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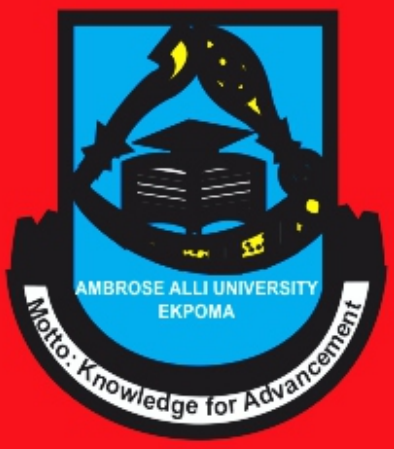

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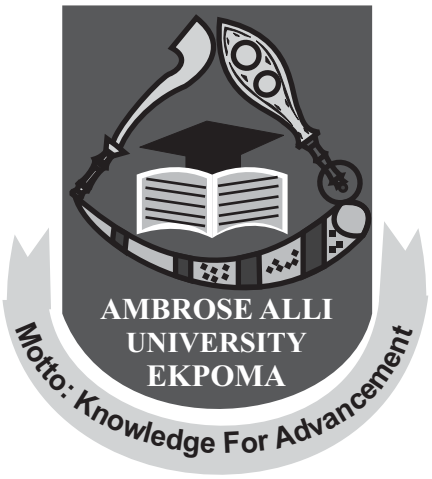

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CONTENTS

IMPROVISATION OF INSTRUCTIONAL MATERIALS: THE NEW FACE OF EFFECTIVE TEACHING AND LEARNING IN PRIMARY SCHOOLS

By
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Abstract
The paper focussed on improvisation of instructional materials: the new face of effective teaching and learning in primary schools. This is important at a time when the stakeholders, researchers and teachers are worried about the academic achievement of pupils at the primary school level which is the bedrock of education. Though teaching is said to have taken place, the academic achievement of pupils have shown that teaching and learning is not innovative and interactive. Improvisation and use of instructional material is the new face of effective teaching and learning in primary schools. The paper focussed on the concept of improvised instructional materials, types of instructional materials, basic skills needed by teachers in improvising instructional materials, maintenance of improvised materials, strength and weaknesses of improved instructional materials.
Keywords: Improvised, Instructional Materials, New face and effective teaching and learning.

Introduction

The use of improvised (local) materials to supplement learning process has been found to be very effective in different parts of the world. The effective teaching of any subject especially at the elementary (primary) school will not only stimulate pupils interest in the subject, but also enhances applicability of the concept in real life situations. To achieve effective teaching and learning process especially in primary schools mathematics where students assimilate based on what they see, there is the need for the use of relevant instructional materials. Instructional materials are teaching aids which teacher employs to facilitate his or her teaching for the attainment of school objectives. Now that the economy and general academic performance in schools of most of the African and developing countries of the world is falling drastically (Ebhomien, 2020), it is obvious that learning Mathematics as a subject is the yard stick for comprehending other primary school subjects. Government at all levels cannot provide all it takes to improve the quality of education in their countries to meet the labour market standard. As a result, teachers of Mathematics and other subjects' area should endeavour to make use of locally available resources (improvised instructional materials) to motivate and enhance pupil's academic achievement in Mathematics which will in turn pave way for easier comprehension of all other subjects' areas.

Concept of Instructional Materials

Instructional materials are materials or tools locally made or imported that could lead to enhancement of lesson impact if intelligently used (Isola, 2010). They are objects or devices, which help the teacher to make a lesson much clearer to the learner. It is a material or tool locally made or

imported. Instructional materials can also be defined as materials that could make tremendous improvement of a lesson if judiciously utilized (Wambui, 2013). Instructional materials are tools used by teachers to aid explanations and make learning of subject matter understandable to students during teaching learning process (Oluwagbohunmi and Abdu-Raheem, 2014). Instructional materials play the role of a stimulant in the teaching and learning process. They introduce a learner to materials and convey a precious quality of intimacy (Amadi, 2012). In furtherance, they help the mind of the learner on what is taught apart from being aids to memory. Moreover, they make learning and teaching more understandable and real. Instructional materials boost teaching and learning as they stimulate thinking and concretize learning (Ige, 2004).

Successful implementation of any curriculum is almost fully dependent on the quality and quantity of instructional materials available to teachers and pupils for use in schools (Usman, and Adewunmi, 2016). Instructional Materials are used as checks to the teachers' knowledge and means of transmission. They give teachers the air of guidance, co-ordination, supervision and more time for correction in the class lesson (Stephen, 2015). Provision of high quality learning materials and facilities such as conducive lm strips, computer, classroom, furniture, teaching aids, such as periodicals, slides, film stripes, accommodation, log books chairs, tables, libraries and good working space are very essential for quality education (Kolawole, and Arikpo, 2001).

Improvised instructional materials

Improvised instructional materials are those teaching and learning materials produced using locally available resources with the help of experts (Ahmed, 2018). Improvised instructional materials are teaching materials designed and produced from the available local materials in order to promote effective teaching and learning in schools. They are materials that are used in the absence of the original or the ideal objects to bring about the same learning effect that the standard materials would have brought (Ahmed, 2018). The idea of making use of available local resources for the shortfall to ensure that teaching and learning progress simultaneously without hinges is referred to as improvisation (Eze, 2017). Improvisation is the use of local resources in our environment to assist in the smooth dissemination and transfer of knowledge from teachers to pupils. Improvisation is the act of using alternative materials and resources due to lack or insufficiency of some specific first-hand teaching aids to facilitate instruction (Bajah, 2000). Improvisation is an act of using materials and equipment obtainable from local environment, or designed by the teacher or with the help of local resource personnel (local art and crafts experts) to enhance effective instruction. Improvisation appeals to the three educational domains (cognitive, affective and psychomotor)(Bromide, 2020).

Improvisation could be regarded as the act of using alternative materials or equipment accessible from the local environment or created by the teacher or with the help of local personnel to simplify instruction (Shodeind, 2015). Improvisation demands adventures, creativity, curiosity and

perseverance on the part of the teacher. Such skills are only realizable through well-planned training programme on improvisation (Onasanya, and Omosewo, 2011).

Why Improvisation of Instructional Materials

Generally, improvisation of Instructional materials are the relevant materials utilized by a teacher during instructional process to facilitate teaching and learning and for the purpose of making the contents of the instructions more practical and less vague. Specifically, it important because of the following functions they perform:

- They increase the rate of learning and at the same time allow the teacher to use more time on other gainful activities.
- They effect a reality of experience that stimulates self-activity on the part of the learners.
- They provide learning experiences which are not within the immediate classroom environment.
- They discourage rote learning by emphasizing realistic learning.
- They make abstract term, concepts and generalizations more practical and realistic.
- They help the learners to focus their attention during teaching-learning process.
- They provide teacher with the means of guiding and controlling the desirable responses of the learners in relation to stimulus materials of the learning situations.
- They develop in the learners, awareness of problem, open up possibilities for exploration, present meaningful interactions which naturally lead to provision of solutions to learning problems.
- They help to stimulate purposeful and utilized self-activity and this is much more preferable educationally than a more or less passive and often bored listening.
- They improve the classroom communication process between the teacher and the learners, with this, the expected improvement in learning output will be accomplished.

Types of Improvisation

Locally produced instructional materials can be of three types namely;

- Improvisation by substitution,
- Improvisation by modification and
- Improvisation by construction (Adu, 2014).

Basic Skills Needed by Teachers in Improvising Instructional Materials

As a teacher on the field improvising and using instructional materials for the effective teaching and learning in primary schools, the following are basic skills needs to guide them in the task of improvisation of instructional materials.

- Pen lettering skill
- Modelling technique
- Free-hand writing
- Calligraphy skill
- Use of colour in graphics
- Weaving and other crafts
- Painting,

Maintenance of Improvised Instructional Materials

The improvised instructional materials are materials made by pupils and teachers for effective teaching and learning. For the purpose of future use, there is the need to maintain and store the materials properly. The following are tips for maintenance of improvised materials.

- ✓ Proper storage
- ✓ Cover after use
- ✓ Handle with care
- ✓ Repair and replace damaged parts
- ✓ Keep out of reach of children after use
- ✓ Keep them away from sun
- ✓ Keep them away from water or anything wet
- ✓ Provide enough ventilation

Hands-on-Task (Practical Session)

We are to put produce some basic mathematics shapes such as rectangle, square, triangle, cylinder, cone, trapezium, kite, rhombus, parallelogram that we help us to teach two, three and four dimensional shapes effectively in class.

The session will break into six practical groups with each group having a specific task or shape to produce under the supervision of the facilitator.

Strength of Improvisation of Instructional Materials

a. Improvisation is the best way to discover new shortcuts on the road of life, when old routes are blocked, misleading, or dangerous, and change is a must. We have to break rules then, giving free reign to our feelings, equally expressing pleasure and pain, gratitude and anger, without reserve, when old thoughts, habits, traditions, politics ... no longer work, and REVOLT on morbid stereotypes is a necessity.

b. Improvisation offers a new knowledge usually impossible under normal circumstances, freeing suppressed ideas locked up in our heads, and accepting new unconventional ones, that many miss out of fear, habit or apathy. It takes less cost and effort, yet more focus, tenacity and courage, to cease the opportunity and all its benefits.

c. Improvisation boosts self-confidence, by what we discover alone without *others*' help, and by the mere fact we ignored our *fears* to improvise and follow an idea/feeling/action to the end. We become no more afraid of others or ourselves.

d. Meanwhile, others trust us more, for feeling and *trying* what we do and say first, preferring a more honest spontaneous speaker/leader/artist/comedian ... to an artificial one too good/organized to be true. They feel more pleased and grateful for letting them watch/share a "live experiment" we perform before them, that none of us knows the outcome of.

e. It gives us pleasure, while we freely break and reshuffle rules, traveling down the mind's endless lanes, and expressing *whatever* ideas without reserve—absurd, vague, complex, or incomplete, reflecting the intriguing nature of life itself, whose mysteries we may later understand by better tools.

f. It makes understanding, and life easier, *preparing* the mind for the more difficult concepts and situations we are yet to face, when the memories of our free spontaneous

actions later become our best guide. We cannot trust rules or take orders we don't experiment and familiarize with first.

g. Improvisation is vital for survival in unexpected difficult circumstances, if applying old strategies is insufficient or useless. It fits and depends on *chance*, which is good when we have no choice, time or guide, as its momentary power generates new thoughts and actions on the spot. It's a risk worth taking when we risk life to *save* life. (Improvisation is like driving with one hand, having the benefit of doing some things with the "free hand" yet the risk of losing control over the busy one, and everything else. The wheel is our life, the busy hand is our mind, and the free hand is our survival instinct experimenting with our unused potential and hidden abilities.)

Weaknesses of Improvisation of Instructional Materials

a. Improvisation can cause irresponsibility, used as a pretext to justify one's *idleness, procrastination or anarchy*, like a lazy student/worker/contestant postponing today's work for tomorrow, assuming improvisation will be enough then. Or an artist/poet solely relying on inspiration with no artistic knowledge or rules. Or an anarchist believing that lawlessness is a law itself.

b. However important experimentation is, it is still limited, in the new knowledge and change it offers. We cannot discover the world while improvising; absorbing a good book can be more useful and enlightening than a thrilling experiment. We cannot bring real change by mere improvisation, whose effect is temporary, requiring other elements to *sustain* such change: planning, cooperation, perseverance, etc.

c. Every experiment has its own cost, time limit, ingredients, results, and rules it must follow. Otherwise, when we fully rely on improvisation, we sacrifice all the knowledge we've grown in life before that moment, the price of which is unpredicted, as one can LOSE CONTROL**,** and accordingly *coherence, meaning, purpose, energy, time, resources, fairness, safety, honesty, and respect*. Nothing is more dangerous than losing one's self-control.

d. Improvisation can be deceptive, by the seeming *spontaneity* it has, which is not an indicator of honesty or originality. It only reflects the intelligence, experience, and diligence of the speaker who may work in advance of the moment of truth. Everything we say or do is the result of what had been practiced by our minds, minutes, years, or millennia before, that became inherent in our thinking; conscious of it or not, directing or directed by us, it finally leads to our "seemingly" spontaneous acts.

e. Improvisation is disruptive to any system's order, like a sudden jolt that takes time to settle. To counterbalance this, in-advance planning is never harmful. There is time for plans and time for actions. Our entire life can be planned for: its duties and pleasures, work and leisure, etc. Every moment in life is worth preparation, even that when we seem most spontaneous: while enjoying simple pleasures; doing a mechanic routine job; following our heart/instinct/guts or habits; following the herd or other people's plots and orders; or following our own fate without trying to

change it.

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APPRAISAL OF NIGERIA FORMAL EDUCATION WITH THE 6-3-3-4 SYSTEM OF EDUCATION IN FOCUS: IMPLICATIONS FOR EDUCATIONAL PLANNING

By

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Abstract

This paper traced the development of education in Nigeria before the colonial period, through pre independents, post independence, and to the present day. It appraised the various periods in the educational life of the country. It recorded how education grew gradually from the imperialist and missionaries, who were solely in charge of education between 1842 -1959. Before independence in Nigeria, education was patterned after the English culture and values. Nigerian culture and linguistics were completely kept out of the system. After independence in 1960, various bodies were established, which eventually reshaped Nigeria education to suit the needs, interest and aspiration of the Nigerian people. Amongst these was the white paper issued by the Federal Government of Nigeria in 1977 on the National Policy on Education. This therefore ushered in the 6-3-3-4 system of education. The 6-3-3-4 system could not be fully implemented because of the challenges it had from its unset. Some of these challenges include; lack of fund, corruption, lack of qualified and trained teaching personnel, among others. Also, some notable suggestions on how to avert future problems and their implications on educational planning and implementation were highlighted. These include; proper funding of education, organization of comprehensive training for teachers, depoliticisation of education, employment of competent guidance and counselors in schools amongst others.

