration teaching method in technical colleges. It was also recommended that parents should encourage their wards to study electrical installations and maintenance works irrespective of their gender.

Keywords: Academic performance, Demonstration teaching method, Electrical installation and maintenance work, lecture teaching method and Technical education.

Introduction

Technical and vocational education is used as a comprehensive term referring to those aspects of the educational process involving in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. (N.P.E., 2004).

The goals of technical and vocational education are to;

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

The range of courses in the technical colleges are; mechanical trades, computer craft practice, building trades, textile trades, printing trades, beauty culture trade, business trades and electrical engineering trades. According to the National Board for Technical Education Programme (NBTE, 2012). Electrical/electronic offers trade in; appliances maintenance and repairs, instrument mechanics and radio, television and electronics work, electrical installation and maintenance works. Electrical installation and maintenance work is concerned with the movement of electrons through conductor in an electric circuit. It consists of both domestic and industrial installation, installation of electrical machines and repairs. It aims and objectives is to equip the individual with the knowledge and understanding of;

1. Safety rules and regulation in electrical installation and maintenance work.
2. Electrical installation tools, materials and accessories
3. Wiring of buildings
4. Installation of electrical machines and repairs
5. Rewinding of electrical machines
6. Entrepreneurship skill in electrical installation and maintenance works.

The different methods that can be used in the teaching learning process include; lecture, discussion, individual method, demonstration, laboratory/experimental field trip, assignment, play way, peer teaching method, role playing, project, discovery teaching method etc. it has been observed that lack of instructional materials and facilities that are necessary in teaching electrical

installation and maintenance work has made the technical teachers adopted lecture teaching method which is control method and might not be able to adequately impact the necessary knowledge and practical skills on Electrical installation and maintenance work students. This teaching method which does not encourage students' active participation in the teaching and learning processes might be responsible for the poor academic performance of students in Electrical Installation Maintenance works over the years.

The lecture teaching method is usually a talk, or verbal presentation to a group of students by a teacher or guest speaker. (Ughamadu, 2006). This method of teaching allows the teacher to deal with a very large number of students at the same time. It leads to easy coverage of the syllabus or course outline. It is economical in terms of time and efforts. It helps the students or learners to develop and impose the ability to listen attentively, critically and with appreciation. However, it is not appropriate for teaching at the primary and secondary schools in that real teacher-students interaction is necessary for pronounced learning to take places, the slow learners are at disadvantage. It does not allow students to develop their own initiative.

Ughamadu (2006), defines demonstration method of teaching as a method of teaching that involves showing by offering examples of how something works or the steps involved in a process. In science, demonstrations are very useful in repeating experiments the students have already performed. This usually acts an excellent review with limited time and for a particular topic. Demonstration teaching methods saves time. Also, materials are conserved or economized. Demonstration teaching method can be useful in introducing a lesson and also to climax a lesson. Demonstration is an attention - inducer and a powerful motivator when used to introduce a lesson (Abdullahi, 2008). In teaching situations involving dangerous materials and fragile equipment's. Teaching still takes place as the teacher demonstrates. It allows the teacher to use activities that may be dangerous for students to carry out themselves. Demonstration by the teachers is useful to show how to use apparatus so as to prevent breakages and accidents.

Electrical installation and maintenance work is a practical subject that students could learn better when exposed to demonstration method because it brings the real-life situation into the classroom thereby motivating and inducing the student attention to learn with the available infrastructural materials and facilitates. The students could have the benefit of seeing, hearing and doing, that could facilitate their knowledge, understanding and improve their psychomotor skills in

electrical installation and maintenance works. This could result to improved academic performance of students in electrical installation and maintenance works.

Statement of the Problem

Electrical installation and maintenance works is a course which involves a lot of practical demonstration using instructional facilities and materials for improved academic performance of the students. It has been observed that the absent of instructional facilities and materials in technical colleges has forced most electrical installation and maintenance works teachers to used lecture teaching method rather than demonstration teaching method in imparting the necessary knowledge, understanding and practical skills to their students. This might be responsible for the poor academic performance in electrical installation and maintenance works in National Technical Certificate Examination (NTCE). What is not yet clearer to the researcher is the teaching method that would enhance students' performance in Electrical Installation and Maintenance works in technical colleges in Edo State, if technical teachers continue to use lecture teaching method to teach EIMW in technical colleges as it is the current practice, students might not improve on the academic performance in NTC examination. Also, students might not acquire the skills needed for employment.

Could the use of demonstration teaching method improve students' academic performance in EIMW? The researcher wishes to experiment on the use of demonstration teaching method if it will improve students' performance in Electrical Installation and Maintenance Works (EIMW).

Purpose of the Study

The main purpose of this study is to find out the effects of demonstration's teaching method on students' academic performance in electrical installation and maintenance works in technical colleges. Specifically, the study determined

1. Difference in the performance means scores of students taught electrical installation and maintenance works with demonstration teaching method and lecture teaching method.
2. Difference in the performance means scores of male and female students taught electrical installation and maintenance works with demonstration teaching method.

Research Question

The following research questions were raised to guide the study:

1. What is the difference in the performance mean scores of students taught electrical installation and maintenance works with demonstration teaching method and lecture teaching method?

2. What is the difference in the performance mean scores in electrical installation and maintenance works with students taught with demonstration teaching method with respect to gender

Research Hypotheses

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

H_{oi}: There is no significant difference in performance mean scores in electrical installation and maintenance works between students taught with demonstration teaching method and lecture teaching method.

H_{02}: There is no significant difference in the performance mean scores of students taught with demonstration teaching method with respect to gender.

Method of Study

The study adopted the quasi-experimental design involving two groups (experimental group and the control group) plus pre-test and post-test The experimental group (E) was taught with demonstration teaching method while the control group (C) was taught with lecture teaching method. Pre-test was carried out before the experiment and post-test was administered after the experiment on the two groups. The study was carried out in Edo states. The population of this study comprised all vocational II students of electrical installation and maintenance works in the six (6) technical colleges in Edo state. The sample size used for this study was sixty-one (61) VOC II electrical installations and maintenance works students in 2022/2023 academic session. Purposive sampling technique was used to select a sample size of 61 students from two schools based on the number of electrical installation and maintenance works students (48 males and 13 females) both, the two intact classes were randomly assigned to the experimental and control groups. The instrument used for data collection was Electrical Installation and Maintenance Work Achievement Test (EIMWAT) containing 30 objective questions based on the curriculum content for National Technical Certificate (NTC) II students. Each item has four options and each correct answer has 1 point while each incorrect answer has 0 point. The test items covered final sub circuit, conduit wiring, ducts and trucking system. The instrument was validated by three experts; two in technical education and one in educational measurement and evaluation from Ambrose Alli

University, Ekpoma. Test-re-test method was used to establish the reliability of the instrument whereby it was administered to an intact class of 26 NTC II electrical installation and maintenance work trades students of Government Science and Technical College, Asaba, Delta State twice within an interval of two weeks. The two sets of scores were correlated with the Pearson Product Moment Correlation formula and a reliability coefficient of 0.60 was obtained. The pre- test was then administered to the study sample after which the items on the instrument were re-organized before administering the post-test at the end of the experimental period.

The pre-tests and post-tests scores of the groups were collected and used in the analysis. Data were analyzed with the arithmetic mean and standard deviation to answer the research questions while analysis of covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance with the statistical package for social sciences (SPSS). The mean difference between the pre- test and post-test scores of the experimental and control groups was used to answer the research questions. Where the calculated F-value was equal or greater than the F-table value at 0.05 level of significance, the null hypothesis was rejected but where the F-calculated was less than F-table value, the null hypotheses was upheld.

Research Question 1. What is the difference in the performance mean scores of students taught electrical installation and maintenance works with demonstration teaching method and lecture teaching method?

Table1.Performance mean achievement of student in the experimental group and control group.

Groups	**Method**		**Pretest**	**Post test.**	**Mean Gain**	**% Mean Gain.**
Experimental	DTM	Mean	23.39	69.23	45.84	66.21
	N	40				
		SD	.9.45	11.64		
Control	LTM	Mean	26.10	37.15	11.05	24.27.
	N	21		52		
	SD	9.23		9.28		

Key: DTM = Demonstration Teaching Method
LTM = Lecture Teaching Method

Results

Table 1 shows that the pre-test and post-test performance mean scores of the experimental group are 23.39 and 69.23 with a mean difference of 45.84 while the control group's pre- test and post-test performance mean scores are 26.10 and 37.15 with a mean difference of 11.05. This means that the demonstration teaching method (DTM) was more effective than the lecture teaching method (LTM) since the mean difference of the group taught with it is greater than that of the group taught using LTM.

Research Question 2:

Table 2: Performance mean scores of students taught with demonstration teaching method with respect to gender.

			Pretest		**Postest**			
	Performance gain							
Group	Gender	N	Mean	SD	Mean	SD	Mean	SD
DTM	Male	32	23.08	10.35	66.15	12.50	43.07	14.44
	Female	8	23.69	8.86	72.31	10.26	48.62	12.74

Key: DTM = Demonstration Teaching Method

Result

Table2. Showsthatthepre-testandpost-test performancemeanscores of students taught with respect to gender. Male performance mean scores of pretest and posttest are 23.08 and 66.15 witha mean difference of 43.07 and SD =14.44 while the Female performance mean scores of pre-test and post-test are 23.69 and 72.31 with ameandifferenceof48.62 and SD =12.74Thismeansthatthedemonstration teachingmethod(DTM) is effective in the teaching of electrical installation and maintenance works students with respective to gender because no much difference between mean and SD of performance gain.

Research Hypothesis 1

H_{oi}: There is no significant difference in performance mean scores in electrical installation and maintenance works between students taught with demonstration teaching method and those taught using lecture teaching method.

Table3.ANCOVA table for students' for post-test mean scores by teaching methods.

Source	DF	Sumof squares	Meansof square	F-cal	F-tab	Sig	Remarks
Teaching	1	1622.4	1622.4	202.27	3.84	0.00	Rejected
Error	121	1909.6	8.023				
Total	122	26386					

Table 3 Shows that the F-calculated value of 202.207 is greater than F- table value of 3.84 for 1 df numerator and 121 denominator at 0.05 level of significance F(1,239) = 3.84 and $p < 0.05$. This shows that there is a significant difference in the mean performance in electrical installation and maintenance works test between students taught with DTM and those taught with LTM. The null hypothesis of no significant difference between the two groups was therefore, rejected

Research Hypothesis 2

There is no significant difference on the mean performance scores of electrical installations and maintenance works students taught with demonstration teaching method with respect to gender. Data collected in respect of hypothesis 2 are analyzed and presented in table 4

TABLE 4: SUMMARY OF ANCOVA ON THE DIFFERENCE BETWEEN THE PERFORMANCE MEAN SCORES OF STUDENTS TAUGHT WITH DEMONSTRATION TEACHING METHOD BASED ON GENDER.

Dependent Variable: Post test.

Source	1 squares.	Type 111 sum of	DF	Mean Square	F	P-Value.
Corrected Method	340.76[b]		2	170.38	1.29	30
Intercept	14612.02		1	14612.02	110.41	.30
Pre-test	94.61		1	94.61	.72	.41
Gender	235.85		1	235.85	1.78	.20
Error	3043.86		37	132.34		
Total	128000.00		40			
Corrected Total	3384.62		39			

a. Group = GTS
b. R Squared = .101 (Adjusted R Squared = .022)

Table 4 showed the summary of ANCOVA on the difference between the performance mean score of students taught electrical installation and maintenance works with the demonstration teaching method based on gender. The result showed that no significant difference exists between

the performance mean score of students taught with the demonstration teaching method when analyzed based on gender (F1, 23=1.78, p = 0.20, p>0.05). The null hypothesis two was retained at a probability level of 0.05 since the p-value is greater than 0.05.

Discussion of finding

It was observed from the finding that demonstration teaching method has a significant improvement on the performance of the students when compare to lecture teaching method in electrical installation and maintenance work. This is so because of the treatments given to the group which is totally difference from the control group. The results of this study is in accordance with (Onyeka & Okoye, 2023) that the students who were taught with the demonstration teaching method achieved higher, and that there was no significant difference in students' achievement scores based on gender .The results agreed with the findings of Adamu (2020) the result of the regression analysis indicates that the demonstration method has a positive effect on the performance of mathematics students in secondary schools in Makurdi Metropolis, Benue State, Nigeria. Also, the study by Ehiwario (2019) revealed that there exists a significant difference in the learning outcome between students taught with demonstration and those taught with lecture methods of instruction in favor of those taught with demonstration. Giridharan and Raju (2016) in their research work revealed that the demonstration strategy was found to be significantly better than the lecture strategy with regard to students' academic achievement. Likewise in consonance with the present study is the study carried out by Emmanuel (2019) whose results reveal that the demonstration method significantly improved students' performance.

The result in table 2 revealed that the female students who were taught in the experimental group using the demonstration teaching method does not achieve better than the male students who were taught using the same concept in that same group. When subjected to statistical analysis, the result in table 4 showed that no significant difference exists between the achievement mean score of the male and the female students taught with the demonstration teaching method (F1, 23=1.78, p>.05). As a result of this, $H0_2$ was therefore retained at a probability level of 0.05 since the p-value is greater than 0.05. This finding is in agreement with the findings of Umar, Tudunkaya & Muawiya, (2019), Ulelu (2015), Ehiwario, (2019) their result revealed no significant difference in the academic achievement of male and female students taught with the demonstration method. Also, the study of Emmanuel (2019) revealed that, there is no significant difference between the performance

of boys and girls when taught probability using the demonstration method. However, research findings of Effiong and Nse (2014) showed that the male students taught using a practical approach performed significantly better than the female students which do not agree with the findings of the present study.

Conclusion

Based on the findings of this study, it was concluded that the use of the demonstration teaching method enhanced the academic performance of students in Electrical Installation and Maintenance Works more than the lecture teaching method. It was also found that there was no significant difference in students performance scores based on gender using the demonstration teaching method.

Recommendations

The following recommendations were made by the researchers:

1. Electrical installation and maintenance works teachers should ensure the active hands-on participation of students during electrical installation and maintenance works classroom instruction.
2. Electrical installation and maintenance works teachers should use the demonstration teaching method in teaching electrical installation and maintenance works since it improves academic performance and is not gender biased.
3. Instructional materials that will aid the use of demonstration teaching method should be provided for both teachers and students in electrical installation and maintenance works.
4. Parents should encourage their wards to study electrical installations and maintenance works irrespective of their gender.

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Effect of Computer Aided Design on Students' Academic Achievement in Automobile Electricity Technology in Technical Colleges in Edo State

By

Aireruor Napoleon Eromosele

Department of vocational and technical education

Ambrose Alli University, Ekpoma

Abstract

This paper investigated the effect of computer aided design on students' academic achievement of automobile electricity technology in edo state technical colleges.The population of the study consisted of 86 students of automobile electricity technology in Technical Colleges in Edo State. Quasi pre-test, post-test group design was used for the study. Automobile electricity technology Achievement Test (AETAT) containing a total of 50 multiple choice questions formed the instrument of the study. Means and standard deviations were used to answer the research questions while t-test was used to test the null hypothesis at 0.05 level of significance. The result of the data analysis showed that there was a significant difference between the mean achievement scores of students taught AET using conventional method(X = 40.58) and those taught using CAD method (X = 60.42). Pretest and Post-test Mean Academic Achievement Scores of Male (X = 83.92) and Female (X=17.05). AET Students Taught automobile electricity operation and layout Using CAD. The results showed that there is a difference between the mean achievement scores of male and female students when exposed to experimental condition in favour of the male students in technical colleges in Edo state.The analysis also returned (t= 7.75) to reject the hull hypothesis at 0.05 level of significance. The study recommended among others that the use of CAD method of teaching should be adopted by technical teachers to improve the academic performance of Automobile electricity technology students in Edo State.

Keywords: *Computer Aided Design method, Academic performance, AutomobileElectricity Technologyand Conventional method*

Introduction

The major purpose of education is to equip recipients with knowledge and skills needed to function effectively, this contribute to the development of the society. Federal Government of Nigeria (2014)stated that the goal of education are purposely to develop the mental, physical and social abilities/ competencies and for the acquisition of appropriate skills as necessary for the individual to contribute to the development of the nation. These goals of education can be easily achievable through a well designed vocational and technical education programme.