Key words: Formal Education, 6-3-3-4 System, Educational Planning.

Introduction

When looking at the development and evolution of education in Nigeria, the way and pattern of its development, policy planning and implementation, and the various stages it has gone through, it becomes pertinent to give a short but concise background history of the system of education, during the pre-colonial, the colonial, and the post colonial periods, and how we arrived at where we are today. First and foremost, it is very important to note that learning has being taking place in Nigeria, like in other parts of Africa before the coming of the missionaries in 1842. This therefore implies that in whatever way it seems, there were some forms of training and learning that Nigerians were undergoing that made them proficient and productive in their chosen vocation, trade and occupation. This assertion was succinctly corroborated by Fafuwa (1984), when he said that in the old African regions; including Nigeria, the men of character or one who combines the later features with a scientific skill was adjudged to be a well educated, learned and integrated citizen of his environment.

Education in Nigeria gradually metamorphosed beyond this level with the coming of the Christian missionaries into the coaster regions of the southern parts of Nigeria in 1842 shortly after the abolition of the ill-fated slave trade. These white Christian missionaries came with them education alongside evangelical mission in their bid to convert Nigerians into their Christian faith. These Christian missionaries and the British government under whose administration Nigeria was a colony were in charge of education until the government of Nigeria discovered that education is a big investment, and an avenue to bake her citizens to be more useful to themselves and the society (Taiwo, 1980). Therefore the government then adopted education as an instrument per excellence for effecting national development (Federal Republic of Nigeria, 2004).

Education in Nigeria before Independence

According to Mallum (1975), the period between1842-1882 was particularly important in the history of education in what is now modern day Nigeria. This is because, it was that time that, the Christian missionaries for the first time effectively introduced literacy education to the western part of Nigeria. During this period, the missions were the only institutions spearheading the activities of education. The result was mission controlled, and education policies were dictated by them (Christian missionaries) up to 1882 before the British government began to show interest over the management and control of education. Indeed, the education was based on religious motives and the underlying philosophy of the education was moral instruction, with a curriculum based on the recitation of the catechism, the creed, reading and quotation of Bible verses, singing of hymns, etc (Osokoya, 2002; Aluede & Omoregie, 2008; Onoguere, 2015). This education that was provided by the Christian missionaries, merely prepared Nigerians for low personnel cadre like messengers, interpreters, cleaners, catechists, etc (Onoguere, 2015).

As noted by Fafuwa (2004), there was no educational policy by the colonial governments in Nigeria until 1925. Before then, rules, regulations, and codes on education were fragmented, issued either by religious and voluntary agencies, or by administrators of the entity called Nigeria after its amalgamation in 1914 by Lord Lugard. The first known policy on education was issued in1925, three years after the Phelps-Stroke's commissions report on education by the colonial government of Lord Lugard. The policy was the first to establish colonial governments' interest and control over a unified education system in Nigeria. The policy regulated the establishment of schools, the curriculum, registration of teachers, and supervision of education among others. It led to a complete education system that included primary, secondary, technical and vocational schools, as well as institutions beyond the religious schools.

Throughout the colonial period (1842 - 1959), Nigerian formal education was patterned after the English system. The accent was on English, and an educated Nigerian was one who only was African in color, but completely English in behavior, thought and culture. The ability to speak English fluently and if possible with an Oxford accent was the hallmark of

excellence, even if the speaker was empty of thought and ideas. Both the early missionaries and the early English teachers discouraged and indeed, kept Nigerian culture and linguistics activities out of the school system. Instead, English culture was promoted in all of its ramifications. In effects, a good British subject (Nigerian) in Nigeria before independence was one who was a Christian, a speaker of English language, who wore English cloths and exhibited English manners. Onwuene (1996) noted that, the purpose of colonial education was to socialize Nigerians in order for them to be obedient to constituted authority. The schools established by the British government that complemented the Christian missionaries schools could only produce clerical officers and administrators, with a curriculum content that only covers areas of liberal arts and humanities, without any form of science, technical and vocational studies (Onoguere, 2015).

Okorosaye- Orubite (2008) noted that, the end of the Second World War in 1945 signaled the beginning of the process of decolonization and an upsurge in the demand for the provision of modern educational facilities in colonized parts of Africa. In Nigeria, a new constitution was introduced by the Governor General, Lord Arthur Richards in 1946. This constitution provided for a central legislature to administer the whole country, and Regional Houses of Assembly to act as advisory bodies to central legislature. By 1951, a further constitutional development gave executive legislative powers to the regional assemblies. The Macpherson constitution had three legislative lists; executive, concurrent and residual, which of course included education from childhood to adolescence.

The first government that initiated ideas of introducing Universal (free) Primary Education (UPE) scheme was the Action Group in Western Nigeria led by Chief Obafemi Awolowo in line with his welfarist ideology. The scheme took off on 17th January 1955. Osokoya (2002) maintained that, this UPE welfarist scheme was to ensure social welfare and political socialization of the masses, and not just a mere mass literacy program. This novel scheme, the UPE program, which was one of the resultant consequences of the Macpherson constitution was subsequently embraced by the Eastern Region in 1957 and also the Northern Region in 1958 so as to stem the wave of mass illiteracy in the country.

Nigeria education further expanded into higher education, following the setting up of the Elliot's commission on higher education in 1943. This therefore, led to the establishment of the University College Ibadan in 1948. This was followed by the establishment of another commission, called the Ashby commission, which published its report in 1960 at the attainment of independence. So at the wake of independence, there was a clear absence of what one would refer to as an educational policy with a national outlook.

Post Independence Education in Nigeria.
With the attainment of independence in 1960, Nigeria like many other nations in Africa began to question with renewed vigor the kind of education inherited from the colonial masters and its relevance, in relation to industrial and technological development. Nigerian educationists and

government functionaries saw the need to revolutionalize and awaken the docile and non functional education which of course has little or no relevance to the needs and aspiration of the Nigerian society.

It was however realized very quickly that the kind of education handed over to the Nigerian nation was such that does not have a solid and concretized philosophical base, with a curricula content meant to prepare Nigerians for export rather than being productive and useful to the Nigerian society. So, it therefore became pertinent to redirect the educational system with a view to making it relevant to the needs and aspiration of Nigerians.

To chart a new direction and evolve an appropriate educational system for the country, the role of basic research into scientific and technical evolution became a focal and top burner in Nigeria's developmental agenda. Consequently, the various states of the federation, as well as the federal government as quickly as possible embraced the noble idea to invest into education with a renewed interest by spending between 30 to 40 percent of their annual recurrent budgets on education at the various levels- primary, secondary, higher, and adult education during the first decade of independence.

Years after the attainment of independence, the situation still did not change. Many educators expressed concern about the lack of relevance of the Nigerian educational system in meeting the pressing economic, social, and cultural needs of the nation. What simply was happening was like putting new wine in an old bottle. It was therefore claimed that, even after nine years of independence, the educational system of the country was not only colonial, but more British than the British themselves. That is to say, the Nigeria school children were being educated to meet the needs of foreign culture, and were therefore better fit for export than for life in their country.

In reaction to the foregoing, the National Education Research Council (NERC) was set up in1964, which was later known as the Nigeria Educational Research and Development Council (NERDC). This body was charged with the responsibility of organizing the national curriculum conference which took place by September 1969 in Lagos, with a mandate to re-examine the goals or the content of education in Nigeria. The conference was not concerned with preparing a national curriculum, nor was it expected to recommend specific content and methodology. Rather, it was to review old and identify new goals for Nigerian education and provide guidelines on what the educational system should accomplish with respect to the needs of Nigerians and the society in relation to socio economic, cultural, political, and technological development, bearing in mind the needs of youths and adults in the task of nation building and national reconstitution for social and economic well being of the individual and the society. The recommendations of the conference were further reviewed at a national seminar organized by the federal ministry of education in June, 1973 where a draft of a national policy on education was prepared.

It was however not until 1977, that the federal government finally came out with the white paper on the policy which was titled National Policy on Education (NPE).

The government in the same year, set up a seven man implementation committee for the National Policy on Education, charged with the following responsibilities; (a) to translate the policy into a workable blueprint; (b) to coordinate and monitor the implementation of those programs developed under the policy; (c) to advice government on, and to assist in providing the infrastructural and other requirements for policy implementation; (d) to provide continuous review and assessment of the aims, objectives and targets of the policy with a view to ensuring the adequacy and continual relevance of the policy (and those programs developed under it) to our national needs and aspirations, and to propose modifications on any aspects as may be found necessary. According to the national report, the setting up of the implementation committee was particularly significant to reflect social, economic and political changes in the country.

The New National Policy on Education

According to Akinpelu (1981), the New National Policy on Education was designed to correct the evils of colonial education imposed on Nigerians for nearly a century by the imperial powers, and to adequately contend with the new challenges facing the Nigerian people. The philosophy of education reflected in the National Policy on Education was based on the national goals and objectives stated in the Second National Development Plan (1970- 1974), namely; (a) a free and democratic society, (b) a just and egalitarian society, (c) a united, strong and self reliant nation, (d) a great and dynamic economy and (e) a land of bright and full opportunities for all citizens.

The philosophy of education in Nigeria is therefore based on the integration of the individual into a sound and effective citizen, and equal educational opportunities for all citizens of the nation at the primary, secondary and tertiary levels; both inside and outside the formal school system. The National Policy on Education right from its conception until recently, had undergone series of innovations and changes. These include; (a) the lifting of the suspension order on open and distance learning program by government; (b) revitalization and expansion of the National Mathematical Centre (NMC); (c) establishment of Teacher's Registration Council; (d) introduction of Information and Communication Technology (ICT); (e) prescription of French language in the primary and secondary school curriculum as a second official language; (f) prescription of minimum number of subjects to be taken by SSCE candidates; (g) the integration of basic education in the program of koranic schools, to enhance equal opportunity and effective implementation of UBE; (h) repositioning science, technical and vocational education for optimum performance; and (i) general contextual change to reflect the state of professional practice in education among others.

According to the National Policy on Education, education in Nigeria is no more a private enterprise, but a huge government venture that has witnessed a progressive evolution of government's complete and dynamic intervention and active participation. The federal government of Nigeria has adopted education as an instrument per excellence for effecting national development. It has also witnessed active participation by non governmental agencies, communities and individuals as

well as government intervention. It is only natural then that, government should clarify the philosophy and objectives that underline its current massive investment in education, and spell out in clear and unequivocal terms the policies that guide government's educational efforts.

The policy goes on to spell out what specific values are desirable as follows; (a) respect for the worth and dignity of the individual; (b) faith in man's ability to make national decisions; (c) moral and spiritual principles in the inter-personal and human relations; (d) shared responsibility for the common good of society; (e) promotion of the emotional, physical and psychological health of children; and (f) acquisition of competencies necessary for self-reliance.

The education policy covered twelve aspects of education in the country. These are: philosophy of education, pre-primary education, primary education, secondary education, and higher education, including professional education. Others are technical education, teachers' education, adult education, and non formal education. The policy also included special education, educational services, administration and planning of education, and financing of education.

The 6-3-3-4 System of Education

Although this system of education as proposed and adopted as part of the National Policy on Education in the 1970s, the system did not become operational until the late 1980s when it started to function skeletally to replace the former system of 6-5-2-3 or 6-5-4. The major change in the secondary school was the replacement of five years secondary education that was inherited from Britain. This old system was rather too elitist and traditional. The curriculum content of this system of education emphasized reading and writing science to the neglect of applied science, technology, agriculture, professional training, art and craft, music, commercial and business studies which are fundamental to national development .

The introduction of the 6-3-3-4 system of education in Nigeria which has now been converted to 9-3-4 system, by combining the six years of primary schooling with the first three years of secondary education as basic education, brought in tremendous changes in the national education system. These changes affected curricular content in considerable ways. For example, the new policy as contained in the Universal Basic Education (UBE) provides for free, compulsory and universal education for the first six years of schooling in the primary schools, and the three years in the junior secondary schools. Apart from the enormous increase in the enrolment of school children, the curriculum has undergone a tremendous change with the following curricular activities for primary schools all over the country. The inculcation of literacy and numeracy, the study of science, agriculture, social studies, health and physical education, religious and moral education, aesthetics and creative and musical activities. Others include local craft, domestic science, and societal norms and values. The aim is to ensure that those who cannot proceed to the secondary schools can have a basis for vocational trainings in craft schools or have their own life carrier.

Also, in the junior secondary schools, there are lots of innovations in the area of curricular activities. There are traditional and pre-vocational subjects to be studied

which are mathematics, English language, Nigerian languages, integrated science, social studies, art and music, practical agriculture, religious and moral instruction, physical and health education, wood work, metal work, electronics, mechanics, home economics, business and secretariat studies, French and Arabic languages. The main purpose of studying this subject is to enable students acquire skills and knowledge which may be useful to them if they decide to stop their formal education at this level.

It has been projected that 65 percent of those leaving the junior secondary schools would move to the senior secondary schools. In which case, 35 percent of the turnout of the junior secondary schools seeks jobs, but some may undertake other forms of former training. Using the same projection, the senior secondary schools will receive 65 percent of the junior secondary school leavers into the first year of the senior secondary classes. During this three years in secondary schools, students are required to study English language, one Nigerian language, mathematics, one of the following alternative subjects; physics, chemistry, biology, one of literature in English, history or geography, agricultural science or vocational studies, as core subject. In addition, students are expected to select three out of home economics, bible knowledge and Islamic studies, metal works, electronics, technical drawing, wood work, auto mechanics, music, art, and so on.
At the end of the three years of senior secondary education, it is expected that some of this school leavers will go into the higher institutions of learning. These may include colleges of agriculture, polytechnics, colleges of technology, colleges of education and universities. The remaining ones will go into the labor market at this point. It is expected also that, the senior secondary school leavers, will possess salable skills because of the reformed curriculum content.

Although the enrolment in polytechnics, colleges of education, schools of agriculture, colleges of technologies and universities are on the increase, it therefore becomes very difficult to project the number of students who will be enrolling into this institution since 1990s.This is as a result of the following factors: political decisions to increase the number of such institutions, the numbers that will be enrolled in each of the institutions, the prevailing economic situations and the demand for high level man power. Already, since 1984/85, the end of the Fourth National Development Plan 1981-1985, the enrolment projection shows that polytechnic/colleges of technologies and education will be enrolling 160,000 students, while that of universities will be 140,000 students, and a total of 300,000 students in all the institutions of higher learning (Federal Republic of Nigerian 1981).

In a desperate attempt to meet the requirement of effective implementations of this scheme, several panic measures were taken. There was serious massive construction of real and imaginary class rooms, and crash teacher training courses where introduced. Suddenly, cooks stewards and baby nurses disappeared from the various household in Nigerian and enrolled for teacher training. With the provision in the National Policy on Education that NCE is the minimum teaching qualification in Nigerian, the number of students' enrolment in teachers training colleges, distance

learning centers, sandwich programs in the colleges of education and faculties of education in the universities increased.

Assessment of the 6-3-3-4 System of Education

The 6-3-3-4 system of education in Nigeria is a land mark improvement compared to the education policies inherited from the imperialist. It therefore gave education a place of significance in national development. It introduced an educational system in which people will be trained to meet the needs of the Nigerian society. It is a system that was designed to make the Nigerian citizens completely self reliant, technologically independent, and morally and socially adjusted to their environment. It will also build in the citizens a sense of industry and professional competence in their field of endeavor. However, the planning of the entire policy started after the commencement of its implementation. No wonder the system failed to meet its original objectives. The policy ended up as a mere paper work. Words were never matched with action on the part of government who initiated the policy. Under listed therefore are some of the problems that bedeviled the implementation of the 6-3-3-4 system of education in Nigeria.

Lack of Qualified Teachers: There were no enough trained and qualified teachers to handle some of the newly introduced subject areas of integrated science, introductory technology, craft and technical subjects and so on. Most times, many of the cut and nailed teachers who went through the crashed teacher training programs on part time and sandwich courses suddenly found themselves in the class-rooms teaching. At best, some of them were half baked, therefore lacked the competence to teach some of the subject they were made to handle.

No Adequate Funding: Inadequate funding coupled with low budgetary allocation to the education sector posed serious impediment to the successful implementation of the system. At both federal and state levels, budgetary provision for education annually is well under 20% as against the UNESCO threshold of 26%. The highest allocation of federal government to education was for the past twenty years was 13% in 2008 (Ojiemhenkele, 2016). Because of this, basic infrastructures like classrooms, libraries, laboratories, technical workshops, demonstration farms, books and other facilities necessary for the successful implementation of the program were not adequately provided.

Lack of Guidance and Counselors in Schools: Most of the schools lack guidance and counseling services, especially schools in the rural areas. This therefore caused gross mismatch of subject combinations resulting in students' inability to identify their areas of strength. As a consequence, student makes wrong choices of courses that they might not have the potentials to study.

Over Politicization of Education: Since independence, education in Nigerian has been cut in the web of military and partisan politics, every government in power pounces on education, promising support and control, often times, education is used as a political propagandistic appeal with unrealistic promises (Nwadiani, 1998). According to him, politicians see education as discretional gift to the people rather than an outgrowth for their needs and value. Most

educational policies are politically apt rather than educational consideration, Nwadiani further stated. . A few examples are the introduction of quota systems, changes in the school calendar, location of schools, and appointment of those that manage the educational system. A situation where misfits and political sycophants who have no proven credentials as qualified educationist are appointed as ministers or commissioners of education, then it is very unlikely that the system will survive. Also, leadership at various other levels, and even institutional management heads like university vice-chancellors, provosts and rectors of colleges of education and polytechnics, and school principals have been politically motivated to the detriment of professionalism. There is no doubt therefore that, an educational system that is managed this way is devoid of effective planning and it cannot chart an effective course for the desired development of the sector.

Lack of Trained Professionals to Operate Machines: The content of the school curriculum designed to meet the vocational, technical, and social needs of the society was never implemented. The required man power needed to operate on this machines and science equipments meant for the introductory technology classes and other vocational classes were not there. The system lacked professionals who have the competences to operate on these machines. The unfortunate thing we have in our schools today is that, these machines that were supplied to schools in the late 1980s and early 1990s had either been misused due to gross inefficiency by the supposed operators, vandalized, stolen and in most cases, they are now rottened and decayed.

Lack of Regular Power Supply: The epileptic nature of electricity in Nigeria and its complete absence in most rural areas where schools are located is another inhibiting factor to the effective implementation of the program. To successfully operate most of the plants and machineries in the system requires stable and regular power supply. Unfortunately, after thirty years of commencement of the implementation of the program, some schools in rural areas across the country still do not have electricity

Inaccurate Population Data: In Nigeria today, it is difficult to give accurate figure of the population of its citizenry. Because of this inaccurate population data base, it is difficult therefore to make correct projection of the educational facilities needed for the different school age categories.

Lack of Adequate Incentives and Low Motivation for Teachers: Various forms of incentives necessary to motivates teachers in schools are lacking. In addition to teachers monthly salaries, other financial rewards due to teachers like; science teachers allowance sport teachers allowance, house masters allowance, transfer allowance, duty tour allowance, remote and rural areas allowance, craft teachers allowance and so on, are lacking in our educational system. Even, the implementation of the approved 27 percent Teachers Special Emolument is yet to be implemented in full by many states in the federation. Therefore, the efficient and dedicated teaching force needed to successfully implement this policy are sometimes affected by low morale and are not motivated enough for improved job performance.

Lack of Public Support: The 6-3-3-4 system of education in Nigeria did not get enough support of the Nigerian public, due partly to the fact that the entire package was a complete deviation from the peoples metaphysical reality. Vocationalization seems not the answer to the present material craze and get rich quick syndrome among most people in the country, in which there is an enthronement of the value of material prosperity without hard work (Nwadiani, 1998). . Today, most people are engaged in all sorts of fraudulent and criminal activities, including armed robbery, kidnapping and ritual killings to get rich. The value placed on education is declining very fast as a result of misplacement of values and priorities.

High Level of Corruption: The alarming rate of corruption became a major factor that militated against the successful implementation of the policy. At all levels of government, there is marked deviation from what is proposed as expenditure, and the actual expenditure on the budgetary provisions made for different projects and activities. Officials in the ministries of education at both the federal and state levels converted some of the items purportedly meant for the implementation of the policy to their personal use. Also, it is a common knowledge that some of the equipments sent to schools were sub-standard, inferior, and fake. This therefore, resulted from contractors conniving with the procurement officers in collaboration with top government officials to embezzle public funds. Most of the generators provided to generate powers ended up in the homes of top officials in charge of the management of education in various states of the federation.

Too Much Emphasis on Paper Qualifications: In Nigeria today, there is over reliance on certificates at the detriment of skills and knowledge acquired. This is common, especially when considering people for employment, job placement, and promotion. This therefore, has resulted in students playing down on the cherished virtue of being a scholar. It no longer matters to anybody how certificates are acquired. What is important in our society today is the acquisition of certificates irrespective of the worth of the certificates so acquired.

High Rate of Examination Malpractices: Parents, teachers, school administrators and students are all involve in the evil of examination malpractice in schools. Malpractices in examination have now become an acceptable norm in Nigeria education system. It has devastated the profound integrity of academic excellence highly revered in the society. This is particularly so because, even teachers and school management openly get engaged in the act. Parents shamelessly pay for cooperation fees for their children to be assisted during external examinations like: primary six leaving certificates, junior and senior secondary school certificates examination. With this practice in place, the original goals and objectives of the various stages of education become defeated. Hence, the novelty of the entire education system has turned out to become a shadow of its glory.

Lack of Effective Monitoring and Evaluation of the Program: The implementation of the program nationwide was not properly monitored, supervised and evaluated. Even when there were soon skeletal and half hazard approaches adopted,

they were not pain-staking and assiduous. Most of the supervising and monitory efforts by officials of the ministry of education were ad-hoc, casual, and with no genuine commitment.

Suggestions for Improvement and Implications for Educational Planning

In a swift reaction to the above listed and seriously disturbing and heart aching problems that have impeded the successful implementation of the 6-3-3-4 system of education in Nigeria, the following suggestions are hereby proposed as possible remedies that may stem future failure of planned implementations of educational programs in Nigeria. If the listed below are properly and meticulously implemented, there is therefore the hope of eventual recovery and possibly a better future for education in Nigeria.

(a) A comprehensive training program, especially in the technical and vocational subjects like; home economics, agriculture, carpentry, building technology, metal work, automobile, electronics, photography, technical drawing, and telecommunications and so on should be organized for teachers. This type of training therefore will enable them to acquire the needed knowledge and skills necessary for the effective teaching of these subjects. The present Degree and NCE programs in technical and vocational education currently being undertaken by universities and colleges of Education, should be seriously overhauled to equip technical and vocational teachers with relevant skill, knowledge and competencies necessary to make them fit and proper to successfully impact the needed knowledge.

(b) Education should be properly funded. This is the only way the whole essence of the system can be meaningful. Funding of education should not be left for government alone. None government organizations, parents, organized private sectors, oil companies, and banks should join forces together in providing funds for the education sector. It has therefore become obvious that government alone can no longer provide the necessary resources to make the education industry function optimally. Adeyemi and Ogutimehi (2000) strongly suggested that the Nigerian government should promulgate a standing funding policy on education, likewise the suggestion made by Yawe and Terzungwe (2019), that twenty five percent (25%) of the country's budget should be allocated to education.

(c) There should be complete de-emphasization of certification in the nation's educational system. Instead, vocationalization and skill acquisition should be seriously emphasized in order to create in our students the consciousness of competence and industry. This of course will discourage all desperate moves to acquire certificate by all means.

(d) Education should be completely depoliticized. Decisions relating to managements, appointment, school location, funding and so on should be devoid of political consideration. Educational practices that are highly dependent on political consideration can however never have real and genuine commitment in the area of its planning and implementation. As noted by Nwadiani (1998), technocracy of panning education only operates within the political ideological framework of the government in power without any due

regard to the socio-economic realities of the day.

(e) Every school should have competent guidance and counselors, trained professionally to guide students in the choice of subjects they have the potentials to study. This of course will stem the current mismatch between students carrier choice and their potential abilities in different subject areas.

(f) It is sad to note that in this 21st century, power generation and supply is still not adequate in Nigeria. Electricity situation facing most rural areas where schools are located is horrible and unbearable. Efforts should therefore be made to ensure that, the needed electricity power supply is provided for every school, so as to enable their plants and machineries function. Until there is real and practical improvement in power supply all over the country, having a purposeful and workable system of education like this current one will still remain a mirage.

(g) There should be accurate and well established educational data bank, so as to avoid the traditional practice of educational planning and implementation without data. This again implies that, planning of education should be based on real and genuine statistical data in relation to students / pupils enrolment and the total number of school going age for different levels of education, including their demographic variables, and the personnel requirements to make the schools functional. It is only when these needed data are available that projections on facilities and equipments, personnel requirements, and provision of other school service programs can be successfully made. The establishment of education data bank mid-wife by a comprehensive, acceptable and reliable National Census exercise, will go a long way in redressing the protracted problems of inaccurate and inadequate data in the planning of education (Nwadiani, 1998).

(h) Professionally trained educational planners and administrators, equipped with modern techniques of educational management should be in charge of the planning of education in Nigeria. As suggested by Akpan (2018), effective educational planning can only be successful in Nigeria if the exercise is handled by people who are certified education planners. Therefore, the planning personnel in the planning units of the ministries of education should be experts in educational planning. They should be people who have the skills and of planning, people who can gather needed data, collate, analyze and properly interpret them for successful planning in education.

(i) Educational philosophies should be rooted from the metaphysical orientation and value of the people. The type of education to be provided should be such that is targeted at meeting the needs of the people. As much as possible, education that is at variance with the aspiration, interest, and needs of the people should be avoided.

(j) Performance based incentives should be provided for teachers. This of course, will make them (teachers) put in extra efforts in the course of discharging their duties and equally ensure that the aims and objectives of the educational policies are successfully and effectively implemented.

(k) Certification in the system should be

completely de-emphasized. Instead, emphasis should be on skills and knowledge acquired when considering people for job placement and promotion.

(l) Government should ensure effective monitoring, supervision, and evaluation of the program implementation. This of course will help government in knowing the extent of success or failure of the program. Periodic supervisory and evaluation reports will help government and education planners to take necessary remedial measures or a possible review of the plan where necessary.

Conclusion

The 6-3-3-4 educational system in Nigeria in all its facets is a system of education targeted at restoration with very noble ideological fortune. The philosophy behind the program is full of promise for the future educational well-being of the country. The 6-3-3-4 though now modified as 9-3-4 system, is still not different from what it was in both structure and management. The nine years only represented the six years in primary education and first three years of secondary education, which is the same as junior secondary education. Structurally, the first six years is now called the Lower Basic Education while the three years is called the Upper Basic Education. Altogether, this means the Universal Basic Education System in Nigeria. However the change in its structure, the problems that have affected the implementation of the entire policy still remained unresolved.