Technical education is a comprehensive term used for those aspects of education systems involving the acquisition of practical skills, attitudes and knowledge related to occupations in

various sectors of economic and social life (NPE, 2014). Technical education prepares its recipients with skills, knowledge and attitudes necessary for effective employment in recognized occupation (Osami, 2013). According to Odogwu (2005) industrial technical education stresses preparation and participation for social value; it is pragmatic; thus trains both the head and the hands (Oranu, 2009). Federal Republic of Nigeria in her National Policy on Education (2013) described technical education as being a characteristic of education that promotes the acquisition of hands-on skills and applied scientific knowledge. Industrial technical education programme in Nigeria evolved response to technological and industrial needs of the people. It has received the backing of the National Policy on Education (NPE 2013). These fields of science, technology and engineering have gotten much to offer in the area of economic development and provision of modern conveniences to mankind. This is why governments, institutions and managements emphasized the need for practically oriented technical education curriculum and the need also to provide effective teaching of technical subjects in Nigerian schools (Nkeweke 2007). However, many government parastatals and institutions are continually becoming aware of the important roles that computer plays in the teaching and learning of technical subjects.The government is emphasizing on teacher's development as the key for implementing ICT in teaching and learning hence improving the standards of education. Indeed, as noted in an earlier study by Becker, (2001) among many other reasons for the uptake of ICTs in teaching, teacher attitude towards technology which stands out as one of the main reasons.

Technical colleges are established institutions where students are trained to obtain relevant knowledge and skills in different occupations for employment in the world of work (National Business Technical Education Board, NABTEB, 2016). Accordingly, the Federal Government of Nigeria FGN (2012), stated that technical college is a segment of technical and vocational education programme designed to train manpower in the applied sciences, technology and business particularly at craft, advanced craft and technician levels among others. This may involve manipulation of materials or objects in form of task performance, the simple use of spanner to tighten or unscrew a bolt and the complex process of using a set of tools in a process of dismantling and assembling of a motor electrical parts as applicable in automobile electricity trade programme. Thus, knowledge acquired from these technical trades could help the graduates' automobile electricity trade to secure gainfully employment. Technical colleges run different programmes among which are automobile electricity trade programme.

Automobile electricity technology as a teaching subject in technical colleges is is aimed at studying technical competencies in trade related areas which comprises of a storage battery, generator, starting (cranking) motor, lighting system, ignition system, and various accessories and controls. Yakubu (2014) observed that for a graduate to create job in the automobile electricity works, the graduate must have the following skills:the battery, the starter, and the alternator among others which are at a higher degree of demand in our society.Uwaifo (2015) also observed a career in automotive electricity technology will provide you with the skills to maintain, test, diagnose and repair automotive electrical components and systems in motor vehicle. Automobile electricity trade are electricalsystems usein vehicles,

including engine management, ignition, radio, carputers, telematics, in-car entertainment systems, and others. Ignition, engine and transmission electronics are also found in trucks, motorcycles, off-road vehicles, and other internal combustion powered machinery such as forklifts, tractors and excavators. It is a skill-oriented subject taught with emphasis on theory and practice. The philosophy of automobile electricity trade is to train competent craftsmen and master craftsmen in automobile industry.

Moreso, Automobile Technology trade is one of the Vocational Training offered in Government Technical Colleges across Nigeria. Classification of automobile trade in GTCs according to NBTE (2011) includes: Agricultural Implement Mechanics, Auto Electric Works, Vehicle Body Building and Motor Vehicle Mechanic's work (MVM). Motor Vehicle Mechanic's work (MVM) is designed to produce competent automobile craftsmen for the technological and industrial development of Nigeria. According to Ede and Olaitan (2010), the establishment of automobile technology and other occupational trades in GTCs is geared towards imparting basic knowledge as well as training skills leading to the production of skilled craftsmen who will be self-reliant and sufficiently competent to meet the demands in the world of work. The main component of automobile technology is structured on foundation and trade modules. These components according to NBTE (2011) includes: Service Station Mechanic; Engine Maintenance; Engine Reconditioning; Transmission; Suspension, Steering, Braking Systems and Auto-Electricity.

In other words, automobile technology students are expected to diagnose, service and completely repair any fault relating to the conventional automobile, assemble main unit to the manufacturers specification. The automobile is an indispensable means of transportation in modern societies. According to Gscheidle (2006), automobile also known as motor vehicle is a complex

technical system in which various subsystems operate in harmony to discharge a defined function. In the view of Omeji (2005), automobile electricity is a wheeled vehicle that carries its own motors, and has seats for both the driver and passengers. Assorted brands and models of automobiles therefore abound today on the Nigerian roads and are used for either public or convenience and luxury of personal transportation. The fast movement of technological change will render the current teaching method and training facilities of automobile electricity trade obsolete if computer technology is not introduced into it..

Computer assisted design (CAD) is the use of computer-based software to aid in design processes. CAD software is frequently used by different types of engineers and designers. CAD software can be used to create two-dimensional (2-D) drawings or three-dimensional (3-D) models.Computer-Aided Design is a new teaching and learning strategy in which the topics to be taught is carefully planned, written and programmed in a computer which could be run at the same time in several computer units. The instructions are also programmed in a computer disc, this could be played in either audio or video system for the student to learn the programmed at his /her leisure time and at his/her own pace. The potential benefit of Computer Aid design (CAD) cannot be underestimated in the contemporary world. The use of computers in the teaching and learning process is an important advancement in making high quality education universally available. This great change has resulted in a fresh perspective, innovativeness and creativity in the teaching and learning process. The utilization of CAD in teaching and learning particularly in automobile electricity trade will enables students to learn at their pace, encourage continuous interaction, promote flexible time scheduled for the students,' enhance automatic adjustment to ability levels of students motivation and could create an active learning environment.

The evolution of different types of equipment and new working automobile electricity material are possibilities in the 21st ' century. There will be decrease in the importation of automobile electrical products and increase in the production of automobile electrical products in automobile industry in Nigeria.To make the concepts of automobile electricity subject more concrete and real, it becomes imperative to employ Digital natives' theory. According to Prensky (2011) Digital natives are those born and raised in a digital and media-saturated world. They are immersed in this technology from their early years and so, it is a naturally acquire skills. It is acquired in the same way they pick up their first language. Currently, the Digital natives are being taught by immigrants who are, in effect, not of the same language. It is therefore, becomes

necessary for technical teachers to re-structure the classroom and workshop learning environment in way that incorporates computer based technology such as computer aided Design (CAD). Research studies carried out by Mustafa, Ashhan&Turgay, (2011), and Yusuf (2009) among others revealed that CAD package could improve academic achievement in some subjects, there is need to examine the effect of CAD on academic achievement of automobile electricity technology students in technical colleges in Edo State.

Academic achievement represents the outcome that indicates the extent to which a person has accomplished specific goals that were the focus of activities in instructional environments, specifically in schools. In teaching and learning situations, academic achievement is synonymous with academic performance. They could be seen as the outcome of students' effort in examinations.Tella, (2010) posited that academic achievement is used to measure student's success in educational institutions or how well students meet standard set out by examining bodies or the institution. Uwameiye, (2014) contended that a student's academic achievement is dependent on several factors such as, learning environment, instructional methods and teaching strategy, teachers' attitude and enthusiasm, as well as students' attitude and background. When suitable teaching method is employed during instructional delivery.

In studying students' academic achievement, sex cannot be ignored. Sex is an ascribed attribute that socially differentiate feminine from masculine. It connotes male and female or boys or girls in a given group of students. There is a general belief that boys are superior to girls in terms of cognition and logical reasoning as a result of certain factors and even superior in academic reasoning Shaibuand Mari, (2014).). But Uwameiye and Osunde, (2005) disagreed with this claim. The author posited that difference academic achievement between male and female students does not exist. With the advancement in technology, computerization and digitization, various methods of instruction have be devised and used to solve most these instructional problems.

Statement of the Problem

Joshua, Ekpoh, Edet, Joshua, and Obo (2004) revealed that despite the huge resources expended by Nigerian stake holders, mass failure in public examinations, especially in Science and Technology related areas which include automobile electricity technology, is still being recorded every year. Recent statistics of academic achievement among students of automobile electricity technology over a period of five years (2016-2021) corroborates this.It was observed by chief-

examiners of automobile technology (NABTEB, 2017) that this mass failure could be attributed to teachers' use of unsuitable instructional methodologies, especially traditional method, which is teacher-centred, in teaching the subject.

Hence, teachers need to adopt learner-centred instructional approaches that emphasize contextualized and constructive processes, and equip the students with higher-order thinking skills for easy adaptability and flexibility. This stresses that teachers in technical colleges would adopt innovative instructional methods that would improve the academic achievement of students in automobile electricity technology in technical colleges. To achieve this, various researchers have recommended that the Computer assisted design method could improve the achievement of students in technical colleges in Nigeria. In spite of the use of conventional method by teachers in technical colleges to ensure qualitative education at the technical colleges and bring about high quality products of students, there appears to be no improvement in the academic achievement of students in automobile electricity trade in Technical Colleges in Nigeria. The question now is, how students' academic achievement can be improved in automobile elctricity technology in technical colleges in Edo state? It is this gap that necessitated this study. This could be possible through a paradigm shift from conventional method (traditional method) to Computer aided design teaching method that could enhance technical and workplace skills in line with modern technology instructional approach. Hence there is the need to investigate the effect of Computer Assisted Design on academic achievement of automobile electricity technology students in technical colleges in Edo State.

Purpose of the Study

The purpose of the study was to determine the effect of CAD on students' academic achievement of automobile electricity technology in technical colleges in Edo State. Specifically, the study determined the:

1. Mean academic achievement scores of automobile electricity technology students taught skills in Automobile Electricity Technology with CAD and those taught with conventional teaching method in technical colleges in Edo state; and
2. Mean academic achievement scores of automobile electrical technology of Male and Female students taught skills in Automobile Electricity Technology with CAD in technical colleges in Edo state.

Research Questions

The following research questions guided the study:

1. What are the mean academic achievement scores in Automobile Electricity Technology with CAD and those taught with conventional teaching methodin technical colleges in Edo state?
2. What are the mean academic achievement scores of automobile electrical technology male and female students taught skills in Automobile Electricity Technology with CAD in technical colleges in Edo state?

Hypotheses

The following null hypotheses were tested at .05 level of significance:

1. There is no significant difference between the mean academic achievement scores in Automobile Electricity Technology with CAD and those taught using conventional method in technical colleges in Edo state.

Method

Quasi-experimental design was adopted for the study. Specifically, the pretest, posttest non-randomized control group design was adopted for the study. The design was adopted because it was not possible for the researchers to randomly sample the subject and assign them to groups without disrupting the academic programme and the time table of the technical colleges involved in the study. The study was conducted in technical colleges in Edo State which is located in the south-south zone of Nigeria. The population of the study was eighty-six (86) automobile electricity technology students in technical colleges in Edo State.

Purposive sampling technique based on availability of professionally qualified staff, computer facilities for teaching, regular electricity supply and willingness of regular teachers to participate as research assistance. One intact class was used in each of the five technical colleges giving a total of four intact classes. Simple random sampling was used to assign two intact classes to experimental groups and the other two intact classes to control groups. The groups for the study were coded group X and group Y comprising two experimental class and two control class each. Experimental class (Group X) consisted of 43 students and control class (Group Y) consisted of 43 students. Experimental class (Group B) consisted of 70 male students and control class (Group B) consisted of 16 female students.

The data were analyzed using arithmetic mean and simple percentage in answering the research questions. The real limits of numbers of the response mode were used to categorize the mean rating of responses. Decision was made in favor of any item that had a mean rating of 2.5 and above, while items that scored mean of 2.49 and below were taken as unimportant.

Intact class of automobile electricity technology Students	**Male**	**Female**	**Total**
Group A: Pre-Test and Post-Test Mean Academic Achievement Scores of Students taught Automobile Electricity Technology with CAD and those taught using Conventional Method. • Experimental Class • Control class	 **35** **35**	 **8** **8**	 **43** **43**
Total	**70**	**16**	**86**
Group B: Pre-Test and Post-Test Mean Academic Achievement Scores of Male and Female Automobile Electricity Technology Students Taughtskills to maintain, test, diagnose and repair automotive electrical components and systems Using CAD • Experimental Class • Control Class	 **70** **nill**	 **nill** **16**	 **70** **16**
Total	**70**	**16**	**86**

The instruments for data collection were Automobile Electricity Achievement Test (AEAT) adopted by the researchers from the NABTEB past examination questions between 2016 and 2019. AEAT contained 50 multiple choice test items with four options (A-D). The instrument was face and content validated by three experts; two in Technology and Vocational Education and one in Measurement and Evaluation, Faculty of Education, Ambrose Alli University, Ekpoma and University of Benin. The reliability of the instrument was established using test-retest method. Copies of the items were administered twice to 25 NTC year I automobile electricity technology students drawn from Government Science and Technical College Asaba, Delta State who were not part of the population. Reliability estimate method of test retest reliability using manual computation with the Pearson Product Moment correlation between the two sets of scores yielded a correlation coefficient value of 0.80.

The researchers sought and obtained permission from the authorities concerned for the involvement of their technical colleges and teachers in the study. The automobile electricity teachers were also trained on how to conduct the experiment treatment and were given prepared lesson plans, automobile electricity digital tutor, flash drives, modem, projector machine and laptop. The control groups were given only lesson plan. Pre-test was administered to the two experimental groups after which the actual commenced on the second week. The primary focus of the teaching process was concentrated on automobile workshop,Service Station Mechanic; Engine Maintenance; Engine Reconditioning; Transmission; Suspension, Steering and Braking Systems, engine component /functions, single and multi-cylinder engines, four-stroke engines and valve operations. Each lesson lasted for 80 minutes and the treatment lasted for five weeks. At the end of the treatment, a post-test was administered on both groups using the AEAT and after a week interval. Data collected for the study were analyzed using mean scores and standard deviation to answer the research questions while Analysis of Covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance. Result of the pre-test and post-test were used for data analyses using Statistical Package for the Social Sciences (SPSS).

Results

Table 1: Pre-Test and Post-Test Mean Academic Achievement Scores of Students taught Automobile Electricity Technology

Academic Achievement						
Groups		**Pretest**		**Post test**		
	No	**Mean**	**SD**	**Mean**	**SD**	**Mean Gain**
Exp.Group	43	60.42	7.77	65.53	8.09	62.97
Contr Group.	43	40.58	6.37	34.46	6.37	37.52

Method.*Exp Group=Experimental Group; CONTR Group =Control Group

Table 1 shows the experimental group had mean gain of 60.42 which is higher than the 37.52 gained by the control group. The difference in the mean gain between experimental and control group is high which means CAD is very effective in experimental group.

Table 2: **Pre-Test and Post-Test Mean Academic Achievement Scores of Male and Female automobile Electricity Students**

SEX						
Groups		**Pre-test**		**Post-test**		
	No	**Mean**	**SD**	**Mean**	**SD**	**Mean Gain**
Males	70	83.39	9.13	84.45	9.18	83.92
Females	16	18.60	4.31	15.55	3.94	17.05

Table 2 show the male had mean gain of 83.92 which is higher than the 17.05 gained by the females. The results show that there is a difference between the mean achievement scores of male and female students when exposed to experimental condition in favour of the male students in technical colleges in Edo state.

Table 3: **ANCOVA Summary for Differences in Academic Achievement of Students of Automobile Electricity Technology Students**

Source	**Type III Sum of Squares**	**Df**	**Mean Square**	**F**	**P-value**
Corrected Model	27.406	2	63.703	3.829	.025
Intercept	61.793	1	61.793	12.512	.001
Pretest achievement	13.802	1	13.802	6.008	.016
Level	9.686	1	9.686	1.302	257
Error	49.762	86	8.875		
Total	655.000	84			
Corrected Total	727.168	84			

Table 5 shows that the posttest means achievement of students in the experimental and control groups $F(1, 100) = 1.302$, $p > .05$. This means that there was no significant difference in the mean achievement scores of students in experimental and control group. Therefore, the null hypothesis was accepted.

Discussion

Finding of the study shows that automobile electricity technology students taught skills to maintain, test, diagnose and repair automotive electrical components and systems using CAD had higher mean posttest scores than those taught using conventional method. This finding is in agreement with that of Agrahari, and Singh (2013) which reported that the achievement of students exposed to CAD either individual or cooperatively performed better than those exposed to conventional teaching method. This could be as a result of utilization of computers which

strengthen their cognitive mechanism. The study reveals that there is a significant difference between the mean achievement scores of male and female skills to maintain, test, diagnose and repair automotive electrical components and systems technology students when they were exposed to experimental condition in favour of the male students.