The novelty of the entire program was dashed on the altar of poor planning and implementation. The implementation of the program had started before the commencement of its planning. All that happened was a situation of placing the cart before the horse. There was really no foundation for the program in which the system is anchored before the implementation started.

A country like Nigeria, blessed with enormous resources and full of potentials, shouldn't been allowed to derail in the implementation of policies and programs affecting such an all important sector, the education sector, which is the pivot that all other sectors revolve. Efforts should be rekindled at making educational policies work no matter what it may take. This assertion is premised on the fact that, when education fails, all other sectors of the economy will quagmire, as it is being currently experienced today in Nigeria.

All hope is not lost yet. It is still very possible for the system to revive if there is genuine government's intervention with a renewed effort in the planning and implementation of the program. Also, government must be frantically ready to give attention to the implementation of the suggestions for improvement as listed above. Until this is done, the system is not likely to further improve.

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ENTREPRENEURIAL COMMITMENT AND ENTREPRENEURIAL SELF-EFFICACY AS PREDICTORS OF BUSINESS EDUCATION STUDENTS' ENTREPRENEURIAL INTENTION IN EDO STATE

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Abstract

The present study was on entrepreneurial commitment and entrepreneurial self-efficacyas predictors of business education students' entrepreneurial intention in Edo State. Four hypotheses were formulated and tested at a 0.05 level of significance. The study adopted a correlational survey research design. The population of the study comprised all business education students numbering 382 in the University of Benin and Ambrose Alli Univeristy, Ekpoma. The instrument used was a questionnaire titled: Entrepreneurial commitment, self-efficacy, and Entrepreneurial Intention Questionnaire (ECSEQ). The instrument was validated by two experts. The Cronbach alpha was used in ascertaining the reliability of the instrument and it yielded a reliability coefficient of .88 after administering the instrument to 20 business education students at Delta State University, Abraka. The data collected from the respondents were analyzed using simple linear regression and multiple regression analysis. The findings revealed that entrepreneurial commitment is a significant predictor of business education students' entrepreneurial intention in Edo State(R^2 = .063, F (1, 196) = 13.276, P <. 05). The finding also revealed that entrepreneurial self-efficacy is not a significant predictor of business education students' entrepreneurial intention in Edo State(R^2 = .005, F (1, 196) = .887, P >. 05). The finding further revealed that entrepreneurial commitment has a greater predictive power compared to entrepreneurial self-efficacy. Based on the findings, it was recommended that there should be a renewed commitment on the part of the students toward launching their entrepreneurial venture.

Keywords: Business Education, Entrepreneurship Education, Entrepreneurial Commitment, Entrepreneurial Self-efficacy and Entrepreneurial Intention

Introduction

Business education is one of the aspects of vocational education offered in tertiary institutions – universities, polytechnics, and colleges of education. Business education is primarily designed to equip learners with the necessary competencies needed to function well in the world of work either as an employee or employer of labour. For Business education graduates or learners to be able to fully launch an entrepreneurial venture, there is a need for adequate exposure to entrepreneurship education. Entrepreneurship Education (EE) was introduced into the tertiary school system as a tool to address the increasing level of unemployment of graduates and poverty. According to Kalyoncuoglu, Aydintan, and Göksel(2017), EE education is associated with nurturing creative skills that can be applied in real life. The main purpose of EE is to expose the learners to diverse entrepreneurial experiences and orientations that are capable of stimulating

the learners or graduates to venture into entrepreneurial activity. That is, it is hoped that EE will strengthen the Entrepreneurial Intention (EI) of learners or graduates of business education. The intention to venture into entrepreneurial activity is not accidental.

Entrepreneurial Intention (EI) refers to the intent to create a new business as well as choose an alternate career to common employment (Yi, 2020). Otache, Edokpolor, and Okolie (2021) defined EI as a person's decision to start a business in the future. It is a conscious conviction by a person that he or she would start a business someday in the future. These definitions suggest that the decision to start a business involves a mental and conscious process, thereby making it volitional. EI is regarded as one of the important components of the entrepreneurial process (Henley, Contreras, Espinosa, Barbosa, 2017). The EI of students is often influenced by several factors such as potential abilities (Edokpolor & Abusomwan, 2019), creativity (Bello, Mattana, Loi, & Bello, 2018), peer group (Kazi & Akhlag, 2017), background (Farrukh, Khan, Khan, Rainzani, & Soladoye, 2017), entrepreneurial self-efficacy (Liu, Lin, Zhao & Zhao, 2019) and entrepreneurial commitment (Sarwar, Ahsan & Rafiq, 2021).

Entrepreneurial Commitment (EC) is one of the entrepreneurial processes and it's characterized by a single-minded concentration to initiate business and put efforts for its survival and progress, sometimes even at the expense of other worthy and important goals (Sarwar, Ahsan & Rafiq, 2021). The commitment level of an individual no doubt plays a significant role in the entrepreneurial process. Researchers such as Fayolle and Linan (2014) and Adam and Fayolle (2015) have emphasized the significant role played by entrepreneurial commitment in the entrepreneurial process. Students with higher entrepreneurial commitment have a greater tendency to launch an entrepreneurial venture and sustain it.

Apart from the role played by EC in the entrepreneurial process, the entrepreneurial self-efficacy of the individual also plays a significant role in business formation. Barbaranelli, Paciello, Biagioli, Fida, and Tramontano (2019) defined self-efficacy as individual self-belief to attain goal-oriented tasks. Self-efficacy is the key factor that can help entrepreneurs to overcome difficulties and face challenges in the process of entrepreneurship and has a significant influence on their entrepreneurial intention (Liu, Lin, Zhao & Zhao, 2019 2019). Both leading theories which explain entrepreneurial intentions, Ajzen's Theory of Planned Behaviour and Shapero-Krueger's Entrepreneurial Event Model, treat perceptions of entrepreneurial self-efficacy as an important contributor to entrepreneurial intentions. A prior study discussed that self-efficacy is an influential factor in explaining individual entrepreneurial intention and behaviour (Schmutzler, Andonova, & Diaz-Serrano, 2019; Jiatong, Murad, Bajun, Tufail, Mirza,& Rafiq, 2021). Scholars argued that entrepreneurs with extraordinary self-efficacy for particular tasks are more likely prone to entrepreneurial activities rather than other entrepreneurs who have less efficacy (Sahin, Karadag, & Tuncer, 2019; Urban, 2020). Researchers such as Martin,

Mcnally, and Kay (2013) and Liu, Lin, Zhao & Zhao (2019) have found a significant relationship between entrepreneurial self-efficacy and the entrepreneurial intention of students.These areas are increasingly attracting research by scholars.

Several studies have been conducted in the field of entrepreneurial intention. Liu, Lin, Zhao, and Zhao (2019) conducted a study on the effect of entrepreneurship education and entrepreneurial self-efficacy on college students' entrepreneurial intention revealing that entrepreneurial self-efficacy is a significant predictor of entrepreneurial intention. Farrukh, Khan, Khan, Rainzani, and Soladoye (2017), Bello, Mattana, Loi and Bello (2018), Barbaranelli, Paciello, Biagioli, Fida and Tramontano (2019),Schmutzler, Andonova, and Diaz-Serrano (2019) and Urban (2020) in their studies revealed that entrepreneurial self-efficacy significantly predict the entrepreneurial intention of students. The study conducted by Adam and Fayolle (2015) revealed that entrepreneurial commitment significantly predicts entrepreneurial intention. Most of the studies that have been done in this area of research focused on more on entrepreneurial self-efficacy (ESE) as it predicts entrepreneurial intention with scanty studies on entrepreneurial commitment. But the current study is focused on ascertaining the extent to which entrepreneurial commitment and self-efficacy predict entrepreneurial intention. From the review so far, most of the studies done so far were conducted outside this scope and there is little or no studies linking entrepreneurial commitment, entrepreneurial self-efficacy and business education students' entrepreneurial intention in Edo State. This is a major gap which this study has filled by investigating entrepreneurial commitment and entrepreneurial self-efficacy as predictors of business education students' entrepreneurial intention in Edo State.

Purpose of the Study

The main purpose of the study was to ascertain the extent to which entrepreneurial commitment and entrepreneurial self-efficacy predict business education students' entrepreneurial intention in Edo State. Specifically, the study sought to find out:

1. If entrepreneurial commitment is a significant predictor of business education students' entrepreneurial intention in Edo State.

2. If entrepreneurial self-efficacy is a significant predictor of business education students' entrepreneurial intention in Edo State.

3. If entrepreneurial commitment and entrepreneurial self-efficacy are collectively predicting business education students' entrepreneurial intention in Edo State.

Research Questions

The following research questions were raised and answered.

1. Is entrepreneurial commitment a significant predictor of business education students' entrepreneurial intention in Edo State?

2. Is entrepreneurial self-efficacy a significant predictor of business education students' entrepreneurial intention in Edo State?

3. Is entrepreneurial commitment and entrepreneurial self-efficacy collectively predicting business education students' entrepreneurial intention in Edo State?

Hypotheses

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

1. Entrepreneurial commitment is not a significant predictor of business education students' entrepreneurial intention in Edo State.

2. Entrepreneurial self-efficacy is not a significant predictor of business education students' entrepreneurial intention in Edo State.

3. Entrepreneurial commitment and entrepreneurial self-efficacy are not collectively predicting business education students' entrepreneurial intention in Edo State.

Methods

This study utilized the correlational survey design since it was basically an inquiry into the extent to which entrepreneurial commitment and entrepreneurial self-efficacy predict business education students' entrepreneurial intention in Edo State. The population of this study consists of all 300 and 400 level business education students at the University of Benin and Ambrose Alli University, Ekpoma, Edo State. The total population was 382. The entire population was used for the study. Since the entire population was used, there was no sampling technique. The instrument used for this study was a structured questionnaire. The questionnaire was used in eliciting information from the respondents and it was titled: *Entrepreneurial commitment, self-efficacy, and Entrepreneurial Intention Questionnaire (ECSEQ).*It was divided into two parts – A and B. Part A was made up of the demographic variables of the respondents such as sex and institution; while Part B was made up of twenty (35) opinion statements designed in a Likert Scale showing: Strongly Agree (SA). Agree (A), Neutral (N), Disagree (D), and Strongly Disagree (SD) weighted 5, 4, 3, 2, 1 respectively. The entrepreneurial commitment component was made up of six items adapted from Sahabuddin (2018), the entrepreneurial self-efficacy was made up of four items adapted from Zhao, Seibert, and Hills (2005) while the entrepreneurial intention was made up of five items adapted from Linan and Chen (2009).

The instrument was subjected to content and face validity. It was given to experts in Business Education and their inputs to the draft instrument were incorporated into the final questionnaire. The Cronbach alpha was used in ascertaining the reliability of the instrument after administering the instrument to 20 business education students in Delta State University, Abraka, Delta State and it yielded a coefficient of .89. The researchers utilized the face-to-face method of data collection. The researcher was able to retrieve 198 questionnaires from the respondents which were equivalent to 51.8percent of the population. The Statistical Package for Social Sciences (SPSS) version 25.0 was used in the analysis. Hypotheses 1 and 2 were tested using Simple Linear Regression Analysis while hypothesis 3 was tested using Multiple Regression analysis.

Results and Discussion

Hypothesis One: Entrepreneurial commitment is not a significant predictor of business education students' entrepreneurial intention in Edo State. The result of this hypothesis analysis is presented in Table 1.

Table 1: ***Entrepreneurial Commitment Predicting Business Education Students' Entrepreneurial Intention in Edo State***

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	16.630	1.500		11.084	.000
	EC	.224	.061	.252	3.644	.000

a. Dependent Variable: EI

Note: $R^2 = .063, F = 13.276, P < .05, Df = 1, 196$

EE – Entrepreneurial Commitment, EI – Entrepreneurial Intention

Source: Researcher's Fieldwork (2022)

The results of the regression in Table 1 indicated that entrepreneurial commitment explained 6.3% of the variance ($R^2 = .063$, F (1, 196) = 13.276, P <. 05). The result from hypothesis one revealed that entrepreneurial commitment is a significant predictor of business education students' entrepreneurial intention in Edo State.

Hypothesis Two: Entrepreneurial self-efficacy is not a significant predictor of business education students' entrepreneurial intention in Edo State. The result of this hypothesis analysis is presented in Table 2.

Table 2: ***Entrepreneurial Self-Efficacy Predicting Business Education Students' Entrepreneurial Intention in Edo State***

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	20.563	1.599		12.857	.000
	ESE	.086	.091	.067	.942	.347

a. Dependent Variable: EI

Note: $R^2 = .005, F = .887, P > .05, Df = 1, 196$

ESE – Entrepreneurial Self-Efficacy, EI – Entrepreneurial Intention

The results of the regression in Table 2 indicated that entrepreneurial self-efficacy explained 0.5% of the variance ($R^2 = .005$, F (1, 196) = .887, P >. 05). The result from hypothesis two revealed that entrepreneurial self-efficacy is not a significant predictor of business education students' entrepreneurial intention in Edo State.

Hypothesis Three: Entrepreneurial commitment and entrepreneurial self-efficacy are not collectively predicting business education students' entrepreneurial intention in Edo State.

Table 5: ***Entrepreneurial Commitment and Entrepreneurial Self-Efficacy Predicting Business Education Students' Entrepreneurial Intention in Edo State***

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	15.374	2.116		7.266	.000
	EC	.222	.061	.250	3.609	.000
	ESE	.074	.088	.058	.842	.401
	(Constant)	15.374	2.116		7.266	.000

a. Dependent Variable: EI

Note: $R^2 = .067$, $F = 6.983$, $P < .05$, $df = 2, 195$

EC – Entrepreneurial Commitment, ESE – Entrepreneurial Self-Efficacy, EI – Entrepreneurial Intention

Source: Researcher's Fieldwork (2022)

The results of the regression in Table 3 indicated that entrepreneurial commitment and entrepreneurial self-efficacy collectively explained 6.7% of the variance ($R^2 = .067$, $F(2, 195) = 6.983$, $P <. 05$). The multiple regression analysis further revealed that of the two independent variables, only entrepreneurial commitment was significantly predicting business education students' entrepreneurial intention in Edo State. The result from hypothesis three revealed that entrepreneurial commitment and entrepreneurial self-efficacy are collectively predicting business education students' entrepreneurial intention in Edo State.

Discussion of Findings

The analysis of hypothesis one revealed that entrepreneurial commitment is a significant predictor of business education students' entrepreneurial intention in Edo State.It means that the more an individual is committed the greater the chances of venturing into an entrepreneurial venture. Apart from the role played by commitment in venturing into an entrepreneurial venture, it also plays a significant role in sustaining the business. This finding corroborates the finding by Adam and Fayolle (2015) who found that entrepreneurial commitment significantly predicts an individual's entrepreneurial intention.

The analysis of hypothesis two revealed that entrepreneurial self-efficacy is not a significant predictor of business education students' entrepreneurial intention in Edo State. It means that the role played by entrepreneurial self-efficacy in propelling business education students into venturing into entrepreneurial activities is not very dominant. This finding contradicts the findings by Farrukh, Khan, Khan, Ramzani, and Soladoye (2017), Bello, Mattana, Loi, and Bello (2018), Barbaranelli, Paciello, Biagioli, Fida and Tramontano (2019), Schmutzzzler, Andonova and Diaz-Serrano (2019) and Urban (2020) who found a positive significant relationship between entrepreneurial self-efficacy and entrepreneurial intention.

The analysis of hypothesis three revealed that entrepreneurial commitment and entrepreneurial self-efficacy are collectively predicting business education students'

entrepreneurial intention in Edo State. This finding corroborates the findings by Adam and Fayolle (2015),Barbaranelli, Paciello, Biagioli, Fida and Tramontano (2019), Schmutzzzler, Andonova and Diaz-Serrano (2019), and Urban (2020)were in their various studies established a significant relationship between entrepreneurial commitment, entrepreneurial self-efficacy, and students' entrepreneurial intention.

Conclusion

Based on the findings, it can be concluded that entrepreneurial commitment, and entrepreneurial self-efficacy are collectively predicting business education students' entrepreneurial intention in Edo State. It therefore implies that all these variables should be given serious attention collectively in order to achieve sustainable results of venturing into an entrepreneurial venture and thereby reducing the rate of graduate unemployment and poverty in the country.

Recommendations

Based on the findings, the following recommendations are therefore advanced:

i. There should be renewed commitment on the part of the students towards launching their entrepreneurial venture.

ii. The students should be encouraged not to give up on their abilities as it relates to starting an entrepreneurial venture.

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FACTORS AFFECTING THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGY AMONG UNIVERSITIES' ADMINISTRATORS IN NIGERIA

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Abstract

Information Communication Technology (ICT) plays an important role in the administration of the University system. This paper addressed the roles ICT plays plays in the administration of universities in Nigeria as well as the factors that hinders the effective use of ICT in the administration of the universities. These roles ranges from; financial constraints, administrative constraints, lack of awareness/orientation and so on. Possible suggestions were made which include among other things that there is the need to allocate *a percentage of University budget to deployment and there should be orientation and reorientation of staff in the use of ICT facilities.*

Keywords: Information, Communication, Technology, Universities and Administration

Introduction

Information and Communication Technology (ICT) is as old as man. It can be traced towards the creation of God. God has always created ways and means of communicating with man. The development of gadget handle and transfer information was due to the quest to be reliable, accurate, complete, preciseand sufficiently up-to date. Ogbonnaya (2018) referred to information and communication technology as a systematic process of gathering, processing, storing, sending and retrieving of information through the print, broadcast, computing and telecommunication.

United Nations Educational, Scientific and Cultural Organization (UNESCO) (2002) in Ofoegbu (2011) defined information communication technology (ICT) as the range of technologies that are applied in the process of collecting, storing, editing, retrieving and transferring information in various forms. It comprises organized system and can access, retrieve, store, organize, manipulate, produce, present and exchange information by electronic and other automated device (UNESCO, 2003).

The definition indicates that a wide range of telecommunication equipment and facilities including computer, mobile telephone, Ipods, satellites and World Wide Web(WWW) are used for the dissemination and exchange of information among people, society and organizations. The most important service to subscribe to is the electronicmail (e-mail).Akuegbe (2005) acknowledged that the basic characteristics

of ICT is that it has the capacity to handle, manipulate and relay data and information at an unimaginable speed and accuracy at our convenience.

Obiweluozor and Ofegbu (2013)observe ICT as the utilization of modern electronic equipment aimed at facilitating communication and dissemination of information ideas, knowledge and skills in which such information is conveyed thereby enabling the users including, administrators, lecturers, staff and students to collaborate more effectively in the acquisition and sharing of knowledge.

Information and Communication Technology according to Tuanyerinia, Festus, Oghorodi and Festus (2007) is the application ofcomputers and other technology facilities to the acquisition, organization, storage, retrieval and dissemination of information in the form of data, text, and images. The information according to them is stored in database which is a collection of files of information organized in such a way that the said information can be accessed from the computer system at different locations. Similarly, Noah, Akpabio and Sammy (2004) affirmed that ICT refers to diverse set of technological tools and resources used to communicate and disseminate, store and manage information.

Information and communication technology are tools used in handling information can be used to generate, process, store and retrieve, distribute and exchange information. ICT has become the most powerful tools for global communication in recent times and it helps in delivery of services both locally and internationally.

School Administrators/Managers are expected to perform management functions in order to control the activities of members within the schools' environment. Management refers to the sets of activities which could be classified as planning, organizing, heading (coordinating and directing)and controlling (Gibson, Ivancevish, John, Donnelly and James, 1976). In order to use the available resources to achieve a process concerned with the information of strategies, planning policies and programming with a view of achieving organization set goals. No Organization (formal and informal) can survive without the use of information and communication technology. It is vital in the administration of universities; ICT tools are used to enhance the quality of programmes of universities, that are based on student centered learning; The internet for instance, helps to educate students about the current educational programme offered in the universitieswithin and abroad. This will help higher institution particularly the universities through Nigerian Universities Commission (NUC) to adopt practices that are useful in the universities to improve the quality of education offered. ICT facilities can be of great help in the universities to enhance quality Assurance. Teachers will always improve and upgrade their knowledge in the area of specialization using the internet.

Information and Communication Technology is relevant in the administration and management of universities. It is crucial in the areas of admission process in the Universities. The quality of students admitted (input) in the university determines the quality of graduates that would be produced (output). The use of ICT gadgets in

the university system and other educational bodies brought about quality changes.

Unified Joint Tertiary and Matriculation Examinations (UTME), online applications, registration of the student through the University Portal, Marking of Scripts, collation and dissemination of results improves the efficiency, accuracy and transformation of admission process. On the other hand ICT facilities would make it easier for the best pedagogical approaches in the field to be assessed and adopted. The conference marking of examinations and treatment of results by ICT would help to discourage examination malpractice on the part of teachers and students. ICT is also relevant in students' assessment. The federal government of Nigeria (NPE, 2004) in itsNational Policy on Education has properly contradicted the issues of assessment. It takes place to dimension at two levels in universities, these are continuous assessment which usually accounts for 20% or 30% of a student's grade and the end of semester examinations which account for 70% of the grade which gives a total of 100%. Information and communication technology facilities help to facilitate the nature and mode of assessment and its administration which is very crucial in the administration of the university. The ancient way of marking, processing and collating of results has been improved and made a lot easier through the use of information and communication technology, computer software and this has made it possible in the areas of Cognitive, Affective and Psychomotor Domain.

Electronic learning has been made a lot easier in the higher institutions (universities) through individual learning. It makes learning more attractive and interesting, like in the area of conference, the area of using Zoom; email to send memos, WhatsApp to deliver lectures and assignments. This has improved the traditional classroom settings in the universities and makes learning easier.

Information and communication technology helps the university in the areas of storing, retrieving and sending files (Records). In the Administrative Records of the university, all these can be found there: Personnel records, physical resource records, admission records. The personnel records provide the information on the employment and duty post of staff. The physical resource record, has to do with the facilities on ground and their locations and the admission records are permanent records showing from the first of admission to the graduation day of the student. This has yielded great result because of the continuous and improved ICT in the Universities (Obiweluozor & Ofoegbu, 2013).

There are several benefits of integrating ICT in the University Administration in Nigeria. They are as follows:

- It helps to improve data and information security
- It helps to get rid of using paper
- It is cost efficient; minimizes cost and saves time
- It makes it easy for the universities in the area of student management in terms of Registration and Administration
- It enhances the mode of communication
- It is an improved way of teaching and learning.

Information and Communication

Technology plays a crucial role in efficient management and administration in educational sector; ICT has played an important role in the universities by reducing operational inefficiency and also help improve decision making in many areas in administration. Challenges faced by the Universities Administration in the use of Information and Communication Technology (ICT).

Problems affecting the use of ICT by Universities Administrators

Universities administrators in Nigeria are faced with numerous challenges in the use of ICT ranging from, technological network problems, financial problems, attitude of staff (Academic and Non-academic staff) towards embracing ICT. Administrative constraints, lack of awareness/orientation and poor policy implementation, manpower problems, lack of power source.

Technological/Network Problems: Nigeria is among the 3rd World Country. We are trying to meet up the demand of technological know-how and there are lots of hindrances. With various Faculties and Departments in the Universities, there ought to be a central communication system linking the offices in every Faculty and a front desk telephone system manned by an officer to connect the University and the outside world for effective communication. Most Universities still do not have this in place. Where there is access to communication gadgets in some Universities, the dearth of adequate technological equipment has caused frequent breakdown of network services. This poses a big challenge in the administration of universities in Nigeria.

Financial Problems: The inability of most Universities to raise funds for acquisition of modern (ICT) equipment, has become a major challenge for University administrators in utilization of ICT facilities for administration of Universities. There is need for adequate budgetary provisions for deployment of ICT in the University system. Education largely depends on grants from government for most of its capital and recurrent expenditures. Funding in this sector has been reduced drastically by Government over time and this have drastically affected the financial base of the Universities. Reduction in funding of education is a global phenomenon, according to (Ogbonnaya, 2018). Universities have been hugely affected by this trend and most of them no longer purchase ICT facilities to pay for ICT resources subscribed from their own budget.

Ogbonnaya(2018) acknowledged that lack of funds for ICT infrastructure is the major reason why in some universities the first computers and library –automated system installed in most universities were donations from external organizations. Some universities in Nigeria are yet to complete the process of migrating to modern or updated school ICT system to replace the old ones (Ochai, 2012; Ogbonnaya, 2012). Unfortunately, in Nigeria universities, there is low or no access to reliable and sustainable internet facilities and in some cases is still not widely spread in the Universities because most units and departments cannot afford to pay for adequate maximum data carrying of network connections.

Administrative Constraints: The university administrators, lecturers, students, non-academic staff (senior and

junior) have recognized the importance of the ICT sector in the administration of universities as well as teaching and learning processes.

Ogbonya (2018) noted that despite the major role ICT plays in the management of universities, the staff and student find it difficult in the application, due to high cost of maintenance, no accessibility to internet facility and laptops, could affect teaching and learning. Lecturers are not able to send mails to students either due to no data on the internet facility. It hinders the communication.

Application of ICT in the University has the potential to improve the academic and social wellbeing of administrators, lecturers and students. However the implementation of ICT in the university administration has been slowed because of the inadequate or inaccessible complementary infrastructure and services such as electricity, telephone, data services and financial resources

Lack of Awareness/Orientation: Awareness refers to the knowledge or perception of a situation or fact. It is observed that the potential of ICT at the decision making and project formation levels has been the key constraint in schools. Recent times in the administrative offices, connection is poor from the central administration to the other part of the universities due to no internet connection at the faculties. So papers, memos are the ways of disseminating information due to the fact that most staff are not trained or given orientation on how to use ICT gadgets. Ogbonaya (2018) acknowledged that lack of awareness leads to lack of ownership and if this happens at the government levels where there is no awareness and ownership, there will be implementation failure, not necessarily due to lack of resources. Ownership stems from involvement in the formulations, playing and implementation processes. Lack of awareness is a threat to sustainability.

Attitude of Staff Toward ICT (Academic and Non-Academic Staff): The attitude of the universities staff poses a challenge towards teaching and learning, Mikre (2011);Oladosu (2012) asserted that teachers' attitude plays an important role in the teaching and learning process that utilizes computers and internet connections. Unfortunately, accruing to Wheeler (2003) whilst some have passionately integrated technology (such as computers), others have carefully welcomed it whilst others have out rightly rejected it. The resistance in the acceptance of ICT in the classroom is often said to be primarily based on the risk of teachers losing influence over the values and directions of classroom activity. However, it is worthy to note that resistance to change is not necessarily a barrier in itself but could also be an indication of the presence of much deeper problems,

This deep problem as espoused by Cox (1999) appears to be the lack of the necessary knowledge, skills and attitude (SKAS) to adapt to change which are necessarily brought by technology. Thus, the motivation and confidence to integrate ICT in teaching and learning could only come from having access to ICT equipment and possessing the required ICT skills (Mikre, 2011).

Lack of Power Supply: There is no constant supply of electricity and as such most

universities do not have electricity all the time. For proper and effective use of Information and Communication Technology, it is therefore important that standby electricity supply like generators and renewable power supply like solar must be in place to enable document transmission from one place to the other.