This finding contrasts the finding of Eze, Ezenwafor and Obidile, (2018) that female students performed significantly better than their male counterparts in academic achievement using CAD. Hence such difference in academic performance with respect to sex is a chance occurrence. The results shows that the male automobile electricity technology students were effective in the academic performance in automobile electricity trade than their female counterpart.

Furthermore, findings of the study revealed that there is no significant main effect of treatment in the academic achievement of students in the experimental and control groups. This means that there was no significant difference in the mean achievement scores of students in experimental and control group.

Conclusion

Based on the findings of this study, it was concluded that CAD positively affects students' academic accomplishment and ability in the subject automobile electrical technology. It was found more compelling, effective, rewarding and valuable in teaching of automobile electrical technology students in technical colleges in Edo State.

Recommendations

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

- Teachers should ensure constant and effective utilization of CAD for instruction in trade and trade related subjects/courses in technical colleges, secondary and vocational schools to enhance academic achievement and retention ability of students
- School administration should provide opportunities for in–service training programme for automobile technology trade teachers in order to equip them with competencies needed in the use of CAD for instruction.
- Curriculum planners should formally adopt CAD for instruction in automobile technology trade in technical colleges and ensure its wide application.
- Government should provide (technical colleges, secondary and vocational schools) with computers and internet facilities to enable students maximize the benefits of CAD.

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Influence of Combined Conjoint and Transgenerational Family Therapies on Dysfunctional Families in Kafanchan, Kaduna State, Nigeria

By

Okosun Chidimma J. (Ph.D.)
Aluyor Patience (Ph.D.)
Ifebhor Patricia

1,2 &3 Department of Vocational and Technical Education,

Faculty of Education, Ambrose Alli University, Ekpoma, Edo State.

Abstract

All families are dysfunctional but the level differs from one family to another. A family is termed dysfunctional when it is unable to get out of its dysfunctional state. There are different therapies which are used in treating families that are dysfunctional, among which are Conjoint and Trans generational family therapies. This study investigated the influence of combined Conjoint and Trans generational family therapies on dysfunctional families. Five families were used for the study. Quasi experimental research design, using specifically the Nonequivalent control design was used for the study. Questionnaire was used to obtain relevant data. Data collected were analyzed using mean score, standard deviation, standard error and paired t-test. One null hypothesis was stated and tested at 0.05(p<0.05) level of significance. The result of the findings revealed significant positive influence of combined Conjoint and Transgenerational therapies on dysfunctional families. That is to say that, there was no significant difference in the treatment outcome of both family therapies on dysfunctional families. Researcher's recommendations among others was that (1) religious bodies and NGO's should help with enlightenment campaigns by organizing seminars and workshops for married couples on parenting so that they will know the type of parenting that promote the types of dysfunction found in the town. Therefore, combined Conjoint and Transgenerational Family Therapies had significant positive influence on dysfunctional families in Kafanchan.

Keywords: Cojoint, Transgenerational, Family Therapy and Dysfunctional families.

Introduction

All families have the potential for growth and adjustment in response to distress, trauma or crisis. Undoubtedly, some families, regardless of type, number of problems, ethnic or racial makeup, religion and spirituality, socio economic status, sexual orientation, or degree of education, are happier and more stable than others. They are more flexible in seeking solutions to problems, more purposeful in pursuing satisfaction than other families. Clinicians and researchers alike are turning attention to how families from different cultural and social background achieve positive ways of functioning in adapting to serious threats, crises or the strains of significant life changes.

These have led to the emergence of some interventions aimed at helping families overcome their problems. Among these interventions are family therapie, (Eliot and Norton, 2020).

There exist different approaches to family therapies among which are Conjoint and Transgenerational family therapies, (Keer, 2021). Conjoint family therapy aid in the identification and working through of distortions, helps hold transference and counter- transference in check, quickly brings mental conflicts into the open and into the counseling sessions and emphasizes current relationship problems, (Lowenstein and Spunk, 2020). According to Goldenberg and Goldenberg (2004), Conjoint family therapy is defined as an involvement of all members of a nuclear family in therapy with the intention of improving or establishing an open and honest manner of communication. Conjoint family therapy is not a panacea; however, it requires new skill of therapists and is demanding work. While Transgenerational family therapy is a dissection of the transmission of family culture in its broad sense from one generation to the next encompassing those patterns, styles, customs, secrets, myths, and problems which determine the uniqueness of a family,(Framo, 2021).Transgenerational therapy focuses on the dimension of time within family systems in an attempt to catalyze the present through the use of the past. According to Elliot and Norton (2020), Transgenerational family therapy is defined as that approach to family therapy that connects the present nuclear family quandary with the past as far back as four to five generations. They opined that when combined with another therapy, transgenerational family therapy is more effective.

Carolyn (2019) stated that the different schools of family therapy have in common a belief that regardless of the origin of the problems, and regardless of whether the clients consider it an “individual” or “family” issue, involving family members in the solution and using a combination of therapies is often beneficial. This involvement of families is commonly accomplished by their direct participation in the therapy session. The skills of the therapist thus include the ability to influence conversations in a way that catalyzes the strengths, wisdom and support of the wider system thus bringing about stability in dysfunctional situations.

Family dysfunction can be any condition that interferes with healthy family functioning. Most families have some period of times where functioning is impaired by stressful circumstances (death in the family, a parent’s serious illness etc). Healthy families tend to return to normal functioning after the crises passes. In dysfunctional families, however, problems tend to be chronic and children do not consistently get their need met. Negative patterns of parental behavior tend to

be dominant in their children's lives, (Hartline, 2022). A dysfunctional family is a family in which conflict, misbehavior and often child neglect or abuse on the part of individual members of the family occurs continually and regularly.

Statement of Problem

There is an outcry over the decline of moral standards in the society which obviously is coming from the family, (Doran, 2020). In a recent conference of the Catholic Bishops of Nigeria, they cried out over the level of dysfunction among families, which has given rise to a lot of divorce. In a bid to tackle the problem, they mandated all churches to carry out a one week programme to sensitize married couples on issues concerning marriage, how to live healthy marital lives and the dangers of family dysfunction to both the family and society at large. Different newspapers grab our attention with reports of spouse beatings, child abuse, sexual abuse, murder, drug-related crimes, and alcohol-related accidents. Many of these behaviors occur within the four walls of a family's home. Even when criminal behavior is absent, alcoholism and other obsessive and compulsive disorders dominate the emotional climate in many families. Many more experience constant arguing, runaway children, or emotional cutoff between family members. Why a re so many families in turmoil? Why is there so much unhappiness and dissatisfaction expressed? Why do so many try to escape their life situation through compulsive behaviors of various kinds? Why can't families be healed ? Why can't families come out of their dysfunctional state? These are questions that need to be answered and these are what steered the researchers into carrying out the research

Objective of the study

The major objective of the study was to investigate the use of combined conjoint and transgenerational family therapies on dysfunctional families in Kafanchan.

Research Question

What is the influence of combined conjoint and transgenerational therapies on dysfunctional families in Kafanchan.

Research Hypotheses

There is no significant influence of combined conjoint and trangenerational family therapies on dysfunctional families in Kafanchan.

Methodology

Experimental research design was adopted for this study. It is a type of design that is concerned with cause - effect relationships, so as to find out any effect the independent variables have on the dependent variables. Within the realm of experimental design there are different types but for this study, the Nonequivalent control group design was used. The population of the study comprised of all families in Kafanchan in Kaduna State. From the population samples were taken using purposive sampling method because the experimental nature of the study demanded that the sample should be small, so the need for sampling. The sample was taken from the population after the seminar on marriage. A sample of five dysfunctional families was selected. The instrument that was used to collect data for the study is the questionnaire. The questionnaire was in two forms, the first questionnaire was used for the baseline study. The purpose was to enable the researcher select the families that are dysfunctional. The answers were rated as follows; 1-undecided, 2-never true, 3-sometimes true, 4-most times true and 5-always true. At the end there were diagnoses indicating which group each couple fall into. That is, those that needed therapy and those that did not. But the diagnosis was for the researcher's consumption only. The second questionnaire was used for the pre-test and post-test to elicit data for the study.

Procedure for the Study

For the sake of clarifications, the procedure for data collection is presented in stages;

Stage 1

The researcher collected data for the study by first organizing a one day marriage seminar for couples. At the end of the seminar, the participants were divided into groups for discussion groups. The group discussion was carried out at different locations and time. The purpose of the group discussion was to enable the researcher familiarize with the participants so that they can freely and honestly speak out. After each group discussion, the first questionnaire was administered to the group. They filled and returned it immediately to the researcher. The couples filled the questionnaire independently. This exercise lasted for one week.

Stage 2

Using the diagnoses stated, the researcher then selected the families that fall within the range of families that are dysfunctional. Couples that their responses did not tally were not selected because it means they were not in agreement about their situation. Also families that do not have adolescent children were not selected because adolescents were needed for the study. From the identified dysfunctional families, five (5) families were selected as sample for the study. The researcher used the codes on the questionnaire and the couple's phone numbers to contact and invite them for therapy sessions.

Stage 3

On the first day each family came in for therapy, a pre-test was conducted after general introduction. After the pretest, the therapy sessions started. The therapy lasted for six (6) weeks, and it was conducted in the evenings starting from 4pm. The days for therapy were Mondays, Tuesdays, Wednesdays, Fridays and Saturdays. Thursday was not included because it is a major market day in the town. Each family had one session per week and a session lasted for just two hours so that the families would not become less interested in the therapy. The therapy was a combination of Conjoint and Transgenerational therapies. Conjoint was on general issues on marriage and this was conducted as follows;

Week 1:… general introduction.

Topic…… What makes marriage work.

Week 2: …… Sexual relationship in marriage

Week 3: …… Communication in marriage.

Week 4: …… Marriage and self-esteem.

Week 5: …… Parenting.

Week 6: …… Managing family finances.

The Tran generational Family Therapy was conducted based on the presenting problem. Based on what the problem was, the researcher first of all drew up the genogram of the family to know how the past is affecting their present situation. The researcher then treated only that problem that was manifesting in the family. For example, if the researcher discovered that the problem in the family was as a result of finances, the therapy would be on that. The Transgenerational Family Therapy was conducted first for three weeks and Conjoint was conducted for another three weeks.

Stage 4

After the therapy sessions, the researcher gave a space of four weeks before administering the post-test. The families were invited once more just for the exercise. They filled and returned the questionnaire to the researcher immediately. From the pretest to posttest, questionnaire was filled independently by family members. It is important to state here that the researcher in order to get the correct responses from the parents on question 5-10 in section B of the parents questionnaire, engaged them in one on one discussion before and after the therapy. While the discussion was going on, the researcher from the responses they gave ticked the responses on the questionnaire. The researcher did not use research assistants for the sake of confidentiality. This is because whatever transpires between the therapist and the family is never to be made known by the therapist to any other person. It is based on that trust that families reveal every bit of their secret to the therapist.

Procedure for data analysis

The study made use of a number of statistical procedures which helped in data analysis and interpretation. Mean scores, standard deviation and standard error were used to analyze data collected for the research question. Paired t-test was used to test the hypothesis stated. It was used at 0.05 level of significance for rejecting or accepting the null hypothesis.

Results

Research Question: What is the influence of combined Conjoint and Transgenerational Family Therapies on dysfunctional families in Kafanchan, Kaduna state?

The analysis of data generated to determine the influence of combined Conjoint Family Therapy and Trans generational Family Therapy on Dysfunctional Families in Kafanchan, Kaduna State is presented in table 1.

Table 1: Descriptive statistics between the mean dysfunction scores of families who were exposed to combined Conjoint and Transgenerational Family Therapies in Kafanchan, Kaduna state.

Variable	Group	N	Mean	Std.dev	Std.err
Family Dysfunction	Pretest mean source	10	130.7500	2.75126	.87003
	Posttest mean scores	10	107.8500	17.13030	5.41708

Calculated p > (1.05, calculated t < 1.96 at df 45

According to the descriptive statistics table, there is positive influence in the use of combined Conjoint and Transgenerational Family Therapies among dysfunctional families in Kafanchan, Kaduna state. The table shows that the calculated mean dysfunctional scores were 130.7500 and 107.850 from the pretest and posttest respectively, implying that there is significant positive influence as a result of the application of the combined family therapy on dysfunctional families in Kafanchan Kaduna state.

Ho1 : There is no significant influence of Combined Conjoint and Transgenerational Family Therapies on dysfunctional families in Kafanchan, Kaduna state.

Table 2: Paired Sample t-test statistics on the influence of the mean effect of Combined Conjoint and Transgenerational Family Therapies on dysfunctional families in Kafanchan, Kaduna state.

Combined Conjoint and Transgenerational	N	MEAN	STD.DEV	Std.err	Df	T calculated	T critical	P(sig)
Pretest dysfunctional mean scores	10	117.2000	3.99444	1.26315	9	6.547	1.96	0.000
Posttest dysfunctional mean scores	10	98.5000	36.07477	11.40784				

P calculated <0.051 calculated > 1.96 at df 9

According to the paired sample statistics table , significant positive influence exist among families treated with the combined therapies . This is due to the fact that the calculated p value of 0.000 is less than the 0.05 alpha level of significance and the calculated t value of 6.547 is higher than the t critical value of 1.96 at df 9. Their mean scores before and after therapy were 117.2000 and 98.5000 respectively. Therefore the null hypothesis which states that there is no significant influence of combined Conjoint and Transgenerational Family Therapies is therefore rejected because there was positive influence of the therapies on dysfunctional families.

Discussion of Findings

From the null hypothesis stated and analysis on table 2, it is shown that there is a significant influence of combined Conjoint and Transgenerational Family Therapies on dysfunctional families in Kafanchan, Kaduna state. The findings is in conformity with the view of Sigal, Rakoff and

Epstein (2019) who reveals that regardless of the origin of the problems, and regardless of whether the clients consider it an "individual" or "family" issue, using a combination of therapies such as Conjoint and Transgenerational is beneficial. Elliot and Norton (2020) further reiterates that when combined with another therapy, transgenerational family therapy tends to be more effective. As a result, combining these two therapies, Conjoint and Transgenerational family therapies proved more beneficial than using a single therapy.

Conclusion

Based on the findings of the study the following conclusions were drawn, that the efficacy of the influence of combined Conjoint and Transgenerational family therapies on dysfunction families in Kafanchan cannot be stressed so far. It was obvious that the outcome of this therapy yielded good result.

Recommendations

In view of the research results and the conclusions drawn, the following recommendations were made to improve on the use of combined Conjoint and Transgenerational family therapies in treating dysfunctional families in Kafanchan.

1. Alcoholism is one major cause of family dysfunction therefore; religious institutions should help in preaching about the social ills associated with alcoholism. Government at all levels and non-governmental organizations should organize health talks to sensitize members of the family on health risk involved in high alcohol consumption.
2. Non-govemmental organizations should offer help by training some of their staff on how to administer Conjoint and Transgenerational family therapies so that they can gain knowledge on the techniques of the therapies and provide assistance to dysfunctional families in the society.

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Entrepreneurial Skills Improvment Needs of Women in Tomatoe Production for Profitability and Sustainable Development in Bayelsa State

BY

AGEGE JANE EDEGHONGHON
Department of Vocational and Technical Education, Faculty of Education
Ambrose Alli University, Ekpoma Edo State
janeedeagege@gmail.com
and

SOKARI IBARAKUMO
IKUROMO BLESSING MIETE
DR SALOME EMEYA (PhD)
Department of Agricultural Science
Faculty of Vocational and Technical Education
Ignatius Ajuru University of Education, Rumuolumeni

Abstract

This paper identified entrepreneurial skills improvement needs of women in tomatoes production for Profitability in Bayelsa State, Nigeria. Three research questions were raised and answered for the study. Survey research design was adopted for the study which was carried out in Bayelsa State, Nigeria. The target population of the study was 325 comprising of 250 women and 65 Agricultural Extension officials in Bayelsa State, which were all used for the study as sample. A 25 item entrepreneurial skills improvement needs questionnaire on tomatoes was the instrument used for data collection. The instrument was face validated by three experts. Two hundred and forty- five copies of the questionnaire was retrieved and analyzed using weighted X (mean) and improvement need index (INI). Cronbach- Alpha reliability coefficient was used to determine internal consistency of the instrument which yielded entrepreneurial reliability coefficient of 0.82.The findings from the study revealed that women in Bayelsa State need entrepreneurial skills in pre-planting, planting, harvesting and marketing operations in tomatoes production. It was recommended amongst others that women in Bayelsa State should be trained by skill acquisition centres in tomatoes production using the identified entrepreneurial skills. The identified skills should be developed into training modules by agricultural extension officials and administration of skill acquisition centres for training interested individuals especially the women.