Unqualified/Untrained Personnel: Information and Communication Technology is not very old in Nigeria. Most Universities Administrators, academic and non-academic staff are not ICT compliant and there is shortage of well-trained ICT handlers (Ibadin, 2001). This makes it difficult for lecturers and students to use computer gadgets in teaching and learning.

Conclusion

Information and Communication Technology plays a vital role in the administration and academic activities in the Universities, they enhance the quality of programmes in the universities, which are based on student learning centre. The internet can be used to gain knowledge of what currently determines programme structures and outcomes in more developed nations. These would enable higher education in Nigeria particularly universities and the National Universities Commissions to adopt best practices that are relevant to the local, social, economic and educational environment thereby enhancing quality assurance in the Administration of Universities.

Suggestions

The paper suggest that:

1. There should be a comprehensive thought on policy and strategy for the integration of ICT in the entire University system.

2. There should be orientation for new and old staff on the use of Information and Communication Technology to enhance efficiency in the University system.

3. There is need for Information Communication Technology to be included in the programmes at every level in the University.

4. There is need for the university to employ trained personnel/experts in the area of ICT to enable them manage the operation of computer equipment and accessories.

5. The universities should allocate a large sum of money/funds during budgeting for ICT development based on courses offered, research understanding and expected academic support.

6. There should be constant supply of electricity in our universities through the use of other electricity source like generators and solar system.

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FINANCIAL RESOURCES MANAGEMENT IN HEALTH EDUCATION PROGRAM: A STRATEGY TO STRENGTHEN COMPETENCY IN HEALTHFUL LIVING AMONG STAFF OF HUMAN KINETICS AND HEALTH EDUCATION OF AMBROSE ALLI UNIVERSITY EKPOMA

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Abstract

The emergence of health knowledge in the promotion of health education as a discipline responsible for development and sustenance of healthful living has radically redefined a subsequently brought about great changes in individual's health status. However, every entrepreneurship health education recipient and stakeholder in H.K.H economy has often been made to have some requisite possession of skills, or knowledge to develop health programs enterprise that is capable of driving the financial base of H.K.H for a greater height. This development, has monumentally posed a challenge to the overall development and promotion of health programs in the environment to adequately assess the level of developmental, strategy, survey research was employed for the study. A self structured questionnaire in financial resources management in the area of health education, in H.K.H was administered on 199 respondents in the department of health. The data collected were subjected to statistical analysis using simple frequency count, percentage and chi-square (x^2) as statistical technique at 0.01 level of significance. The finding of this study greatly revealed that: financial resources management in the area of health education in H.K.H was positive. It is against this backdrop that it was recommended that H.K.H budget proposal should be effectively implemented in order to enhance competency acquisition of individual health knowledge and health management capacity.

KeyWords: *Emergence, Health Status, Competence.*

Introduction

The acquisition of health knowledge, attitude and practices in any recognized health programme is largely depended on the provision of financial resources. However, the illustration and observation of Ajulo (2020), has obviously indicated the outstanding role of financial resources management as a core value to the formulation and implementation of any health education policy as a promotion strategy in the provision of solid and reliable financial resources is of paramount importance especially in developing competency and requisite knowledge in health education programme. Similarly, strong financial base as confirmed by Dales (2021), is a key for the promotion, sustenance and maintenance of individual's health status. Financial resources management in the area of health education is therefore a fundamental component of effective organization of any human enterprise, with particular emphasis to the effective management of health education programs. For quite sometimes, effective

organization of health programs especially in academic environment has posed a serious challenge, a development that has drastically reduced individuals' inclination towards health programs. Consistency in providing adequate financial resources for effective management of health programmes is a veritable tools for healthy living dynamics. A pardign shift with obviously spell down in health promotion strategy.

Smith (2020, observed that the extent and the corresponding acquisition and utilization of health knowledge greatly depend on the financial status. The fiscal responsibilities for the maintenance and survival of any health programs is anchored on the following core areas in finance statues.

- ❖ Cash control and accountability
- ❖ Fund raising
- ❖ Documentation of financial process
- ❖ Maintaining and evaluation of financial resources

Williams (2019) opined that constant review of financial resources management to effectively design a strategy that will help to evaluate, review the strength and weakness of any health development issue both present and in future terms. The services of finance and budget helps to reinforce the competency in the effective management of health programs particularly in any academic circle. Traditionally, provision of credible financial resources management strategy in the promotion of health programs remained a cardinal requirement in the sustenance of good healthful living among individuals in the society. The successful development of health education programs will no doubt bring fusion between theory and practice in entrepreneurship of health education in tertiary education, and which will ultimately give rise to functional entrepreneurs. It is therefore crystal clear that all stakeholders in health education in tertiary institutions should avail themselves with every pragmatic pedagogy of developing health education entrepreneurship in tertiary institution is to witness the birth of a entrepreneurs that will help strengthen the health economy.

Hypothesis

The following hypothesis was formulated to effectively guide the study.

Financial resources management in the area of health education programs will not have any significant effect on the competency of healthful living of staff of Human Kinetics and Health Education department of AAU Ekpoma.

Method

Research Design

The research design adopted for the research study was survey research design. Clerks (2020), observed that survey research design is consistently useful to the research based on the fact that it helps in identifying and providing solution to the prevailing conditions and problems.

Population of the Study:

The population for this research study consists of all academic and non academic staff and students in the department of human kinetics and health education, Ambrose Alli University. (AAU Ekpoma, Edo State).

Sample

The sample for this study, comprises 199 chosen respondents. Several numbers of

respondents were drawn from the entire population of 1,150 using purposive sampling techniques. However, the researcher considered the adoption of this sampling technique as appropriate for this research study this is because it enables the researcher to make an intensive study of outstanding peculiarities (Damian 2019). The considered subject for the research study include: all staff and students in various levels of the departments. The selection of the number of sample was adequately guided by the theory of kreycie & Morgan (1971) in determining the selection of appropriate percentages for research study.

Instrument for Data Analysis

The research instrument for this study was a modified likert scale questionnaire the utilization of likert scale technique was based on the fact that it helps to facilitate the expression of opinion in terms of the degree of respondent of agreement which in final analysis encourages the chosen respondents to freely and willingly express their thought.

Data Analysis

The researcher used the inferential statistics of chi-square (X^2) as Instrument to analyze the data formulated hypothesis at 0.05 alpha level of significance.

Results

Table 1: Financial Resources Management as Strategy to Strengthen Competency of Area of Health Education

Financial Resources Management as aid to Official Functions		F	%	Valid %	Cumulative	x^2
Response	Strongly Agree	60	30.2	30.2	27.7	43.336
	Agree	80	40.2	40.2	67.8	
	Disagree	39	19.6	19.6	90.8	
	Strongly Disagree	20	10.0	10.0	100.0	
	Total	199	100.0	100.0		

The above table shows that 40.2% and 30.2% agree and strong agree, while 19.6% and 10% disagree and strongly disagree respectively. 70.4% account for those who agree, while 29.6% disagree. The difference observed using Chi-square is significant at 0.01 level of confidence. The chi-sqaure of 43.336 is greater than critical value, which is 6.635. (X^2 =43.336 > 6.635) under 0.01 level of significance. The null hypothesis is therefore rejected and it could be concluded that financial resources management is a strategy that is capoabkle of strengthening competency in area of health education in the department of Human Kinetics and Health Education in AAU, Ekpoma in the area of health education has the capacity in strengthening individual competency in healthful living among staff and students in human kinetics and health education department in AAU, Ekpoma Edo State.

Discussion

The above hypothesis which stated that financial resources management in the area of health education programs will not have any significant effect on the competency of healthful living of staff of human kinetics and health education department of AAU, Ekpoma, Edo State. The null hypothesis was rejected this is because the finding of the research study greatly revealed that financial resources management strategy has the capacity of strengthening the level of

competency in developing individual healthful living of staff and students in academic circle.

Harry (2020), stated that management of human and financial resources is a continual process whereby individual in all sphere of the society identify their strength and weakness in their functioning capacity. However, individuals major area of competency is expected to be enhanced by the level of financial resources management provided. Was observed that in the course of carrying out this study, staff and students in the department had the at ample opportunity to respond positively to issues that will propel the competency level of in the area of health education programme. It was also discovered that staff and students in the department were overzealous in X-raying the developmental strategies that could accelerate the rate of individuals health knowledge for a higher health living conditions of individuals in academic circle and in the society at large.

Conclusions

With emphasis on the result of the research study, the following conclusions were drawn. Financial management resources has a great multipher effect in the area of health education for the purpose of strengthening the competency of health education programs individuals for healthful living condition of staff and student of human kinetics and health education of AAU Ekpoma. Judicious utilization of available fund should be made in order to ensure consistent development of health education programs in the school environment and in the society at large.

Recommendation

The following recommendations were made based on the findings of the research study.

1. Provision of financial management resources should be a focal point in the formulation and implementation of Health Education Policy.

2. Various stakeholders in the health sectors should as a matter of interest be decisive in addressing relevant issues that will serve as spring bond in healthy promotion progamme.

3. Individuals in the society and in tertiary institutions in particular should strive hard to abreast with up to – date information that is capable of strengthens their ability to improve in their capacity of being in a good health status.

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INFLUENCE OF MODERN TECHNOLOGIES ON BUSINESS EDUCATION INSTRUCTIONAL DELIVERY PROCESS IN HIGHER INSTITUTIONS IN DELTA STATE

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Abstract

The purpose of the study was to ascertain the influence of modern technologies on business education instructional delivery process in higherinstitutions in Delta State. The study adopted the survey research design. The population of the study comprised 1,380 respondents made up of 1276 student and 104 lecturers. A sample size of 437 respondents was randomly selected for the study. Two research questions and two hypotheses guided the study. The instrument for data collection was a structured questionnaire titled "Questionnaire on the influence of modern technologies on business education instructional delivery process (QITBEDP)". The validation of the instrument was done by three experts. The consistency and reliability of the instrument was done using the Cronbach Alpha method, to determine the degree of reliability which yielded a correlation co-efficient of 0.90. Mean and standard deviation were used to answer research questions, while T-test was used to test the hypotheses at 0.05 level of significant. The findings of the study showed a positive influence of modern technologies on business education instructional delivery process. It was recommended among others that institutions should encourage business educators through sponsorship to acquire knowledge and skills in the area of modern technologies.

Keywords: Modern Technology, Business Education, Instructional Delivery Process

Introduction

The goals and objectives of business education in line with the 21st century development has spur teachers and administrators of business education programme to strive for excellence performance through effective utilization and availability of modern technology in higher institutions. However, the functions of technology in teaching and learning of business education course cannot be over emphasized.In recent times, emphases on the improvement of human activities in all societies with the advent of technologies have growth wide and change the way people live and work. It brought ease to teaching especially that of business educators in higher institutions. These improvements have been very pronounced in the education sector, making teaching, and learning more meaningful (Amiaya, 2014). According to Nwosu (2012), modern technologies in business education programme are enabling to create totally educational environment which both encourage and require change in behaviour of business educators and the students. In the view of Chukwudi and Nwazor (2014), modern technologies involves any set of productive techniques which offers a significant improvement measured interms of increased output or saving cost over the

established technology for a given process in a specific historical context.

The introduction of these technologies such as the internet, modem computers, class blogs, interactive, white board, video library, LCD projectors, CD rom, DVD, modern, laser printer, USB drives, microphones, photocopiers, electronic mail among others in teaching and learning has changed the entire educational system over the years (Onyesom, 2014).Modern technologies in business education service delivery process are designed to prepare students for a vocational variety of careers in high-tech business and model offices. Mortion (2012), listed a number of modern technologies to includes: power point, (slide presentation), blogging, mobile devices. iTunes, screen casting, augmented and virtual reality, twitter, wikis, voice thread, voice recognition and recording, web, video and teleconferencing. You Tube others include video conferencing, interactive white board, online library, data bases, LCD projector, internet enable phones and hybrid devices that combine two or more of these facilitates that guarantee the application of standard file format such as HTLM, PDF, GIT, JPEG and MPEG in service delivery process of business education programme.

The technological changes in business education programmes are basically service delivery in the form of information and communication technology (ICT) perspective. The economy is generally ICT-driven and in order to keep in touch with these changes, there must be a restructuring in the knowledge, skills and competencies given to learners/students in business education programme. Electronic office (e-office) is one of the modern innovations of the 21st century which is paperless office approach, in which every office work is done with use of computer assisted instruction. It is the technology that is based on most business education programme curriculum in higher institution integrating facilities of ICT centers, improved computer laboratories as well as offering professional courses in computer technology and to produce individuals that can easily adapt in their ever changing global environment.

Business education programme is a component of vocational education programme that prepare an individual for career in business and business related and also to be intelligent consumers of economic goods and services. Business education programmes provides students with the needed competencies, skills, knowledge, understanding and attitudes to perform as human resource in industries, civil service and also as owners of businesses. Business education programme is design to enhance worked-focused, skill-based, result oriented and technology based application (Ugwoke, 2011). The competitive global world is subject to change; as a result of this business education programme is not an exception. Education is seen as instrument per excellence in preparing individuals for effective work life globally. Business education is one form of education that equips its recipients to adapt to the changing global innovations. According to Osuala (2009), business education is a programme of instruction which makes individual to be relevant in providing the needs of the society which has to do with modern technology leading to employability and advancement in office occupation both in academic and economic demands globally.

According to Owojori (2011), business educators and practitioners should expert rapid changes in the state of modern technology in the world of work and classrooms organization in this 21st century more than the changes that occurred in recent times. However, with several researches and studies going on the need to reduce the strains and stresses of work place, one should encourage and develop the mindset of embracing modern technological trends and prospect in business education programme. Owojori (2011) stresses further that business educators should expect more prospect in teaching business courses using telecommunications in service delivery process across board. The ever-changing role of modern technology continues to be a prospect for all educators especially business educators. Business educators are constantly required to update their software and hardware skills as well as learn information-based technologies application in order to improve its service delivery. The incorporation of technological knowledge and the constant re-training and updating of hardware and its application for business educators, and the introduction of modern technological based instructions tends to ease teaching at all levels.

Statement of the Problem

Technologies for effective teaching of undergraduate business education degree programme seems to be generally low in demand, the expectation of the society is that institutions running these programmes should provide their students with opportunities to acquire the needed skills, knowledge and competencies in business education occupation and career so that they can function effectively in the labour market and enable to be self-employed as well. However, researchers 'claimed that the business education programme is faced with challenges of integration of modern technology prospective in the teaching using technological tools as instructional aids in most higher institutions in Nigeria (Owojori 2011). In view of this, lecturers and students of business education programme are faced with the extent of availability and utilization of modern technologies in business education instructional delivery process. To provide solution to this, the study investigated the influence of modern technologies on business education instructional delivery process in higher institutions in Delta State.

Purpose of the Study

The main purpose of this study is to determine the influence of modern technologies on business education instructional delivery process in higher institutions in Delta State. Specifically, the study sought to:

1. Identify the available modern technologies for business education instructional delivery process in higher institutions in Delta State
2. Determine the influence of technologies on instructional delivery process in higher institutions in Delta State.

Research Questions

The following research questions guided the study

1. What are the available technologies for business education instructional delivery process in higher institutions in Delta State?
2. To what extent do technologies influence business education

instructional delivery process in higher institutions in Delta State?

Hypothesis

The study was guided by the null hypothesis formulated and tested at 0.05 level of significance.

1. There is no significant difference in the mean responses of lecturers and students regarding the influence of modern technologies on business education instructional delivery process in higher institutions in Delta State.

Method

The study adopted the survey research design. The population of the study comprises of 1,380 respondents, made up of 104 lecturers and 1,276 undergraduate business education students of Delta State University Abraka, Colleges of Education, Federal College of Education (Technical) Asaba and Polytechnics in Delta State. A sample of 437 respondents consisting of 104 lectures and 333 students was randomly selected for the study. The research instrument used for the study was a structured questionnaire developed by the researchers based on the review of related literature. The questionnaire is tilted "Questionnaire on the influence of modern technologies on business education instructional delivery process". The first section sought for the name of institution and demographic information of the respondents, while the second section contained 15 items statements. The instrument was validated by three experts, two from Delta State University Abraka, and one expert from College of Education, Agbor. The consistency and reliability of the instrument was done using the Cronbach Alpha Method, to determine the degree of reliability which yielded a correlation co-efficient of 0.90. The first part of the instrument was designed based on "availability and not available in table 1, while the second, part of the instrument was designed on a modified 4 point —likert type of rating scale of Very High Extent (VHE-4 points), High Extent (HE-3points), Low Extent (LE-2points), and Very Low Extent (VLE- 1 point). Data collected were analyzed using mean and standard deviations for research questions, and t-test in analyzing the null hypothesis.

Results

Research Question 1

What are the available modern technologies for business education instructional delivery process in higher institutions in Delta State?

Table 1: Frequency and Percentage Score of the New Technologies Available for Business Education Instructional Delivery Process

S/No	Items	Frequency (f)	Percentage (%)	Decision
	The following technologies are available for instructional Delivery in business education programme:			
1.	Modern computers	37	100	Available
2.	Class blog	37	100	Available
3.	Interactive whiteboard	22	59.6	Available
4.	Video library	6	19.0	Not Available
5.	LCD projector	29	78.4	Available
6.	CD Rom, DVD Modem	37	100	Available
7.	Laser Printer	23	60.2	Available
8.	USB Drives	20	53.4	Available
9.	Microphone	22	59.5	Available
10.	Internet enable phones and hybrid devices	20	53.4	Available
11.	Video tele-conferencing	8	21.4	Not Available
12.	Electronic mail	7	20.1	Not Available
13.	Photocopier	5	19.4	Not Available
14.	Digital camera	7	20.1	Not Available
15.	Instructional software (tutorial, drills and practice).	26	72.1	Available

Source: Field Survey, 2020

The result presented in Table 1 showed that the respondents indicated that 10 of the new technologies are available with percentages rating between 59.5 and 78.4 to 100 respectively. The table further clarified that the respondents indicated not available for some items like video electronic library mail, photocopier and digital camera with percentage ratings between 73.0, 61.4 and 78.4 respectively as technologies not available for teaching business education courses in the institution. It is apparent that business education lecturers are not aware of this modern technologies in teaching business education courses in their various institutions.

Research Question 2

To what extent do modern technologies influence business education instructional delivery process in higher institutions in Delta State?

Table 2: Respondents Mean Rating on the Extent to Which Technologies Influence Business Education Instructional Delivery Process in Higher Institutions in Delta State.

S/N	Items		SD	Decision
1	The use of modern computers helps in delivery instruction in classroom	3.41	0.85	High Extent
2	The availability of the wireless classroom enables teaching of business education.	3.03	0.91	High Extent
3	The use of LCD projector makes teaching effective	3.05	0.76	High Extent
4	Instructional software facilitates acquisition of basic skills.	0.03	0.78	High Extent
5	The use of interactive whiteboard enable teacher play active roles in the classroom	2.59	0.76	High Extent
6	Internet enables phones and hybrid devices enhance students' motivation	3.14	0.72	High Extent
7	Electronic mail enhances communication in classroom	3.22	0.70	High Extent
8	Video teleconferencing enable ease service delivery in classroom.	2.16	0.78	High Extent
9	Video library enables quick access to resource materials online.	2.05	0.71	High Extent
10	The use of modern computers has influence on teaching styles.	3.32	0.72	High Extent
	Aggregate and SD	2.90	0.76	High Extent

Data in Table 2 show that all the item were rated high extent by the respondents. The grand mean 2.90 shows that the respondents were of the view that business education lecturers utilized modern technologies in instructional delivery process. The standard deviation indicates that the respondents are relatively close in their opinion on availability and utilization of modern technologies in teaching business education courses.

Hypothesis 1

There is no significant difference in the mean responses of lecturers and students regarding the influence of modern technologies on business education instructional delivery process in higher institutions in Delta State.

Table 3: Independent T-Test Summary Examining the Lecturers and Students Responses on the Influence of Modern Technologies on Business Education Instructional Delivery Process in Higher Institutions in Delta State

Group	N		SD	DF	t-cal	t-crit		Decision
Lecturers	104	1.35	0.24					
				435	-23.6	1.960	0.05	Accepted
Students	333	1.55	0.52					

From the above table, it can be seen that the t-calculated of -23.6 is below the t-critical value of 1.960 at 0.05 level of significance, and 435 degree of freedom. The null hypothesis is therefore accepted.

Discussion

The findings among others revealed that lecturers have access to most of the modern technologies identified for teaching of business education courses. The findings showed that technologies like modern computer, class blog, LCD projector, CD Rom, DVD and modern, laser printer, USB drives, microphones, internet enable devices and hybrid devices, video teleconferencing, electronic mail, instructional software are available, through some are not sufficient in quantity, for teaching, while technologies like digital camera, interactive whiteboard and video library are not accessible for teaching of business education courses. The study is in line with Azih (2011) who found that colleges in Nigeria do not have sufficient technological facilities for teaching the practical based courses.

The study also revealed that there is no significant difference in the mean responses of lecturers and students lecturers regarding the influence of modern technologies in teaching business education courses in higher institutions. This means that lecturers and students opinion did not differ significantly. This findings support the earlier findings of Adegbenjo (2012) who observed that modern technologies have significant positive correlation with teaching and learning process in business related courses.

Conclusion

The study established that there is accessibility of modern technologies for teaching business education programme in higher institutions. Also,modern technologies have a positive influence in instructional delivery process of business education courses in higher institutions. Therefore, the responsibilities to make proper use of technology in teaching business education courses remain a priority. Since the modern technologies are accessible, adequate utilization of it should be maintained in order to make students acquire competencies and long life skills before they graduate.

Recommendations

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

1. The institutions should incorporate the technologies in the curriculum of business education programme.

2. Efforts should be made by business educators to go for training, particularly to learn the operation of modern technologies, to be able to impact effectively.

3. There is need for institution to provide interactive whiteboard to enable teachers and students play active roles in the classroom management.

4. Institutional management should encourage lecturer's through sponsorship to acquire knowledge and skills in the area of new technologies in collaboration with international staff practices.

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TEACHER-BASED FACTORS AS CHALLENGES IN THE TEACHING OF MATHEMATICS IN SECONDARY SCHOOLS

By

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Abstract

This study examined teacher-based factors as challenges in the teaching of Mathematics in Secondary Schools in Edo State. Four research questions were formulated to guide the study. The population comprised of fifty-four (54) Mathematics teachers in the fifteen public secondary schools in Egor Local Government Area of Edo State which was used for the study. A descriptive survey research design was adopted for the study. A purposive sampling technique was utilized which involved the use of all the population as sample. A structured questionnaire was used as instrument for data collection, which comprise of four sub-headings; teaching methods (9 items), mathematics teachers' attitude toward teaching (12 items), teachers motivation (10 items) and teachers workload (5 items). Data collected was analyzed using mean and standard deviation. The decision was based on any value less than 0.3 (< 0.3) was indicated as no challenge, while any value equal to or greater than 0.3 (= , > 0.3) was indicated as a challenge. Results revealed items considered as challenges based on teaching method, teacher's attitude, teacher's motivation and workload respectively. Solutions provided included; more mathematics teachers should be employed in order to reduce workload, better pay and incentives should be given to Mathematics teachers, conducive environment should be provided for the teaching of mathematics, training and workshops should be organized regularly for mathematics teachers. The study recommended that innovative teaching methods should be used, like problem-solving, laboratory, discussion and project methods amongst others as lecture method was seen as a challenge. Mathematics teachers should develop positive attitude despite challenges to encourage students learn Mathematics, better renumeration packages can motivate Mathematics teachers to teach and recruitment of more qualified Mathematics teachers can reduce the stress of workload for teachers.

Keywords: *Teacher-based factors, challenges, Mathematics and Teaching*

Introduction

Mathematics is a compulsory school subject at all levels of education in Nigeria. Mathematics apart from being an intellectually-stimulating discipline, it is one of the core subjects for both the junior and senior secondary school stages of education. This implies that every student must offer mathematics and thus indicative of the importance attached to mathematics in nation-building, technological development and advancement.

Mathematics is the abstract science of number, quantity and space. Mathematics may be studied in its own right (pure mathematics) or as it is applied to other disciplines such as physics and engineering

(applied mathematics). The special role of mathematics in education is a consequence of its universal applicability. The result of mathematics theorems and theories are both significant and useful. Aminu (2005) defined it as a study of numbers, symbols, sizes, models, shapes, spaces, pattern generalization, measurement, quantities, relationship and functions. This definition is indicative that mathematicians have seen the subject as dealing with more than numbers to include the uses of numbers and how teachers teach its content.

Teacher factor is an imperative which must be considered in effective and efficient teaching and learning of mathematics. It is considered as a necessary factor in the development of mathematics culture, which has its root in the classroom. For some years, a group of mathematicians and educators worked in collaboration to reflect on the teaching of school mathematics content, methodology and on the training of those teachers who are responsible for this teaching under the auspices of the International Commission on Mathematical Instruction (ICM). Here the understanding of Mathematical process and application of problem-solving approaches in mathematics were emphasized for the teachers; like employment of Mathematics teachers in secondary schools by the government, provision of mathematics textbooks and establishment of a mathematics laboratory in Abuja, the capital city. According to Oyedeji (1998), teachers are agent of innovation. So, for meaningful innovations to be achieved, the teacher's academic qualification and practice of professionalism is a key factor. It is instructive to note that teacher education is a complex enterprise and this complexity arise as a result of several factors which include determination of what an effective teacher is, various roles teachers are expected to play. This stems from the fact that the effectiveness of any educational institution depends on the competence of the teaching staff since no educational system can rise above the quality of its teachers (FGN, 2013). Mathematics instructional delivery should aim at conceptual understanding rather than mere mechanical skills by Mathematics teachers (Oloke, 2013). In line with this view, Sizer (2004) advocated that a competent Mathematics teacher should be one with a good academic and pedagogical background in mathematical process delivery.

The study of Mathematics in Upper Basic Secondary School does not come without some challenges. The traditional talk-and-chalk method of teaching which involves the procedural learning of algorithms for solving a limited range of exercises has been in practice. Oremi (2016) in a study on "factors responsible for poor performance of students in mathematics maintained that lecture method as an instructional delivery strategy is not enough for high achievement of students in Mathematics. Teachers conditions of service have also contributed to their low self-esteem, hence motivation of mathematics teachers seems to be low compared to other professions like Medical Sciences, Law and Engineering. This is replicated in the mathematics teachers' attitude to teaching, as students cannot cope with the uninteresting manner in which mathematics is taught, thereby resulting in low grades.