Keywords: *Entrepreneurial Skills, Improvement Needs, Profitability, Sustainable Development Tomato Production.*

Introduction

Tomato is a vegetable crop cultivated annually by peasant farmers in Bayelsa State. Tomato according to Miguel and Heuvelink (2018) is one of the world's major fresh and processed fruit and

is the second most important vegetable crop after the potato worldwide. Tomato belongs to the Solanaceae (nightshade family), genus Solanum, and section Lycopersicon. The author stated that tomato originated from South American and the Botanical name of tomato is Lycopericon esculentum. Boeckmann (2023) stated that tomato plants are tender, warm-season crop that love the sun and cannot bear frost. The author stated that tomatoes can be raised in the nursery before they are transplanted to the permanent field or cultivated directly to the field. Bawden-davis (2018) opined that tomato is a sun loving plant that needs adequate ventilation to prevent common garden diseases of tomatoes. The author stated further that tomatoes grow best in a well-draining soil that's high in organic matter, with slightly acidic pH between 6.5 to 7.0.1 prior to planting, organic matter is increased by applying a 2- 3-inch layer of compost to the soil surface and tilling it into the soil, along with Lilly Miller Garden Gypsum. The author stated further that Gypsum helps loosen compacted soil and adds calcium, which helps to prevent calcium deficiencies that lead to blossom end rot. Iwena (2018) asserted that tomato can be planted in ridges or land can be prepared by ploughing, harrowing and ridging with its varieties as money-maker, valiant, pork, dwarf gem, mariglobe, ife plum, bonita, roma and local varieties. The author stated that tomatoes require a temperature of 20 degree -25 degree, rainfall of 50- 125cm, high level of sunshine and a well-drained loamy, rich in organic matter. The author stated further that harvesting of tomatoes starts as from two months, when ripe or mature they are hand-picked and stored in a cool dry place. Tomatoes play an important role in sustainable development because of their numerous environmental, economic, and social benefits.

Sustainable development is expected to bring lasting socio-economic benefits to all people and the environment. Sustainable development according to Mohamed (2016) is a pattern of economic growth in which resource use aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but also for generations to come. Sustainable development according to Anjov, Weye, and Anyogo, (2019) means solving the needs of today in such a way that society and environment are not harmed. The author stated that development process must be visualized in this broadest context, if it is to meet the expectation of the citizenry for a more elevated standard of living. Women in Bayelsa can increase the level of tomatoes production by having entrepreneurial skills.

Entrepreneurial are the qualities, activities and mindset associated with being an entrepreneur. Entrepreneurial in the view of Agege, Lawal, and Olaitan (2019), is a process through which

individuals identify opportunities, allocate resoures and create value. The creation of value according to the author is often through the identification of unmet needs or through the identification of opportunities for change. The author stated further that Entrepreneurial success is simply a function of the ability of an Entrepreneurial to see these opportunities in the market place, initiate change and create value through solutions. Entrepreneurial in the view of InfoTech Inc (2019) is the ability of an individual to develop, organize and manage a business venture along with any of its risks. Entrepreneurial involves a combination of skills and actions that enable individuals to create and grow businesses.

Skill is a specific competency that allows individuals to perform tasks, solve problems or accomplish goals effectively and efficiently. Skill in the opinion of Ekezie (2020) is an individual's capability to control component of behavior, thinking and feeling within specified frameworks and a particular task domain. Skill is defined as the ability and capacity acquired through deliberate systematic and sustained effort to smoothly and adaptively carryout complex activities or job functions involving ideas, things and/or people i.e. cognitive skills, technical skills and interpersonal skills respectively (BusinessDictionary.com, 2017).

In the context of this study skill is the ability, expertise or competency acquired through training and experience that will enable these Bayelsa women to perform task, or accomplish their goals effectively in tomatoes production. These skills are required by Bayelsa women to enhance profitability in their business.

Profitability is the primary goal of all business ventures. According to Marinela, G. (2016). Profitability means obtaining an income from production sale that should exceed expenses and mirrors the efficiency of an enterprise's whole economic activity. In the view of Toshniwal, (2016). Profitability is a core measure of the performance of a firm and it constitutes an essential aspect of its financial report. The author stated that profitability reveals the firm's ability and capacity to generate earnings at a rate of sales, level of assets and stock of capital in a specific period of time.

In the context of this study profitability is the ability of Bayelsa *women to earn a return from tomato production, for these women to increase their earning capacity they need improvement in tomato production.*

Improvement is the process of making something better than what is was before. Okwelle (2019) described **i**mprovement as enhancement of a process of economic, social, political and cultural changes engineered in a given society by the effort of internal and external stakeholders. He

stressed that improvement requires, enhancement of human and social capital to optimize social and economic development. Improvement needs in the view of Odu, (2019) is an areas within a system or process that require attention and modification to enhance performance, efficiency, quality, or overall outcomes. The author stated that, they are identified through careful analysis, evaluation, and feedback from stakeholders or users. From the above definitions, Improvement needs are not limited to fixing existing problems; they also encompass opportunities for innovation and staying ahead of the curve.

In the context of this study improvement is the development of circumstances in which something that is lacking is provided to a high quality standard. The need for improvement always arises when there is a gap to fill.

Although tomato is an important crop for most Nigeria citizens, yet, its production is still at subsistence level, not meeting the needs of the population. In spite of the efforts being made by tomatoes farmers, its cultivation is still at a small scale production despite the concerted effort by the government to make Bayelsa State self- sufficient in food production. most women produce tomatoes only for family use and very little for the market, perhaps the low output produced by women in tomatoes production in Bayelsa State may be due to low level of entrepreneurial skills in tomatoes production. Moreover, it could be that the low output results to subsistence level of tomatoes production though tomatoes contribute a significant proportion of the food required by the population. The production capacity is far below the nation requirements and tomatoes requirement is bound to reduce drastically. The researchers observed that most women in tomatoes production produce tomatoes only for subsistence level and not for sale which cannot increase the wealth in Bayelsa women hence the study. The study seeks to identify the entrepreneurial skills improvement needs of women in tomatoes production for profitability in Bayelsa State.

Purpose of the Study

The major purpose of the study was to determine the entrepreneurial skills improvement needs of women in tomatoes production for profitability and sustainable development Bayelsa State. Specifically the study sought to determine the entrepreneurial skills improvement needs of women in:

1. Pre-planting operations in tomatoes production;
2. Planting operations in tomatoes production;
3. Harvesting and marketing operations in tomatoes production.

Research Questions

The following research questions were raised

1. What are the entrepreneurial skills improvement needs of women in pre- planting operation in tomatoes production?
2. What are the entrepreneurial skills improvement needs of women in planting operation in tomatoes production?
3. What are the entrepreneurial skills improvement needs of women in harvesting operation and marketing of tomatoes?

Methodology

Survey research design was adopted for the study. This is suitable because it collected data from sample of respondent's using questionnaire and the result was generalized on the entire population. The study was carried out in Bayelsa State. The target population for the study was 325, comprising of 250 women and 65 Agricultural Extension Officials from Bayelsa State. The entire population was involved in the study because it was small and manageable, hence no sampling. A 25 - item entrepreneurial skills improvement needs was developed from reviewed literature by the researchers and used for data collection. The questionnaire was divided into two response categories. The perceived need category has 4- point response scale of highly needed (4), averagely needed (3), slightly needed (2), and not needed (1). On the other hand, the performance category also has 4- point response scale of high performance (4), average performance (3), low performance (2), and no performance (1). The questionnaire was subjected to face validation by 3 experts, 2 from Department of Agricultural Education, University of Nigeria Nsukka, and *one* from Agricultural Economics and Extension, from Ambrose Alli University Ekpoma, Edo State. The internal consistency of the instrument was determined using Cronbach- Alpha method of reliability. The reliability coefficient established was 0.82, meaning that the instrument was valid for the study. The instrument was administered by the researcher, and with the help of two research assistance. The weighted mean and improvement need index (INI) were employed in analyzing data from the questionnaire items in order to answer the research questions. To determine the entrepreneurial skill improvement needs of women in tomatoes production, the following steps were taken: the mean (Xn) of the perceived need category was determined for each item and the performance category was also determined for each item. The performance gap category was also determined for each

item, the performance gap (PG) was then determined by finding the difference between Xn & Xp for each item i.e PG = Xn - Xp, Inference drawn from the calculation is given as:

1. Where the value of (PG) was positive (+) for each item, it indicates that women needed entrepreneurial skill improvement due to the fact that the level at which the women were performing is higher than what is needed. In other words, the level at which the skill item was needed was higher than the level at which the woman could perform the skill items.
2. Where the value of (PG) was negative (-) for each item, it shows that women needed entrepreneurial skill improvement due to the fact that the level at which the women were performing is lower than what is needed. In other words, the level at which the skill item was needed was lower than the level at which the woman could perform the skill items.
3. Where the value of (PG) was zero (0) for each item, it indicates that women needed no improvement in entrepreneurial skill because the level at which the women were performing the operation of the item is equal to the level that was needed. The level at which the skill item was needed was equal to the level at which women could perform the skills.

Results

Research Questions 1: What are the entrepreneurial skills improvement needs of women in pre- planting operation in tomatoes production?

Table 1: Performance Gap Analysis of Mean Ratings of the Responses of Agricultural Extension Officers and Women from Bayelsa State in Pre-Planting Operations in Tomatoes (N= 325) insert the table

S/ NO	Pre planting operations	Xn	Xp	PG= (Xn-Xp)	Remarks
1.	Select a suitable site for tomatoes production	3.66	2.79	0.87	IN
2.	Select well drain deep humus rich soil with good tilth and a Ph of 5.5-6.8	3.72	2.75	0.97	IN
3.	Select the soil conservative practices to adopt for tomatoes production.	3.68	2.88	0.80	IN
4.	Identify appropriate equipment for farm operations in tomatoes production.	3.65	2.70	0.94	IN
5.	Clear the site with cutlass, pack and burn.	3.80	2.74	1.06	IN
6.	Stump the stems using appropriate technology and pack it out.	3.70	2.77	0.87	IN
7.	Obtain, high yielding tomatoes varieties from a reputable supplier	3.74	3.07	0.67	IN
8.	Identify appropriate records to keep for tomatoes production.	3.65	2.70	0.94	IN
9.	The land is prepared by ploughing, harrowimg and ridging	3.79	2.83	0.96	IN

10.	Compost manure is applied on the ridges two weeks before transplanting.	3.78	2.76	1.02	IN

Key: IN= Improvement needed, Xn = mean of perceived need, Xp = mean of performance, PG = performance gap, N = number of respondent's.

Data in Table 1 revealed that, all the items had performance gap values ranging from 0.67 to 1.12 and were positive. This indicates that women from Bayelsa State need improvement in their performance in pre - planting operations in tomatoes production.

Research Questions 2: What are the entrepreneurial skills improvement needs of women in planting operation in tomatoes production?

Table 2: Performance Gap Analysis of Mean Ratings of the Responses of Agricultural Extension Officers and Women from Bayelsa State in Planting Operations in Tomatoes (N= 325)

S/NO	Planting operations	Xn	Xp	PG= (Xn-Xp)	Remarks
1.	Check the seeds for viability and plants only viable seeds	3.65	2.72	1.11	IN
2.	Planting is done early March/April, and best planted towards the end of rainy season November/December with irrigation	3.70	2.69	1.01	IN
3.	Space 60cm by 60cm without staking and 50cm by 30cm with staking	3.61	2.99	0.61	IN
4.	Thin seed to one per hole	3.64	2.54	1.10	IN
5.	Apply fertilizers (N:P:K) 15:15:15 to each plant three weeks after planting, or apply any compost or farmyard manure	3.68	2.72	0.96	IN
6.	Tomatoes seeds are broadcasted on the prepared beds	3.79	2.71	1.08	IN
7.	Tomatoes required a temperature of 20c-25c to thrive well	3.62	2.60	1.02	IN
8.	In most case tomatoes is planted or broadcasted on the nursery before transplanting.	3.61	2.99	0.61	IN
9.	Provide stakes to enable plants to stand erect and prevent lodging	3.73	2.62	1.11	IN
10.	Stems are tied or trained to the stakes which allow for good fruiting and keeps fruits from disease attack arising from contacts with soil	3.67	2.76	1.03	IN
11.	Weed at least twice between transplanting and fruiting	3.71	2.67	1.04	IN

Key: IN= Improvement needed, Xn = mean of perceived need, Xp = mean of performance, PG = performance gap, N = number of respondent's.

Data in Table 2 revealed that, all the items had performance gap values ranging from 0.67 to 1.12 and were positive. This indicates that women from Bayelsa State need improvement in their performance in pre - planting operations in tomatoes production.

Research Questions 3: What are the entrepreneurial skills improvement needs of women in harvesting and marketing operations in tomatoes production?

Table 3: Performance Gap Analysis of Mean Ratings of the Responses of Agricultural Extension Officers and Women from Bayelsa State in Harvesting and Marketing Operations in Tomatoes (N= 325)

S/No	**ITEM STATEMENT: HARVESTING AND MARKETING OPERATIONS**	Xn	Xp	PG= (Xn-Xp)	Remarks
1.	Water early in the morning, for sufficient moisture for plants	3.37	2.82	0.91	IN
2.	Maturity occurs between 2-3 months depending on the variety cultivated	3.64	2.71	0.93	IN
3.	Matured or ripe fruits are harvested by hand-picking or with a knife.	3.68	2.78	0.89	IN
4.	Harvest tomatoes at four or five days interval	3.70	2.69	1.09	IN
5.	Harvested fruits are stored in a cool dry place	3.67	2.76	0.90	IN
6.	The fruits are also stored as canned paste	3.75	2.71	1.04	IN
	Marketing Operations				
7.	Sort and grade tomatoes fruits using sizes colour and variety	3.71	2.62	1.07	IN
8.	Fix appropriate prices for each grade based on market survey or demand	3.63	2.70	0.93	IN
9.	Advertise tomatoes fruits locally or through the media to attract buyers	3.68	2.80	0.88	IN
10.	Sale tomatoes at farm gate or transport the fruits to market for sale	3.61	2.72	0.90	IN
11.	Keep appropriate records of sales for sustainability and /or expansion	3.73	2.69	1.03	IN
12	Calculate expenditure & income to balance profit or loss account	3.50	2.73	0.82	IN

Key: IN= Improvement needed, Xn = mean of perceived need, Xp = mean of performance, PG = performance gap, N = number of respondent's.

Data in Table 3 revealed that, all the items had performance gap values ranging from 0.67 to 1.12 and were positive. This indicates that women from Bayelsa State need improvement in their performance in pre - planting operations in tomatoes production.

Discussion of Results

The result of this study in Table 1 revealed that women needed improvement on ---- entrepreneurial skills in pre- planting. The skills are: select a suitable site for tomatoes production, select a well - drained soil (clay, loam or silt) among others. This result is corroborated by the

findings of Ekele and Wombo (2013) in a study on Meeting Capacity building needs of small- scale farmers in rice production for sustainable development in Kaduna State, where small- scale rice farmers were judged to possess capacity building needs in 10 land and seed preparation in rice production for sustainable development in Kaduna State. Examples of the land and seed preparation include: clear the land and burn the bush, use disk harrow to fine tilt, construct bunds to accumulate rain water, use tractor to uproot shrubs among others.

The result of study in Table 2 revealed that women need improvement on entrepreneurial skills in planting. The identified skills are: Check the seeds for viability and plant only viable seeds, 2-3 seeds per hole, plant in early, among others. This result in Table 2 is in consonance with the findings of Dahiru, Amojenu and Onu (2018) in a study on entrepreneurial Competencies needed by secondary school leavers in sesame seed production for food security in North Central Nigeria, where secondary schools leavers were judged to possess Entrepreneurial Competencies in 5 planting operations for food security. Examples of planting operations include: selection of viable sesame seeds for Planting, sow between 25-35 seeds per feet press the soil firmly around the sesame plant among others.

The result of the study in Table 3 revealed that women needed improvement on entrepreneurial skills in harvesting and marketing of tomatoes. The skills include; Maturity occurs between 2-3 months depending on the variety cultivated, Matured or ripe fruits are harvested by handpicking or with a knife, sort and grade tomatoes using sizes, colour and variety, fix appropriate prices for each grade based on market survey or demand. The result in Table 3 is in agreement with the findings of Asogwa and Onu (2013) who reported that competencies in harvesting and marketing of pawpaw include: determine at stage of maturity to harvest pawpaw pods based on the market channel, move around the orchard to. Identify mature pods using color change from green to light green, sort and grade pawpaw pods using size colour and variety, advertise pawpaw pods locally or through the media to attract buyers among others.

Conclusion and Recommendations

Based on the result obtained, it was therefore concluded that the identified entrepreneurial skills items were needed by women in tomatoes production for Profitability in Bayelsa State.it was therefore recommended that:

1. Women in Venue State should be trained by skill acquisition centres in tomatoes using the identified entrepreneurial skills;

2. The identified entrepreneurial skills in tomatoes production and Marketing should be developed into training modules by agricultural extension officers and administrators of skill acquisition centres for training interested individuals especially the women

3. The identified entrepreneurial skills should be used by agricultural extension officers to build the capacity of crop farmers in tomatoes production.

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Effect of Project-Based Learning on Students' Performance in Electrical Installation and Maintenance Works in Technical Colleges in Edo State

By

Prof. RaymondUwameiye,

Dr. (Mrs) J.I. Oviawe,

and

Dr. Osagiede Izuhunwa

Department of Vocational and Technical Education
Faculty of Education
Ambrose Alli University.

Prof. RaymondUwameiye is a Professor in the Department of Vocational and TechnicalEducation, Ambrose Alli University. Email Address: uwameiye@aauekpoma.edu.ng, Phone Number: +2348056129019

Dr. (Mrs) J.I. Oviawe is a Senior Lecturer in the Department of Vocational and TechnicalEducation, Ambrose Alli University. Email Address: oviawe@aauekpoma,edu.ng, Phone Number: +2349030854009

Dr. Osagiede Izuhunwa **Assistant Lecturer in the** Department of Vocational and Technical Education, Ambrose Alli University. Email Address:izuhunwa2000@aauekpoma,edu.ng, Phone Number:+2348037386196

Abstract

The study examined the effect of project-based on students' performance in Electrical Installation and Maintenance Works in Edo state technical colleges. Two hypotheses were formulated and tested at .05 level of significance in this study. The study adopted a quasi-experimental research design precisely the pretest and posttest non-equivalent control group design. The population of the study comprised all the 189 Vocational II students' offering Electrical Wiring in the six technical colleges of Edo State. Two intact classes were used which was made up of 64 students from two technical colleges in the three senatorial district of Edo State. The instrument for data collection in this study was titled: Electrical Installation and Maintenance Works Achievement Test (EIMWAT). The data collected were analyzed using mean, standard deviation, t-test and Analysis of Covariance (ANCOVA). Mean and standard deviation were used to answer the research question while the hypotheses were analyzed and tested at .05 level of significance. The result shows that difference existed between the pretest and posttest mean score of students taught Industrial Electrical Wiring using Project-Based and Conventional Teaching Method. Finally, there was no significant interaction effect of treatments given to students based on gender in technical colleges in Edo State. Based on these findings, the researcher concluded that Project-Based and conventional teaching Method promotes academic gain, creates healthy competition and good teamwork among students. Sequel to these findings, the researcher therefore recommends that Project-Based should be adopted as instructional techniques for teaching and learning of Industrial Electrical Wiring in technical colleges in Edo State.

Introduction

Education is the pivot upon which all academics activities rotate. It may be informal or formal. Formal education consists mostly of initial education. Special needs education, some parts of adult education and vocational education are often recognized as being part of the formal education system. Therefore, in the context of the research work, the type of education which occupationally prepares the youth for useful living in the society is vocational education.

According to Uwameiye (2010), vocational education prepares youths for employment in industries, commence and other enterprises by revealing them to practices that offer manipulative, cognitive and attitudinal skills that make them qualify for it. Vocational education also provides experiences for adult who are already employed, and whose skills may have become obsolete, and then require to update their skills. In addition, Vocational Education may provide experiences for adults who require skills in a different occupation entirely. Therefore, the aim of vocational education is to provide training for gainful employment, and re-training for progress within the occupation. Vocational education lays emphasis on exposing clients to experiences of the real world of works and the domains of skills, which are manipulative (psychomotor), informational (cognitive), and attitudinal (affective). These three domains of skill acquisition are important for the success of individuals in any job situation.

Vocational education is offered in technical colleges, leading to the award of National Technical Certificates (NTC) and Advance National Technical Certificate (ANTC). The National Technical Certificate level programme lasts three years after the junior secondary school. It is an equivalent to senior secondary education. The ANTC programme entails two years pre entry industrial work experience and ranks on the lower level of tertiary programmes. All certificates are awarded by the National Business and Technical Examination Board (NABTEB). One of the vocational programmes offered in technical colleges in Nigeria is Electrical Installation and Maintenance Works (EIMW).

Electrical Installation and Maintenance Work is the study or acquisition of electrical skills that is performed during the erection or construction of structures of building which entails the installation of electrical materials and maintenance. The objectives that guide the teaching of EIMW in technical college in Nigeria include to:

1. provide technical training to meet the demand of electrical industries and individuals by allowing the students to identify their career objective;

2. prepare an individual with job satisfying skills towards employment and self-reliance; and
3. prepare students to acquire entry level knowledge and manipulative skills for employment in technical industry (National Board for Technical Education (NBTE), 2012).

Although these objectives are laudable, there seems to be an impediment in the realization of these objectives in technical colleges because EIMW is practically oriented. To adequately realize these objectives, proper instructional techniques must be adopted to actualize these laudable objectives. Generally, the Non-traditional teaching methods help to awake students' curiosity and creativity and motivate them to participate in class activities (Kermanshachi, 2018). These methods are focused mainly on the activity and independent work of students, who gradually move from the passive method of acquiring knowledge (e.g. interpretation, explanation) to more active methods of acquiring information and become more or less independent implementers of their own education this way.

However, other teaching methods like project-based, play-away method; demonstration method etc has positive impact on the students' performance. Thus, this study we be concern with the effectiveness of project-based learning method on students' performance. Bell (2010) found that project-based learning helps students become independent learners. Independent learners involve learning effective planning and organization skills, an increase in collaboration and social skills and intrinsic motivation for learning. To Harris, Mishra and Koehler (2009), incorporating technology properly into projects has the ability of mixing together technological knowledge, content knowledge and pedagogical knowledge together to create technological pedagogical content knowledge. They further explained that each piece of technology made available create different effects on human ability to think or solve, by allowing students choice, in how they present, create, research and inquire, educators give students the power of knowledge and control of student learning which truly exercise their thoughts and knowledge. Maros, Korenkova, Fila, Levicky and Schoberova (2021) stated that implementation of project-based learning can significantly change the classroom experience of both teachers and students. It can change the way teachers teach, how students learn, and how teachers and students interact. Project-based learning can also alter how students respond to the general learning process.

Statement of the Problem

Students' performance in electrical installation and maintenance works subject has not been encouraging. Judging from the recent results obtained from students of EIMW NABTEB examination for the past five years. Out of the 817 candidates that sat for the examination, 27 (3.3%) candidates passed at A and B level, 99 (12.1%) candidates passed at credit level, 236 (28.9%) passed with passed grade and 455 (55.7%) failed the examinations (see table on appendix xviii). This analysis shows poor performance in Electrical Installation and Maintenance Work in Edo State technical colleges.

A number of instructional methods have been used since EIMW have been introduced to technical colleges. It is good to provide technical college students with the best skills and attitude for acquiring knowledge so that they would be adequately prepared to deal with future technological challenges. Poor students' performance in Electrical Installation and Maintenance work seems to be attributed to mainly expository with little or no involvement in practical projects. Again, the methods that have been adopted in teaching Electrical Installation and Maintenance Work all along may not be very effective. To this end, one may say that the quality of instruction provided to the students is intricately linked to the strategies the teacher adopted in passing knowledge to students in college. Study on students' performance in schools subject reported inefficient teaching methods by school teachers as a major factor for the (Pepple, 2010).

All of the above-mentioned factors may lead to students' performance in EIMW. The problem of the study therefore is poor students' performance of EIMW. It is against this background, that the researcher sought to investigate the effect of project-based technique and small-group discussion on students' performance in Electrical Installation and Maintenance Works in technical colleges in Edo State.

Method of Study

The study adopted a quasi-experimental research design, specifically, the pretest and posttest, non-equivalent group design. According to Nworgu (2006) quasi-experimental design involved the use of intact class or pre-existing groups which are not equal in size. A quasi-experimental design means that experimental designs are applied to real situation. This is because the aim is to maintain the reality of the classroom and the conditions proper to it. Group I and II were the experimental group which received a pre-test followed by a treatment condition (project-

based technique), thereafter, a post-test. Group II was the control group, which received a pre-test followed by the control condition (lecture method) and then the post-test. The population of the study comprised all the 189 Voc. II Electrical Installation and Maintenance Works students in the six technical colleges in Edo State, Nigeria. and Sampling Technique 62 Electrical Installation and Maintenance Works students were Sample in Edo State technical colleges were used for the study. Purposive simple technique was used to select the two technical colleges in the three senatorial districts of Edo State. Nigeria. Each technical college constituted a treatment group. The selection of the schools to either experimental or control group was done using the two intact classes.

The instrument for the study was titled "Electrical Installation and Maintenance Works Achievement Test (EIMWAT)" developed by the researcher. The EIMWAT contained 55 multiple choice items with five options divided into two Parts. Part A and Part B. The version tagged Part A was used as pre-test while Part B was used as posttest. The lesson note was used by the Electrical Installation and Maintenance Works teachers who were the research assistants. Items in the EIMWAT were drawn from the topics in Electrical Installation and Maintenance Works as specified in the NABTEB curriculum for Voc. II in technical colleges. The topics included; industrial electrical wiring tools, industrial electrical wiring accessories, industrial electrical wiring material, industrial electrical wiring symbols and fitting, industrial safety regulation in electrical wiring and simple industrial electrical wiring. The items specification for the EIMWAT measured knowledge, comprehension and application the instrument was a standardized NABTEB examination questions collated for a period of five years. In the experimental group E_{G1} project-based learning (PBL) was used in College A. The research assistants helped to provide assistance to the students. In experimental group I, the teacher selected the lessons topic in which project-based learning was used to teach as indicated in the lesson plan. In experimental group II, the teacher used balloting technique to group the students into group of five students, making a total of eight groups. Groups were made up of mixed age, ability level, spatial ability and gender for the lesson. In experimental group $E_{G1,}$ project-based technique was adopted in College A, students carried out simple industrial wiring project using electrical wiring tools, accessories, material, symbols and how to observe safety regulations in electrical wiring as part of project-based learning in classroom.

Students in the treatment condition (PBL) participated in an average of two sessions per

week until they reached the session requirement of 12 session total; however, all participants completed the interaction in an average of 6 weeks. In project-based technique, each tutoring session lasted for about 45 minutes in duration.

In the control group, students were taught the same electrical wiring concept by their teacher using the conventional teaching method with the prepared lesson plans. Each lesson lasted for 45 minutes. At the end of the six weeks teaching exercise; a posttest was then administered on the three groups using EIMWAT. The scores obtained from the two groups were compared to determine if there are significant differences in students' performance of the three groups. The data for the study was analyzed using mean, standard deviation, t-test and Analysis of covariance (ANCOVA). Mean and standard deviation were used to analyze the research questions raised for the study while t-test and Analysis of covariance (ANCOVA) were used to analyze data on the hypotheses and tested at .05 level of significance.t-test and ANCOVA were used to determine whether differences were significant.

Results

Research Question 1: Is there any difference between the pretest and posttest mean scores of students taught EIMW using project-based learning and conventional teaching method in technical colleges in Edo State?

Table 1: Descriptive Statistics of Pretest and Posttest Students' Performance Mean Scores Taught Eimw Using Project-Based Technique and Conventional Teaching Method

Group	**N**	**Pretest**		**Posttest**		**$\bar{X}$ Diff**
		$\bar{X}$	**SD**	**$\bar{X}$**	**SD**	
Experimental Group (Project-based)	24	29.92	5.85	52.13	8.94	22.21
Control Group (Lecture method)	40	31.25	9.81	40.43	8.68	9.18

Table 1 shows the descriptive statistics with respect to the students' performance $\bar{X}$ scores for two groups (One control group and one experimental group). Table 1shows that the pretest scores of these experimental and control groups had low $\bar{X}$scores of 29.92 and 31.25 respectively. This indicates that the two groups exhibited low levels of performance $\bar{X}$ scores before treatment was administered. Table 1 also shows post-test scores with project-based and control as 68.13 and 40.43 respectively. Hence, results of the post-test mean scores shows that there is an increase in students' performance mean scores of the experimental group from 29.92 to 68.13 after the treatment with project-based approach. However, the post-test mean scores of the control group and the treatment

group were 31.25 and 40.43 respectively. Thus, in comparison, this indicates that the students in the treatment group had higher scores than the students in the control group at post-test. This increase in posttest scores seen among the treatment group may be due to the project-based approach that was administered to the treatment group

Research Question 2: What is difference between the posttest scores of students taught EIMW using Project-based Techniques and Conventional Teaching Methods on academic performance of students in EIMW in technical colleges in Edo State?

Table 2: Mean Scores of Students Taught EIMW Using Project-based and Conventional Method of Teaching

Posttest	***X***	$\bar{X}$ **Diff**	
	X	$\bar{X}$	**SD**
Project-based	24	68.13	22.20
Control Group	40	40.43	21.18
Mean Gain		27.7	1.02

Table 3 shows a post-test mean scores of 24 students taught EIMW using **project based and 40** students taught EIMW using **conventional teaching method in Edo state technical colleges. Posttest mean scores of the students' taught** EIMW using **project-based was 68.13** with a standard deviation of 22.20. While students taught EIMW using **conventional teaching method** had 40.43 with a standard deviation of 21.18, indicating a mean gain of 27.7 with a standard deviation difference of 1.02. This analysis revealed that a mean gain between students taught EIMW using **project-based and conventional teaching method in Edo state technical colleges was in favour of project-based approach.**

Table 2: ANCOVA Results for the Effect of Project-based technique and Conventional Teaching Method on the Students' Performance Mean Scores

Tests of Between-Subjects Effects
Dependent Variable: Posttest

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	8069.001[a]	6	1344.833	17.349	.000	.467
Covariate	8341.613	1	8341.613	107.609	.000	.475
Pretest	2515.921	1	2515.921	32.456	.000	.214
(PB*C TM)	2346.197	1	2346.19	46.461	.000	.432
Gender	149.540	1	149.540	1.929	.167	.016
Gender {PB)	47.100	2	23.550	.304	.739	.005
Corrected Total	17293.659	125				

Hypothesis 1: there is no significant difference between the pretest and posttest mean scores of students taught EIMW using project-based technique in technical colleges in Edo State.

Table results 2 indicate an F value of 46.461 at a significant level of000 for pre-test and post-test using project-based teaching method. The null hypothesis is therefore rejected for an alternate hypothesis of a significant difference between the pretest and posttest students' performance mean scores taught EIMW using project-based teaching method in technical colleges in Edo State.

Hypothesis 2: there is no significant difference between the posttest scores of students taught EIMW using project-based techniques and post test scores of students using conventional approach in technical colleges in Edo State.

Results 2 in Table indicate F-value for Project-based Teaching Method of Teaching 42.590at .000 level of significance. The null hypothesis is there for rejected, This indicates a significant difference between the posttest scores of students taught EIMW using project-based techniques and post test scores of students using conventional approach in technical colleges in Edo State' is therefore rejected. Thus, there is a significant difference between the posttest scores of students taught EIMW using project-based teaching method and post test scores of students using

conventional teaching method in technical colleges in Edo State. The experimental group which received treatment of project-based method of teaching had significantly higher scores than the control group which received conventional teaching method. Hence, treatment of project-based is responsible for the significant difference in mean scores.

Discussion

Results of this study shows that a significant difference exist between the pretest and posttest students' performance mean scores taught EIMW using project-based teaching method in technical colleges in Edo State. This finding is supported by Akinlabi and Adeagbo (2018); and Wekesa and Ongunya (2016) who posited that project-based approach assist learners for self and intellectual development. Emmanuel and Overson (2021), Okewelle, Emeli and Hart (2016) as well as Anazifa and Djukri (2017) also added that project-based method gives the learners the opportunity of critical thinking and problem-solving ability. This result shows that project-based approach is important in an instructional management for vocational and technical education as it is believed to create in the students the ability to learn how to create innovation, have motivation to create new things, employ scientific processes and possess strengthened ways of thinking (Reading Readiness Centers 2023;Nilsook, Chattawana &Seechaliao, 2021).The significant difference in the overall mean posttest scores between the pretest and posttest may be attributed to the fact that the project-based approach group was engaged in more research type activities consistent with constructivist principles.

Results of this study shows that there is significant difference between the posttest scores of students taught EIMW using project-based techniques and post test scores of students using conventional approach in technical colleges in Edo State. Project-based technique has a large positive impact on students' learning outcomes compared to conventional methods (Chen & Yong, 2019). Project-based learning is considered a highly effective way of education and is considered the highest level of teacher didactic skills. Therefore, we assumed that project-based learning in our experiment would be the most effective of the methods used**.** However,findings for research question three revealed that small-group discussion method was the most effective teaching method, followed by project-based approach while the teacher centered approach was the least effective teaching method (Roshni and Rahim 2020).

Conclusion

Based on the findings of this study, it was concluded that the use of project-based approach enhances students' performance scores in Electrical Installation and Maintenance Works than the conventional teaching method. It was also found that there was no significant difference in students' performance scores based on gender using the project-based approach

Recommendations

Based on the findings of this study, researchers recommend:

1. In view of the effectiveness of project-based technique on the students' performance it is recommended that project-based approach should frequently be used in technical colleges by educators in Electrical Installation and Maintenance Works (EIMW).

2. Educators in technical education are recommended to understand how the quality of learning depends on the nature of interactions.

3. Administrators of Technical Colleges are recommended to provide the necessary support and conducive learning environment for educators to fully utilize project-based approach and small-group discussion technique.

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Pedagogy Approaches and Instructional Technology Methodologies for Teaching Catering Craft Practice in Technical Colleges in Edo State

By

Dr (Mrs) B. E. Uwameiye

Department of Vocational and Technical Education
Faculty of Education, Ambrose Alli University, Ekpoma
Email: Ineose05@yahoo.com

Abstract

This paper discusses the emerging pedagogy and instructional methodologies for teaching catering craft practice in technical colleges in Edo State. It focused on methods such Inquiring Based Learning , ICT Project based instructional technique, suh as Jigsaw Co-operative Learning, Peer Tutoring and Reciprocal Peer Tutoring as new methods capable of changing the sequence of events in the field of catering craft. It also focused on the changes that have taken place in catering craft with the use of technology. It further focused on various instructional technologies in the teaching and learning such as internet, intranet, virtual classrooms, online database, software technology, smart phone, computers, social media, email, and scholarly websites. Various ways of utilizing technology in enhancing lesson planning was also mentioned in this paper. Besides, benefits derived from the use of instructional technology in the teaching and learning of catering craft was clearly outlined.

Introduction

Catering Craft is one of the trades courses taught in technical colleges (Senior Secondary School). It is a Technical and Vocational Education and Training (TVETS) skilled acquisition subject solely for the provision of foods and drinks, hospitality management for guest and customers. Thus the objectives of this subject as indicated in the Nigerian Educational Research and Development Council (2007) are for the;

- development of professional attitude, appearance and acquisition of skills
- development of knowledge and understanding of all food commodities in terms of cost, quality and use
- understanding the methods of cooking and beign able to produce dishes of the required quality, colour, consistency, seasoning, temperature, quality, and presentation
- understanding essential necessity for healthy hygienic and procedures at all times in the storage, preparation, cooking and serving of food.

- acquisition of the necessary skills required for the production of pastry, bakery and confectionery products.

Emerging Pedagogical Approaches in Catering Craft Classroom

Pedagogy relates to the art and process of instruction and skill acquisition. However, Wlodkowski and Ginsberg (2017) identified pedagogy as any activity consciously designed by teacher towards bringing about effective learning in the students, with the aim of motivating and making the students journey, successful and productive throughout life. At different times in human history, various theories were enacted to support better styles of teaching and learning. For instance, early protagonists of the old-style model methods argued that the Socratic method of teacher – student interaction is the best – suited instruction for teaching learners. Where the teacher is at the center of the entire process, it is also claimed that learning takes place when teachers teach using the non-verbal and mannerism. In practice, how much of learning go in such classroom where students are not involved, they are inactive and docile especially in a skill acquisition programme such as catering craft. Recently, meeting the needs of all learners, learner centered classroom,students as learners, users,and producers of digital content,learn technologies,globalized teaching, use of smartphones,blog, digital,collaborative teaching,and use of other technologies(Cox, 2019)

Therefore, teaching and learning catering craft ought to be functional utilizing the best teaching method for better achievement. It has been observed that the worth of teaching involvements and level of achievement of students of TVET is below standard Wordu&Puyate (2022). As indicatedby (Khan &Ghosh 2016))Teacher centered method of teaching is the foremost pedagogical approach in most schools has resulted to a growing consciousness among educationists; that innovative teaching methods that are learner centered, which will inspire and help creative commitment among learners should be utilized in teaching. The present teaching methods in technical colleges are not able to meet the objective of the programme consequently; a need arises to change teaching and learning style for heightening of TVET quality (Pavlova and Chen, 2019). The search for such instructional approach, that is focused on resulting in the development of suitable strategies, premised on the construction of knowledge by the student, not only emanates from their individual experiences, but is interactive and collaborative. Some of such methods are:

The Inquiring Based Learning; Inquiring based learning is an innovative learner centered strategy; this strategy places students at the center of learning experience. The nature of an activity, the process, end product and how it is shared is dependent upon the developmental level of the

students. Teachers play an important part of appropriate feedback and support so that students are able to build on the knowledge they already have. The process is; the student select a topic with the general curriculum theme, build basic understanding based on background knowledge, talk to others to gather information, find guides such as online library catalogues, online subject directories, subject searches. Then create a basic report or presentation. The crux is the students utilize technology to locate ideas to enhance their report and present to the class.

ICT Project based instructional technique; This is an instructional technique that allows students to facilitate, access deeper knowledge and skills about a concept. It is a student centered pedagogy that use collaboration tools. Project based learning provides students with practical application of concepts that allows for students to make connections between the content being leant and the real world. Project based technique requires students to learn and focus on the curriculum rather than be added as a supplement at the end of the traditional instruction. In this technique, the teacher play the role of a facilitator working with the students to engage in a worthwhile project, structuring meaningful task and develop social network skills, support collaboration, give students opportunity to execute project and carefully assess what the students have learnt base d on their experience. A topic such as how our school serves healthier launches can form a project topic. Teacher can create blog to discuss and encourage them to visit different online websites and links so as to simplify their difficulty. Students are encouraged to consult internet and go through email or Facebook to consult experts and other social media tools for reliable information. A What Sapp group can be created by the teacher to reach students and exchange experiences. This increases the brightness of the learner, motivate them to learn and attract academic effectiveness and cognitive engagement. The teacher gives sufficient guidance; provide direction on how to develop the project. Teacher must plan well and be flexible to assist students on which software to use.

Jigsaw Co-operative Learning; Jigsaw cooperative learning approach enhances group learning by making each student in the classroom responsible for teaching some subject matter of a topic to the group. The arrangement is such that students are made members of two different groups, called the ‘home group and expert group’. They would first gather as home group, and each member of the home groups is assigned a portion of the subject matter to learn in order to become ‘expert’ in that subject .Then the home groups are broken up and one person from each of the broken group are brought together like pieces of a jigsaw puzzle to form the jigsaw group. The jigsaw group then consists of ‘experts ‘from each home group who have been assigned some portion of the subject

matter in the topic and would have been equipped with an in-depth knowledge of that subject matter that is to be taught. Then a leader is chosen from among the jigsaw group that would be able to teach the home group, while the teacher facilitates and guides the process.

Peer Tutoring; Peer tutoring is an instructional technique in which the student teacher teaches a concept to another student or a group of students under the leadership of a teacher. It is an interaction between two or more students in a group where one of the students acts a tutor for the other group mates. Peer tutoring evolved from group discussion as an effective method of instruction, among students in modern times when the teacher uses students as resources for other students. This is based on the belief that the students can lean better and faster from fellow students who have mastered the concept of the skill. Student show improved friendship and assists each other in the learning when studying together in group, using more similar friendly utterances. Yurt and Aktas (2016) posited that peer tutoring bring about increase in learning rates contributing to social skill advancement, develop a range of other activities and provide emotional benefit to the student.

Reciprocal Peer Tutoring; Reciprocal Peer Tutoring in another form of cooperative learning technique, in which students switch roles between tutee and tutor. Students get to be the learner and the teacher when using this technique. Debacker, Van-Keer, Moerkerke and Valcke (2016) defined reciprocal peer tutoring as the considered switch over of the tutor responsibility among peers in groups and allow each student to practice the exact benefits derived from providing and receiving academic assistance. In reciprocal peer tutoring, two or more students alternate roles as tutor and tutee in a learning situation with acceptable time in each role. Other higher performing students are paired with average and low performing students. Students in reciprocal peer tutoring class may prepare instructional materials and may be responsible for monitoring and evaluating their peers.

The emergence of technology in lesson delivery started almost a century ago with the use of projector. A few years later, other devices such as calculators and computers were invented. Today technology is extensively used in schools and other public places; besides educators have found that technology has the ability to create insightful changes in teaching, learning, thereby creating openings for incomparable collaboration. It has also become a tool for support among teachers and their students. In the view of Gagne (1986), instructional technology is a systematic, interactive process for designing instruction or training learners so as to improve performance. He also sees it as a stream of apparatus that encourage the use of systems, environments, tools, products, and

strategies that can enhance human learning and competence. Consequently, instructional technology is a rudimentary initiative in the field of education that promotes and aid the application of validated procedures in the design and delivery of instruction for the benefit of teachers and learners..

The utilization of technological tools in catering craft span from the fact that catering involve cooking, and cooking has come a long way from the simple roasted animal, using the earliest technologies known to man to rubbing of sticks or stones to create a spark of fire. Over times, cooking technologies have changed and with those changes, the demand for skilled cooks, able to use technologies has increased. Professional cooking schools has become part of the educational process where caterers, nutritionist, dieticians and home economist are trained. In their practice, they are expected to use technology in restaurants, hotels, schools and other food service outlets for record keeping, catalogue management purposes, recipe design, and food production. Therefore, the student in training should be familiar with this technology they are to encounter in the workplace as well as knowledgeable about food preparation. It is therefore paramount for the catering craft educator to provide access to that technology as part of the teaching process.

Instructional Technology in the Teaching and Learning of Catering Craft

The use of technology has become a fundamental part of modern life and workplace and therefore appropriate to the educational enterprise. In particular, digital technology is now such an integral part of teaching, learning, research and scholarship that ignoring it in the field of catering will be ignoring an essential aspect of the development of both students and teachers in the area. Rutkowski (1999) examined the structure, spaces and systems in the electronic environment that can empower the learning process in general and can be a source of information in Hotel management and tourism (catering craft) with reference to the internet, intranet, and web technologies.

The Internet

The internet is breaking down walls and helping to redesign learning structures. Technopedia (2020) defined the internet as a globally connected network system facilitating universal communication and access to data resources through a vast collection of public, business, academic and govern ment networks. It is governed by the Internet Assigned Authority (IANA) that establishes universal protocols. While the intranet is a computer network for sharing information, it is a collaboration tool, an operational system involving computing services within an organization; usually to the exclusion of assess by outsiders. These tools are very important in the retrieving and

dissemination of information in the field of catering management. The internet avail students the opportunity to assess continental recipe from different parts of the world by utilizing search engine such as Google and others, in their classes. Array of information are in the different websites about hotels and how to effectively manage hotel businesses. These are to the benefit the students and teachers. In addition, the internet and the World Wide Web bring together students, instructors, experts and vast global resources in hotel management and tourism scattered around the word into new clusters, colonies and communities of learning. Teachers can now develop and teach classes from the comfort of their homes.

Intranets are breaking down divisions within schools and bringing together teachers of different levels, different classes and different department for collaboration by utilizing the intranet connective tendencies towards effective learning process. The digital environments represent new boundaries that may not necessarily be physically situated or time scheduled or restricted. Learning in catering can presently take place in virtual classrooms rather than in physical ones. The structure, electronic infrastructure and systems are many and ever evolving. Schools and training institutions can benefit enormously from the developing digital tools, technologies, systems and situations to increase achievement levels among students in the teaching and learning processes.

Virtual Classrooms

The digital system has resulted to fundamental alteration in human action, reactions and interactions. Human actions and interactions have become global. Education and educational institutions and individuals can now be truly and practically globalized in a way that teaching and learning can occur across borders, countries, continents. The virtual classroom situated in the virtual planetary, exist for all academic levels. The primary objective is to provide students or pupils from different physically dispersed locations with new and more interactive information as an alternative replacement to the traditional distant learning programmes. Students are able to assess online courses freely with access to the World Wide Web (www). Interestingly, it can integrate even conventional classrooms into collaborative learning global networks. It is noteworthy that virtual classes can effectively be integrated into hospitality management since education is becoming a virtual reality. A practical example is a situation where students watch the instructor, and follow his or her procedure to prepare a dish through the web. They are able to do this in the

luxury of their own kitchen. This perfect practice is far better than the conventional school food practical.

On line Database

These are new electronic frontiers that students and teachers in catering and hotel management cannot afford to ignore. Many of these databases are free while others are subscription based. Institutions can decide to subscribe to some websites. The department can even identify a website of interest and subscribe to it for limitless learning. There are comprehensive database designed to address the hospitality needs of the community.

Software Utilization

Technology has turned out to be an integral part of food service and hospitality management; therefore educators should stay current with the new exciting applications in the catering industry. Software such as CorTec application can be customized for use in catering craft classes. All the capabilities of CorTec are relevant to catering craft. Whether, the student is to work in hotel, tourism, hospitals or schools, the application is very relevant. It will expose the students on how to manage data with ease in the catering business. It is worthy to note that a broad spectrum of technology are available to choose from for use in the classroom and kitchen/ laboratory, but good caterer should be well informed before selecting any software. Software have also become handy in restaurants, hotels and other food service environment for it to offer opportunities for streamlining service such as recordkeeping, inventory management functions, menu design, evaluation and production of food services. Another application that can be useful is the Personal Digital Assistants (PDAs). PDA is far less cumbersome in the management of data in hotel industry than physical management. The PDA is also a recipe database, having ability to import recipe from Master cookbook.

Similarly, the Quantity Production Management (QPM) software is spectacular applications that can help managers of restaurant operate human and material resources automatically. It analyses food service operation, generate report, sales trends, and inventory and can quickly create food or supply orders accordingly. It alerts the kitchen staff when to start cooking and when food has been held past the prescribed time limit. This software encourages creativity for food service professionals. A host of other software has been designed to interact with our mobile devices in

food establishments. Food industry specific software and programs are option for a recipe books and other information.

Computers

The use of computers is a fundamental part of food service outlets. According to Mandabuach and Harrington (2019) computer usage experience is considered essential for culinary graduates and that a variety of applications are available which should of necessity, be integrated into the teaching and learning of Catering Craft programme. Graduates of catering craft are now expected to be computer literate and should be able to use the computer for processing and analyzing of data effectively. Topics such as food costing, spreadsheets, recipe development and other related topics should be taught using the computer.

Smartphone

A smart phone or tablet computer is a digital device having series of functions. It allows one to send and receive emails, texts, snap photographs, and multimedia messages. It registers contacts, calculate currencies, gives alarm, function for browsing the internet using a mobile browser. It is also used for playing games, video chat, and function in point of sale terminal when buying of goods or services. It allows for scanning. Teachers and students will find this device very useful, for it is a mini computer at their disposal at any time of the day. This technology is useful to travelers, tourists, customers and hotel managers alike, in that customers are able to locate and assess hotels all over the word and confirm hotel reservations. Additionally, business men and women are utilizing the mobile devices to carry out orders and even pay for their purchases using mobile device.

SocialMedia

Social media platforms provide vast and flexible opportunities for contact, communications and cooperation. They are useful for educational activities such as scheduling examination, and information sharing among teachers and students. Their advantage is very effective on mobile technologies such as smart phone. The advent of the Facebook marked the golden age of the social media. Today departments are creating Facebook for groups for their academic staff for easy administration through information disseminations or sharing. The use of whatSapp has been

tremendous. Also teachers are using social media platform to schedule classes and course administration, assignment submission and delivery of learning resources. In addition, video can be sent into students' whatssapp group which is referred to as steaming. Steaming Video is a form of technology which allows for images to be sent to computers without needing to be downloaded. In most instances, there is sound attached to the video images. The streaming video can be repeated in a loop, constantly played, or upon demand. Steaming video with recipes and instructional information can be integrated into the catering craft classroom. The video instruction can be added to the video clips to help them focus their attention during the lesson. This allows the lesson to be taught in a multitude of times by watching over and over again. Another example is a student watching a video of a procedure, for example a procedure of proper cutting of chicken, then goes into the lab for practice. Other forms of social media are:

Blogs with comment functionality to share and discuss information
Twitter and course hash tags to encourage open forum and debate
Skype to engage more deeply with the material and each other
Interest for sharing clever ideas, inspiration, and valuable resources
Amongst students Google Docs, Wikis and other collaborative document
Tools to store and refine data: Project Management Apps to foster and
Streamline collaboration.

Email

Teachers of catering craft can maintain contacts with students through their email. With an addition of a microphone and camera, he or she can present the lesson in the form of a podcast, either in real time or on demand movie for students to view at convenience.

Scholarly Websites

Traditional pattern of scholars' point of contact is the physical institution. Scholarly websites are now emerging as new frontiers for contact, communication and cooperation. Human and intellectual resources are now accessible to scholars through such websites where scholars can assess information. The electronic frontiers provide scholars and researchers with the appropriate platform to network and together in research groups. The emerald research register provides researchers around the world Webbers to update their status, register their work with appropriate field for research. The frontiers are many and still evolving. They include electronic publishing, online catalogues, periodicals and journals. Also available are communication platform, net

conferencing, storage facilities of the products of various fields of study including hotel management and tourism in digital devices like CD-ROM, zip devices, hard disc and data bases.

Smart School Technology and the Digital Age

Digital technology is the driving force of this age, and it is moving human activities and endeavor to the digital frontiers. These days there are digital classrooms, digital economy, digital television, digital phones, cameras used for teaching and learning. Remarkably, digital technology has equally developed smart systems and tools from smart phones, to smart televisions, cameras, smart boards, smart laboratories, and smart videos recorders. Traditionalism or maintaining the status quo slows down the pace of the development and advancement of smart system. Traditional educators are not shielded by the universal impact and penetrations of smart systems. For education shifting to smart schools technology is the ideal systems of teaching and learning and it has become persuasive necessities.

Ways of Enhancing Lesson Planning with Technology

One of the problems traditional teachers encounter in the use of technology is the ability to plan the lesson to integrate technology. The following ways are suggested by Class Craft (2019) for teachers to use technology include:

Lesson Organization: Computers help the teachers to better organize and present their information. Typing your notes in a Microsoft word or Google Docs , or creating a PowerPoint presentation, helps you focus less on how you are going to teach and more on what you are going to cover. During class activity, the teacher can project those notes into a big screen to give students an indication of where the lesson is going. If the teacher has a tendency to take rabbit trials or if the class is especially proficient at finding them, it's easy to refocus and redirect when the lesson content is neatly organized on the screen.

Visual Aids: Visual aids are very essential part of lesson delivery; a teacher should use as many visual aids as much as he can to make the lesson a reality. Fortunately the internet provides more opportunities than ever to find relevant images so that the teacher can give students concrete context for the subject. Pre-selected images can also be projected or shown on individual computers to reinforce the lesson while the teacher talks. At the very last, the teacher can print pictures from the off the computer and show to the class.

Videos: A short entertaining, instructional video is a great way to get students excited about learning. Some favorite sites are available in the website. YouTube also has a lot of videos on food preparations that can be very useful. You can use these videos to quickly introduce the subject, supplement your own lessons, and review the material before the examination.

Board work with the SMART Board: This technology is an amazing one. With this technology, instructors can easily project their computer screen into the board while still retaining the functionality of a traditional classroom white board. This means that you can display any picture, notes, or practice work from your computer and then write all over them as you discuss different element of the lesson. Students love coming up and writing on the board; this makes the lesson interesting.

Games: Educational games are great ways to reinforce your lesson and engage your students. Students can play pre-selected games on individual computers or teachers can project one game into the smart board and play to the class, especially a related game to the lesson. For example, class crafts (https://marketplace.classcraft.com/en?Hstc=753710.b4e01e2f7cd0f3f5c11c7f80f48e30bb.1602931822925.1602931822925.1602931822925.1&_hss.This offers both pre made and make your own quest that can be used to guide students through a particular lesson or unit. To make these quests even more engaging, one can include a company online game or short video.

Research: Internet has expanded the range of available resources and made research easier than ever before. Students no longer have to flip through hundreds of pages to find what they are looking for. Computers enable students to quickly and easily collecting formation from a wide range of credible online resources. Students can also use local library web pages to more efficiently search for relevant hard copy sources

Presentation: In presenting the lesson, the use of computer provide fun, power point is definitely a favorite that can be used for all ages. Students can write a recipe, display graph of a standard kitchen from different parts of the world, display graph and pictures of kitchen utensils and practice bread making through the slides. Prezi is another excellent online presentation resource for students for students. It gives them more freedom and creativity in how they choose to present the information and transition between slides. Students can also present what they have learnt by using tools such as Microsoft publisher to create brochures, posters, or post cards. There are programmes for students on how to develop their websites. Teacher can provide portals or any other platform

where questions and dialogue about assignments. It also enables teachers to give immediate feedback.

Grades Rather than recording grades on individual papers and in a grade book, and then sending out results at the end of the term, teachers can post the grades in an online portals that is assessable to students and parents. This allows everyone to get immediate idea of how the student is doing.

Benefits of Instructional Technology in the Teaching and Learning of Catering Craft

Technology in the teaching and learning of catering craft offer several benefit that are not available not available in the traditional classroom besides. Technology offer students more learning opportunities, making the process of learning a fun – filled one. Other benefits discussed by Emekwu, (2019) include:

1. **Easy access to information**

   The application of technology gadgets that have internet connection such as mobile phones, laptops and tabs makes it easier for students to gain access to information from the internet. These students would have all the information they want to know. Any topic of interest. Teachers are not left out, they are able to learn outside the syllabus as well and this only enriches them further

2. **Taking notes on a digital medium**

   One of the beauties of technology is that students can take their notes by using digital devices such as pens and tabs. This way, they are able to save significant amount of their learning time as well. They no longer need to carry all those heavy note books and text books to class. Technology such as Google Docs has also made it a lot easier for the teachers to come up with documents and presentations. This can add more value to their student's education.

3. **A better understanding of topics through digital tools**

   Technology helps to increase students' chances of making better presentations. Thus, the learning sessions at these classes normally use many visual aids. This includes PowerPoint presentations, word documents, audio sessions, and video screenings to name a few. They play a major role in conveying the lesson in a way that it will be more understandable. At times, a simple picture is good enough substitute for a thousand of words

4. **A great option for students who are absent**

   The fact that lessons taught through the use of technology is recorded creates opportunities for those who are absent to during classes. This means that those who miss a couple of sessions need not to feel bad because there would always be the video recordings to fall back on. They can go through the videos and also email the teachers in case they happen to have any doubt about the same. In the traditional classroom the students always find it difficult to copy all information the teacher has provided

5. **Learning in a dynamic Manner**

   It is a common knowledge that not all students in a class have the same power to grasp things. As far as the weak student is concerned they always find it difficult to hard in the traditional classroom. But in the use of technology, by being dynamic, made it easier for those students to learn at a pace they are comfortable with. This makes the entire lesson a lot clearer to the weak in particular.

6. **A teaching environment that is interactive**

   The digital tools are now an integral part of technological classes. This is why the teaching environment over here can be called interactive in the truest sense of the term. It is one where students and teachers have roles to play. This kind of learning makes the entire process a lot more transparent. It is a lot better than what it would otherwise have been. This improves interaction between students and teachers in a significant way as well. It also improves the bound between these individuals as well. This is because they are able to communicate outside the school with the help of email and other social network.

7. **Paper replaced by other digital tools**

   Each year students use tons of paper in other to take notes. These days there is a lot of emphasis on being environmental friendly and this is the reason most of the businesses are going paperless as well. In fact, by facilitating note taking on digital instrument it is now actually possible for the environment to be saved as well. . They are creating a way to replace usage and wastage. In such a way, there are no photocopies and printouts. And this is helping reduce the carbon foot prints as well.

8. **They are easy to maintain**

   In traditional classroom, students have to spend a lot of money each year buying educational item such books and pens to name a few. Even, as they go up these cost increase as well.

However, with technology such expenses can be kept to the bare minimum. In these classes, all you need to do in

Conclusion

Catering craft as a profession is extremely technical, where a caterer need knowledge and skills to thrive as an entrepreneur who will be self employed and in turn employ others. Therefore, suitable methods are needed to teach the needed skills. The usage of Inquiring Based Learning,ICT Project based instructional technique, Jigsaw Co-operative Learning, Peer Tutoring and Reciprocal Peer Tutoring have been beneficial in enhancing performance in most skilled subjects. In addition the use of instructional technology cannot be underestimated.

Way Forward

1. Teachers of catering craft should be retrained so as to expose them to the emergent methods and technologies in teaching and learning
2. Technical colleges should be equipped with technological facilities to provide enabling environment for technological literacy among catering craft students.
3. Workshops and seminars should be organized by government and stakeholders in education to equip catering craft teachers with global practices in their field.

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Effects of Poor Drainage System to Built Environment: A Case Study of Auchi Metropolis

By

Mrs A.O. Anetekhai

And

Mr. J.L. Kalu

Department of Building Technology
Department of Architectural Technology
Auchi Polytechnic, Auchi

Mrs A.O. Anetekhai is a Lecturer in the Department of Building Technology Department of Architectural Technology Auchi Polytechnic, Auchi
Email: anetekhaiagnes@gmail.com. Phone number: +2348128281871

Mr. J.L. Kalu is a Lecturer in the Department of Building Technology Department of Architectural Technology Auchi Polytechnic, Auchi, Email Address: Johnkalu@auchipoly.edu.ng

Abstract

This study focused on the adverse effect of poor drainage system in Built Environment in Nigeria using Auchi metropolis in Edo State as a case study. Three research questions guided the study. Using a descriptive survey, a well-structured questionnaire was administered to the stakeholders in built environment; and their perception of House Owners and Tenants in Auchi community was equally sought. Using proportionate sampling and random sampling techniques, a total of 150 questionnaires were administered and retrieved from the field. The data obtained were subjected to statistical analysis using percentages, mean scores, and percentile. This study reveals inadequate layout plan and design or absence of well-constructed drainage system and dumping of refuse on drains are the major causes of floods in Auchi as this ranked 1st and 2nd with a mean score of 3.54 and 3.37 respectively. The study recommends among others, that rain barrels and cisterns, Permeable Pavements; Permeable Concrete design roads and Interlocking Concrete Pavement should be used.

Key words: *Drainage, Maintenance, Impact, built environment, risk hazards*

Introduction

A built environment is described as man-made environment constructed to provide housing, businesses, estates and cities (Wikipedia, 2016). These environments are meant to support working, living, playing and to support infrastructure, S for habitable existence. However, over the years, it

has become very common to see flooded houses with litter floating everywhere after a short period of rainfall. Such situations create very unsatisfactory and unhealthy living conditions for residents of a neighborhood and contribute to the degradation of the environment. Despite the upsurge in physical development in Nigeria, in terms of construction and reconstruction of residential and private buildings, offices, stores, markets, industries among others, adequate attention has not been paid to put sustainable drainage systems in place to channel surface and run-off water along the roads, from canals, or premises. These experiences have made flooding to be a call for concern in most urban and developing communities in Nigeria (Aderogba, 2012).

Although, drainage systems are expensive to install, if they are well maintained, their benefits outweigh their initial cost. The main objective of a drainage system is to collect waste water and matter and quickly and systematically disposed to maintain healthy conditions in a built environment. A drainage system can either be natural or artificial. The natural drainage system is a means whereby water flows from the fields to swamps or lakes and rivers. Often times, natural drainage is always inadequate, and an additional artificial or man-made drainage is required. A typical drainage system consists of the following: outlets, ditches, side ditches, culverts, inner/out slopes, road structures and under drains. In choosing drainage systems for installation, certain factors are paramount, the expert considers the following factors: the *soil characteristics*, such as soil permeability, *suitability for mole drainage* (clay, type and content) and section of materials. Due to heavy rainfall onto surfaces, and runoff from different premises which are channeled across the road surface, a layer of water with variable thickness is created which may become problem for other road users as splashes and heavy sprays are thrown up by moving vehicles and thus creating a safety risk to the built environment.

In Auchi Mentropolis, existing canals, drainage basins and other drainage systems are not enough. They may be blocked or damaged by human activities such as construction of roads, buildings, factories which have reduced drainage channels and erosion passages, or diverted the natural courses of the flow of water resulting to flooding. (Agbonkhese, Malayi & Okoye; 2014). Although, flooding is a common phenomenonall over the world, it has become more rampant and distressing in the developing countries like Nigeria with flood risks in states of Kano, Nasarawa, and Niger Adeyinka, Okomayi and Okoye, (2008) as in Victor, (2010).

Auchi Town is the administrative headquarter of Etsako West Local Government in Edo State, Nigeria. The town is located on theintersect of latitude 7°N and longitude 6°E in the tropics.

It is bounded to the north by Jattu, to the south by Aviele, to the east by Iyakpi, and to the west by Iyaro in Owan local government area with a population of 150,000 people(Wikipedia). In Auchi Town today, there seems to be a great need for properly managed sustainable drainage systems around the buildings in order to help manage surface runoff water. The Federal are governments are carrying out rehabilitation works in and around erosion gully sites, extending culverts structures, and stilling basins in some major parts of the districts this rehabilitation work has diverted the natural flow of water to other parts of the cities whenever itrains. It seems as if the construction firms that handled these works did not make adequate provision for runoff water before commencing their rehabilitation work.

It is common to see flooded houses with litter floating everywhere after a short period of rainfall. Such situations create very unsanitary conditions for residents of the neighborhoods and contribute to the degradation of the environment. The study therefore seeks to find out the threats and hazards of poor drainage system in built environment and what is responsible for flooding in Auchi community despite the rehabilitation work done on the existing drainage systems and also to proffer a feasible solution to the menace.

Research Questions

The following questions guided this study:

i) What are the different types of drainage system used by construction films in Auchi Metropolis?

ii) What are the effect of poor drainage system in the Auch Metropolis?

iii) What are the necessary remedial actions to be taken to mitigate the effect of poor drainage systems in Auchi Metropolis?

Literature Review

Drainage design involves providing facilities that collect, transport and remove storm water from the highway. Globally, about 2.6 billion people are living without proper sanitation of which Africa is not exempted (WHO/UNICEF, 2012; Olukanni, 2013). The increase in the population of a settlement and the attendant growth of the needs of the residents bring about intensive exploitation of the resources of the environment. Such exploitation might increase to a level that the resources would not be able to sustain the population, and in some cases the environment would collapse resulting in serious environment problems (Asoegwu (2009) as cited in Olukanni, 2014). In

construction of drains, the designer should put into consideration the low velocities which usually occur during dry weather. Nevertheless, a successful drainage maintenance depends on early detection of problems before conditions require major action. These problems may give the following signs: puddles on the surface area; poor surface flow; slope erosion, clogged ditches, pavement edge raveling, preliminary cracking, pavement pumping, and surface settlement (Nyuyo, 2012).

Also Ufua, Salau, Dada, &Adeyeye, (2020) enumerated casual factors of flood in Nigeria to include: indiscriminate dumping of refuse on drainage channels; channel adjustment and poor drainage conditions; among others factors. Disposal of solid waste into the drains and drainage paths seems to have majorly accounted for water logging in Nigeria including Auchi community Agbonkhese, Malayi and Okoye, (2014) and Nkwunonwo, (2016) stated.

Types of Drainage Systems

There are two major types of drainage system, these include: natural and artificial drainage system. Artificial drainage is subdivided into surface drainage system, subsurface drainage system, downspout and gutter systems andSlope drainage system.

Natural Drainage: In this method excess water flows from the fields to swamps or lakes, however, this is often inadequate and therefore artificial or man – made drainage will be required as support. (Smith, 2016).

Fig 1: **A Natural drainage ditch (SOURCE: Aquabrightllc.comSource: www.google.com.)**

Artificial drainage system: Artificial drainage system is the use of pipes, wells, and other constructed materials to remove water from the environment.

a. **Deep open drains**: The excess water from the root-zone flows into the open drains. The disadvantage of this type of subsurface drainage is that it makes the use of machinery difficult.

b. Buried Pipe drains: These are buried pipes with openings through which the soil water is conveyed to a collector drain. These pipes are made of clay, concrete or plasticwhich are usually placed in trenches by machines, and water enters through perforations distributed over the entire length of the pipe.

Fig 2. Buried Pipe Drain

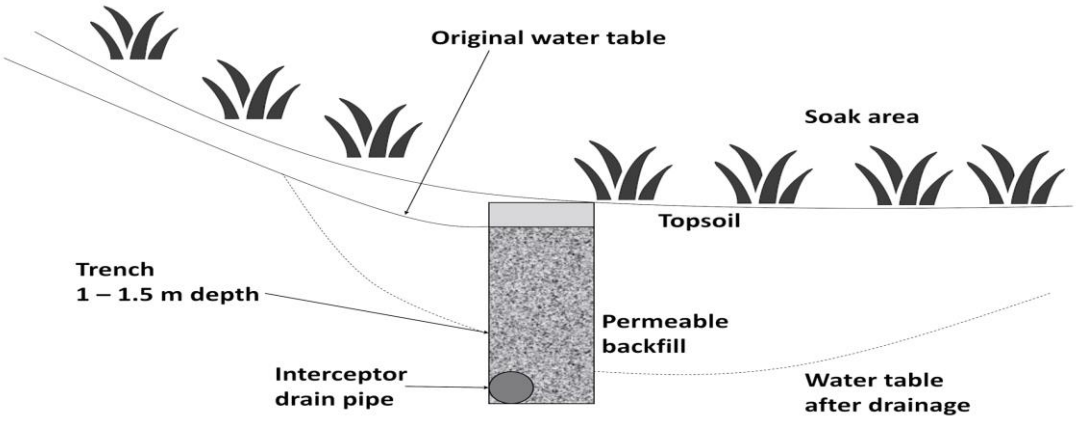
Fig 3. Downspout and Gutter systems (Source: www.google.com)

ii. Downspout and Gutter systems

Downspouts collect water from gutters and divert it to the ground. A downspout is typically connected to a gutter system on a building and carries water away from the roof down to the ground. Downspouts empty out the water on a slope so that the water does not pool at the base of the downspout.

iii. Slope Drainage Systems

Slope drains allow water to flow downward from a structure with the aid of pipes moving down a slope. A pipe is installed and anchored into a small incline, which causes water to flow through the pipe and away from the structure. Interceptor drains is an example of slope drainage.



SOURCE: www.vic.gov.au

Fig 1. Slope Drainage Systems

e. Dry Well Drainage System: **A** dry well is an underground system that is resposible for removing unwanted water from storms. The system is comprised of a porous- walled chamber, covered at the top that slowly disperses the captured water into the ground. This process helps to alleviate ponding or flooding.

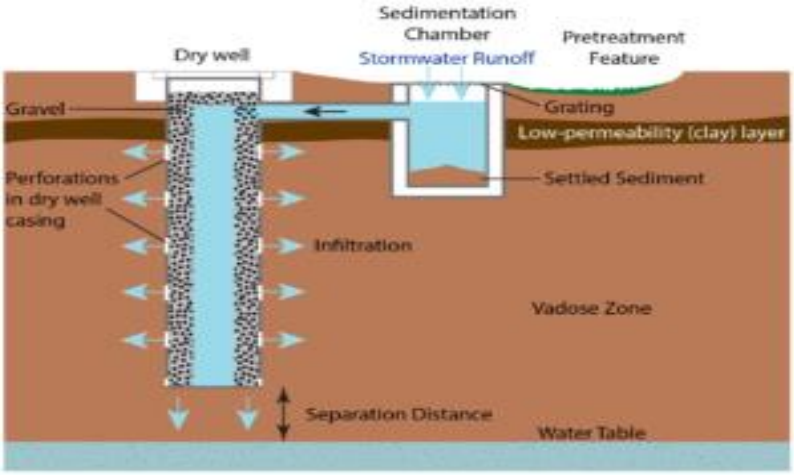


Fig 2 **Dry Well (SOURCE: Aquabrightllc.com)**

Fig 3. A Slot Drain System (Source: sportsedge.com)

Causes of Poor Drainage System

The most common causes of poor drainage system include:**blockages, heavy storms and rain, damaged pipes, inadequate layout planning and design, Shallow drains, lack of maintenance;**displaced or open joints;root intrusions**among others.**

ii) Heavy storms and rain:

After heavy rain or storms, drains outdoors are usually blocked by the leaves, cellophane bags, broken plastics and other debris/dirt. These drains are not made to manage large volumes of water. Therefore, this may lead to flooding outside the property as shown below in Plate 5(a-b)

Shallow Drains /Damaged Pipes

Another major cause of poor drainage is a broken or collapse section of a major pipe. For water to flow freely, it needs perfect pipes, or else it may collapse. This could be as result of shallow drains, or the growth of tree roots. And water may flow into the terrain around the pipe this could cause foul smell, and lead to damp or growth of mold on the walls of the building.

Fig 4 (a) **Blocked Drains** Fig 4b: **Flooded road in Lagos**

(Source: encrypted-tbnO.gstatic.com)

Fig 4c: Submerge Building in flood 4d) Refuse Dump in drains

Along Solo Street in Auchi Along Iyekhe Street in Auchi

iv) Inadequate Layout Planning and Designs: With increasing trends in 'doing work on your own' has created many problems. This has led to poor installation of drainage pipes by inexperienced plumbers. Inadequate layout planning and designs of pipes could cause serious damage to the drainage system. In many houses the vents are not well located or it seems not there at all. So foul air from the sewer flow into some of the rooms. And also these could disturb the free flow of waste water to the soak ways and septic tanks which might damage other parts of your property.

b) Lack of Maintenance: Thelack of maintenance often results in deterioration of structures which leads to total collapse of the structure. Plumbing work requires an annual or regular servicing of the plumbing systems in the home, which include repairs, inspection, and testing for preventive

measure to minimize or avoid future damages. Other causes of poor drainage include**: Shallow Drains /Damaged Pipes;Water Flow Problems;)**Displaced or Open Joints;Root Intrusions;**Blockagesamong others.**

Effect of Poor Drainage System in Auchi Metropolis

1. **Hydroplaning:** This occurs when a layer of water builds between the wheels of the vehicle and the road surface leading to a loss of grip that prevents the vehicles from responding to control inputs, (Wikipedia). The water prevents tires form gripping the road this could lead to loss of steering control and accidents.

This is a serious problem facing motorists that ply the roads whenever heavy rainfalls occur, the runoffs water from premises is channeled to the roads. This occurs mainly along Auchi - Aviele road by Cattle Market, Auchi - Okene road by NNPC Filling Station, and within the town along ICE road, Igbe road, Warrake road, Igbo Shade among others.

2. **Erosion**: Poor drainage system or failure of drainage system can also result to erosion problems; this has been experienced in many areas in Nigeria including Auchi Community. This has led to abandonment of some major streets and houses within the community, big gullies are created, blockage of roads, washing away of the fertility of the soil. Although the federal and Edo State government are giving assistance to arrest this situation by constructing bigger gutters and drainage basins more need to be done to arrest the situation in the Town.

3. **Diseases:** Poor drainage system could result to deterioration of health of both old and young persons, this is due to increase in water borne diseases and unsanitary conditions. This could cause serious health hazard- air borne disease, water-related vector borne disease among others. Persons living in such environments are also exposed to air pollution with stagnant water, chronic health issues related to exposure to residues of agrochemicals.A total of 871 persons were diagnosed with Lassa fever between January and March and 12 deaths were recorded in 2019 according to NefisatIkerodah – the director, Disease Surveillance, Etsako West Local Government Area. (www.premiumtimesng.com).

4. **Indiscriminate Waste Disposal:** Some residents regularly dump waste in gutters, along the road and in market places, so whenever it rains it is common to see flooded streets with these waste, litters, floating everywhere. This often leads to unsanitary conditions which contribute to the degradation of the environment and risk to the building industry.

5. **Flooding**: Poor drainage system can also result in flooding which destroys lives and property. Destruction of crops and farmlands can also cause loss of livestock. In 2019 the major rivers in Auchi were over flooded, including River Ole, and Egbogwo river, such that vehicles travelling to Akoko Edo, Owan and Benin Okene roads stood still for hours and some for days.

Other effects of poor drainage system include:Pollution by organic or inorganic substances; It can also affect quality and quantity of water source to the community; It causes remnants in soils keeping it moist and plastic for long periods; Runoffs water can also wash away some sections of a building exposing the foundation. It can also make a building to submerge in wateror cause partial settlement which could be a risk to the occupants and adjourning buildings(Smith Russel, 2021). In summary, the problems and risks associated with poor drainage in built environment are enormous.

Mitigation Measures for Effective Drainages System

Good drainage system needs to be taken into consideration at the early design stages in order to secure a long life for a building, road or other structures. The following facilities are readily available and if put in place could help to control the storm water generated from premises. These facilities include:*storage tanks* that capture runoff water from catchment areas such as the roofs;*Rain Barrels and Cisterns*;*Permeable Pavements*; *Bio-retention areas*; *Riparian Buffers* are some facilities that collect, transport and remove storm water. Mitigation measures also include:

- Roads should be de-watering to remove the ponding water from the roads. Cross fall and impermeable pavement leading water away from pavements, road shoulders to the ditches should be built around the major roads.
- Ditch slopes should be built using concrete slabs along both sides of the roads to prevent erosion
- Outlet ditches should be excavated in a way that natural water course could be discharges into channels or excavated away from the road to minimize any accumulation of silt, mud or other harmful materials.
- Detention ponds should be provided to gather and allow the runoff water to drains into the ground slowly over a period of time and be ready for the next rain storm event.
- Education/information on waste treatment/emergency events should be provided to building occupants and house own
- Standard practice flood resistant construction techniques should be adopted in areas potentially prone to flooding.
- Rehabilitation in and around erosion gully sites – stone revetment to reclaim and protect road ways, extension of culvert structures to the ditches, shut channels, stilling basins, should be built in some areas prone to floods.

- Use of rain barrels, Polyethylene Cistern, building of Permeable Pavement, Permeable Concrete, Interlocking Concrete Pavement should be encouraged in premises.

Fig 5: Permeable Concrete (Source: roohome.com)

Fig 6 Interlocking concrete (Source: 3riverswetweather.org)

Fig 7: Sustainable Design Road

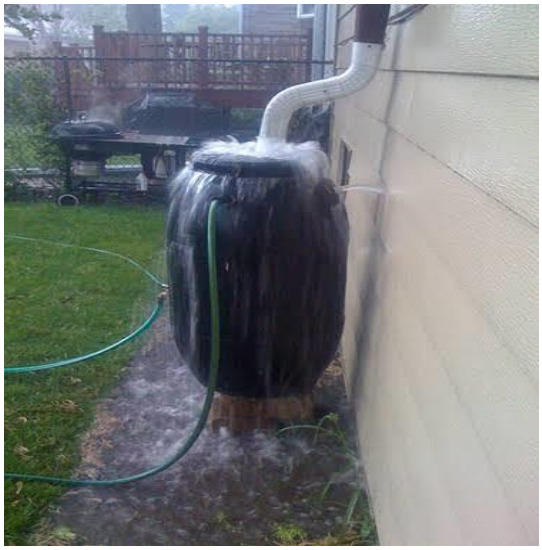


Fig 8: Rain Barrels

(Source:kingcounty.gov)

Fig 9: Underground Polyethylene Cistern

Fig 10: **Permeable Pavement**

(Source: watercache.com) Source: nacto.org

Methodology

A descriptive Survey was carried out using 150 professionals -*Builders, Architects, Quality Surveyors*, Engineers in the building environment and house owners and some tenants in Auchi community, in Edo State. Using random sampling techniques 150 well-structured questionnaire on poor drainage system in built environment was draft, validated by two experts in built environment.A pilot study was carried out to ascertain the consistency of the instrument. The data collected were analyzed using Cronbachreliabilityindex and 0.74 was obtained which shows the fitness of the instrument.The data collected, were measured on a four point likert scale, and analyzed using percentages, mean scores and percentile. The minimum mean score accepted as agree was 2.5.

Tab 1: Causes of Poor Drainage System

S/N	*Identified causes of poor drainage system*	*Mean (x)*	*Rank*
1	Inadequate layout plan and design or absence of well-constructed drainage system	3.54	1st
2.	Dumping of refuse on drains could block the drainage system	3.47	2nd
3.	**Heavy storms and rainfall** during the period.	3.37	3rd
4.	The most common drainage problem is blockage of pipes	3.37	3rd

5.	Growth of molds on walls	3.31	5th
6.	Lack of ventilation in drains could cause a breakdown in the system	3.30	6th
7.	Open joint in pipes result to structural damages	3.27	7th
8.	Broken/collapsed pipes can attract pests and rodents	3.19	8th
9.	Use of unskilled personnel	3.01	9th
10	Use of poor materials	2.91	10th
11	Fracture and cracks	2.87	11th
12	Root intrusion often affects the sewer system creating punches or holes in pipe lines	2.64	12th
13	The topography of the community could affect the drainage system	2.20	13th

Fig 1: Field Survey (2022)

Table 1 result shows that inadequate layout plan and design or absence of well-constructed drainage system has average score of 3.54 ranked 1st among the causes of poor drainage system. This is perceived to be as a result of the use of inexperienced plumbers. While dumping of refuse on drains has average mean score 3.47 (Agree) ranked 2nd. **Heavy storms and rain**fall during the period and blockage of pipes has an average mean score of 3.37 each.

Table 2: Effect of Poor Drainage System in Built Environment

S/N	*Statements*	*Mean (x)*	*Rank*
1	Poor drainage system can cause health hazards in built environment	3.63	1st
2.	Lack of maintenance of drainage often results in deterioration of structures	3.55	2nd
3.	Gullies are caused by poor drainage system	3.53	3rd
4.	Buildings can be submerged in floods due to poor or shallow drainage system	3.50	4th
5	Poor drainage system could cause risk to vehicle and other road users	3.48	5th
6.	Poor drainage system could cause air pollution	3.46	6th
7.	Erosion water on the road could cause hydroplaning in the tires of vehicles	3.43	7th
8.	Poor drainage can cause loss of water sources of a community	2.63	8th

Field Survey (2022)

Table 2 indicates the effect of poor drainage system in built environment and the major effects as identified by the Respondents are health hazard with a mean score of 3.63 (Strongly

Agree) closely followed by deterioration of structures with a mean score of 3.55 (Strongly Agree). Others in the ranked order include: create gullies; buildings submerged in floods as a result of shallow drains, causes hydroplaning of vehicles, with mean scores of 3.53, 3.50 and 3.43 (Strongly Agree) respectively.

Discussion

The result of the study reveals the overall ranking results by the respondent, on the risks of poor drainage system in built environment which are as follows:- inadequate layout plan and design or absence of well-constructed drainage system, dumping of refuse on drains, blockage of pipes and heavy rainfall ranked 1st, 2nd and 3rd position respectively with means of 3.54, 3.47and 3.37 respectively are among the most significant causes of poor drainage system in built environment-Auchi community.

This is in consonance with the findings of Agbonkhese, Malayi and Okoye (2014) and Ufua, Salau, Dada, and Adeyeye (2020), that indiscriminate dumping of refuse on drainage and canals adjustment, poor drainage conditions are the major causes of poor drainage system in Nigeria including Auchi. On the effect of poor drainage system in built environment, the general views of the parties reveal the followings as the most important effect of poor drainage system in built environment: health hazards (3.63), deterioration of structures (3.55), creation of gullies (3.53), and building submerged in floods (3.50) respectively among others. The result above is in agreement with previous research work of Victor (2010) as stated inNyuyo (2012) and Nkwunonwo (2016), that runoffs water is the major effect of big gullies on peoples' land, blockage of the roads, and also deterioration of structures in built environment which are also some of the challenges faced by Auchi community. Poor drainage system in built environment in its wide definition affects every section of the buildings and the built environment.

Conclusion

The study has discussed the poor drainage system as a risk to build environment: Using Auchi Community as a case study. The study identified causes and effects of poor drainage system to the built environment; and suggested ways to mitigate these effects in order to protect lives and properties and also to save the built environment from total collapse or face serious ecological problems in the future. The study therefore concluded that a well-designed drainage system should

be put in place such as: drainage wells, detention ponds, rain barrels, polyethylene cistern, building of permeable pavement, should be constructed in premises to reduce the runoffs water in the streets.

Recommendations

Based on the findings of this study, researchers recommends as follows:

- Paved'Road shoulders' should be built around the major roads to give lateral support to the road. And Ditch slopes should also be provided to divert water to and from highway.
- Education/information on waste treatment/emergency events should be provided to building occupants and house owners.
- Well design deep drains should be installed alongside the new roads to allow quick flow of runoffs water.
- The gutters should be cleared, all refuse disposed properly before the raining season. Everyone should cooperate to save the built environment.
- Adequate layout planning and designs of pipes should be done by qualified engineers and good quality pipes should be used, maintained by a professional plumber to avoid regular plumbing issues.

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