Statement of Problem

The challenges associated with the teaching of mathematics in not scarce in public or academic discourse. Many reasons have been advanced for poor and fluctuating performance in Mathematics. Unodiaku (2012) attributed factors of academic achievement among secondary schools mathematics students to lack of interest as a result of how the subject is taught, the attitude of the Mathematics teachers who have a particular non-lustre and fierce look which make students to fear Mathematics (Akinoso, 2011). As a result, students respond with less self-confidence, negative feeling and anxiety. Also, lack of qualified teachers and provision of facilities and equipment have been stressed as problems to teaching Mathematics. However, steps have been made to address some of these challenges, like employment of Mathematics teachers, provision of a central Mathematics laboratory at Abuja amongst others, where schools are expected to replicate such in their domain. Considering the fact that there remains room for improvement in the teaching of mathematics, there is still the need for better mathematics teaching in view of its relevance to other subjects and societal development. In the light of this, it becomes necessary to establish empirically, which of the teachers' factors are the challenges to effective teaching of mathematics in secondary schools in Egor Local Government Area of Edo State as perceived by the teachers themselves and solutions as proffered by them since they are directly involved in the process of teaching.

Purpose of the Study

The main purpose of this study is to investigate teacher-based factor as challenges to teaching of mathematics. The research assesses the challenges that have persisted in the teaching of mathematics despite government intervention with a view to seeking teachers' perception on their perceived solutions to these challenges and solutions proffered by them for the effective teaching of mathematics in Junior Secondary Schools.

Research Questions

The following research questions were formulated to guide the study

1. What are the challenges for Mathematics teachers based on teaching method?
2. What are the challenges for Mathematics teachers based on attitude toward teaching?
3. What are the challenges for Mathematics teachers based on motivation?
4. What are the challenges for Mathematics teachers based on workload?
5. What are the solutions to challenges of teaching Mathematics as perceived by teachers?

Conceptual Framework

The study adapted a self-developed conceptual framework based on the work of Grouwns and Kochler (2008)

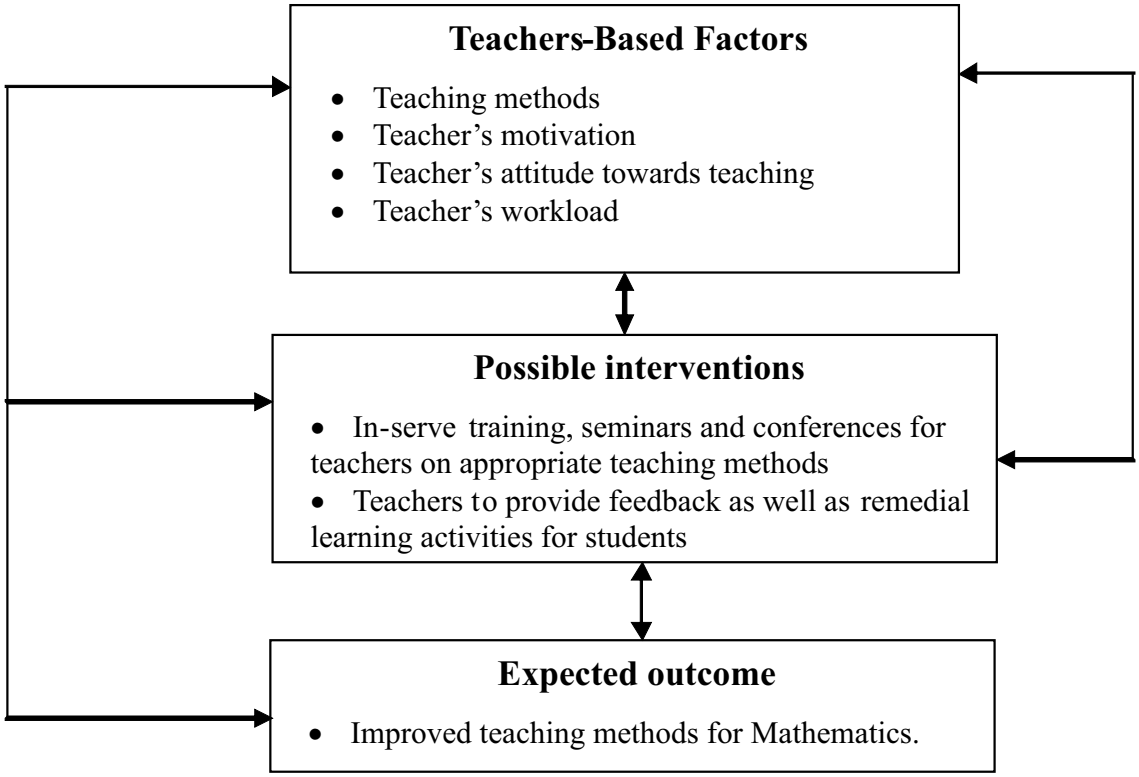

Fig. 1: Conceptual Framework (Adapted from Grouwns and Kochler, 2008)

Figure 1 showed the challenges faced by teachers, which include teaching methods, motivation, teachers' attitude towards teaching and workload. It also showed the possible interventions; in-service training, seminar and conferences for teachers. These as illustrated in figure 1 could be undertaken in order to overcome these challenges, thus bringing about improved and efficient teaching of Mathematics.

Teachers are very important human resource to achieve the objectives of a school system. Teacher's effectiveness is perhaps the most vital function affecting the future development of educational process (Akudu, 2007). Researchers have generally shown that teacher's influence affects students' attitude towards subjects. It will be observed that the behaviour of most mathematics teachers differ from the expected normal behaviour of teachers. They tend to exhibit very queer characteristics which scare students away from studying mathematics and they term it as a difficult subject. Sperling (2002) buttressed the fact by indicating that the credibility of the communicator (teacher) to change the attitude of another person is important. It is inferred that Mathematics teachers can foster in students passion to learn mathematics by assisting to build confidence in them that everyone can solve mathematics problem through emphasis on effort and not innate ability, addressing learning styles of mathematics students by providing a means for students to gain an understanding of difficult concepts in mathematics.

The word instructional delivery based on quality according to Berliner (2005) is usually not that simple to define, as it may require value judgment about which disagreement or agreement may abound. It is inherently value-laden; hence the characterizations of teachers' instructional quality vary according to perspectives and interests of the writer. From literature, teachers' instructional quality could be examined in various ways. It could be examined in terms of teacher's motivation and teacher's competence (Okeke & Adaka, 2012). It could also be examined in terms of teacher's status, teaching experience and teacher's dedication to duty (Adeyemi & Adu, 2012). It could as well be examined in terms of teacher's job performance and integrity (Ayodele, 2010).

In this study, one quality of a mathematics teacher is one who is qualified to teach (teachers who are certified with qualification in Education) specialized in mathematics field (teachers who are trained in mathematics education) and experience in teaching of mathematics (teachers who have taught mathematics from seven years and above). Mathematics teachers who have these three attributes will be able to possess all the traits of quality teachers that have been identified previously. Thus, having a mathematics teacher who is qualified, specialized and experienced in mathematics will help build a solid foundation in mathematics teaching and learning.

In educational system, the major things that increase teacher's workload are high teacher/student ratio and insufficient supply of teachers in schools since available teachers do the work that would have been done by required number of teachers. This increases the workload of the available teachers. As a result, the teachers available cannot fully put in their best. This may make them to lag in one aspect or the other, which will eventually have an effect on the educational achievement of the students. Riser (2008) posited that the effect of a teacher workload, attitude and class management dexterity build up to affect what the pupils are able to gain from the classroom teaching of such a teacher and hence reflected in students' academic gains. However, Ebhohimen (2007) observed in his study, that the relationship between instructional time in hours and academic performance of students is influenced by the nature of the subject, student enrolment in school and the workload of teachers.

Method

The study adopted a descriptive survey design because it aims at obtaining data from a sample of the participants which can be analysed by use of questionnaire. The population of the study consists of all Mathematics teachers in the fifteen public secondary schools in Egor Local Government Area, Edo State with a total of 54 mathematics teachers. A purposive sampling procedure was adopted because of the small number of the population. It involves using all 54 Mathematics teachers from the fifteen public secondary schools. The sample size of fifty-four (54) Mathematics teachers constituted the participants used for the study. They were all used for the study based on the criteria that participants who were mathematics teachers were few in number; the schools are under one location (rural).

An instrument, titled "Teachers' Questionnaire on Challenges for Effective

Teaching of Mathematics" (TQCETM) was used for data collection. The questionnaire was divided into four major headings of teaching method with 9 items, teachers attitude with 12 items, teachers motivation with 10 items, teacher workload with 5 items and space provided for solutions as advanced by mathematics teachers. The data collected were analyzed using descriptive statistics. In analyzing research questions one, two, three and four using any value less than 0.3 (< 0.3) for loading the items is not indicated as a challenge, while any value equal to or greater than 0.3 (= , > 0.3) is indicated as a challenge. It is considered as a good factor loading parameter as it showed the correlation of each item with the components highlighted under the four sub-headings. The component explained the most variance, which is the interest of the study because extraction was done based on the same number of component which is the four subheadings. They are teaching methods, mathematics teachers' attitude toward teaching, teachers motivation and teachers workload as well as number of items on the questionnaire. The initial Eigenvalues column was the same as the extraction sums of squared loadings column whose mean and standard deviation were derived.

Results and Discussion

Data collected were analysed using descriptive statistics and the following results were obtained.

Research Question 1: What are the challenges for Mathematics teachers based on teaching method?

Table 1: Principal Component Factor Analysis of Items by Teaching Method

S/N	Items	Mean	Standard deviation
1.	I use Lecture method always	1.73	.800
2.	I use discussion method always	.408	.733
3.	I use demonstration method always.	.638	.147
4.	I use experimentation/Laboratory method always	.624	.180
5.	I use discovery method always.	.646	2.89
6.	I use project method always	.609	.057
7.	I use problem-solving methods always	.496	.12
8.	I use cooperative group method always	.798	.60
9.	I use inquiry method always	.757	.99

Table 1 showed that all items except item 5 was considered as a challenge based on method adopted by teachers. These methods other than lecture method (X = 1.73, SD = .800) were selected as challenges by Mathematics teachers.

Research Question 2: What are the challenges for Mathematics teachers based on attitude toward teaching?

Table 2: Principal Component Factors Analysis of Items in Mathematics Challenge Based on Teachers' Attitude Toward Teaching.

S/N	Items	Mean	Standard deviation
10.	Most students have problems in expressing themselves while asking or answering questions in mathematics class session.	.100	.04
11.	If I were to judge my students, they fear Mathematics.	1.68	.11
12.	My students are always ready to learn Mathematics.	.245	.603
13.	Do you have interest in studying Mathematics further?	.651	.232
14.	I hate teaching mathematics.	.589	.388
15.	I feel good when I enter the classroom to teach Mathematics.	.618	.496
16.	I desire to remain a mathematics teacher no matter the condition.	.801	.159
17.	It is a waste of time teaching Mathematics.	1.82	.602
18.	Mathematics is boring and not interesting.	.644	.461
19.	It is fun to teach mathematics.	.759	.023
20.	Being a mathematics teacher is frustrating.	.665	.40
21.	I doubt if job opportunities in Mathematics teaching has a future prospect.	1.06	.297

Table 2 showed items 11 (X = 1.68, SD = .11) and 21 (X = 1.06, SD = .297) were selected as attitude of teachers towards the teaching of mathematics. This showed that these items were selected as challenges of mathematics based on teachers' attitude.

Research Question 3: What are the challenges for Mathematics teachers based on mathematics teachers' motivation?

Table 3: Principal Component Factor Analysis of Items in Mathematics Challenges Based on Teachers' Motivation

S/N	Items	Mean	Standard deviation
22.	Mathematics teachers are allowed Study Leave with pay	.688	.210
23.	Mathematics teachers are allowed Study Leave without pay.	1.26	6.72
24.	Mathematics teachers are given scholarship for further studies.	5.89	4.46
25.	Mathematics teachers are paid hazard allowance.	7.25	2.39
26.	Mathematics teachers are given award for excellent performance.	.664	.396
27.	Mathematics teachers are promoted as at when due.	.656	.177
28.	Mathematics teachers are offered grants to carry out projects/specific tasks to enhance teaching.	.827	.091
29.	Mathematics teachers are sponsored to seminars/workshops	6.04	2.06
30.	Poor remuneration packages to boost teachers' morale.	.254	.361
31.	Mathematics teachers cannot have access to loan from corporate institutions easily.	4.42	6.07

Table 3 showed items and values for 23 (X =1.26, SD = .6.72), 24 (X = 5.89, SD = 4.46), 25 (X=7.25, SD= 2.39), 29 (X= 6.04, SD = 2.06) and 31 (X = 4.42, SD = 6.07) were selected to be challenges for mathematics teachers based on motivation.

Research Question 4: What are the challenges for mathematics teachers based on workload?

Table 4: Principal Component Factor Analysis of Items on Mathematics Challenges Based on Teacher's Workload

S/N	Items	Mean	Standard deviation
32.	I teach more than ten periods per week.	.229	.454
33.	I am involved in too many administrative activities which affect my performance in teaching.	8.05	4.25
34.	I teach large number of students, this affects my effectiveness in teaching.	9.05	1.46
35.	I teach more than one subject in my school because of lack of teachers in my school.	.432	.773
36.	As a result of lack of mathematics teachers in my school, this tends to increase my responsibilities in mathematics teaching.	.372	.656

Table 4 showed items 33 (X = 8.05, SD = 4.25) and 34 (X = 9.05, SD = 1.46) were selected as challenges to teaching mathematics based on teachers workload.

Table 5: Summary of Principal Component Factor Analysis of Items in Mathematics Challenges for Teacher.

Variable (Teachers' factor)	Total number of items	No of items selected as challenges	No of items not selected as challenges
Teachers' Methodology	09	01	08
Teachers' Attitude	12	03	09
Teachers' Motivation	10	05	05
Teachers' Workload	05	02	03

Table 5 showed that one item was selected as challenge for teaching methodology; three items were selected as challenges based on teacher's attitude while five items were selected as challenges for mathematics teachers' motivation and two items was selected as challenges for teacher's workload. These figures revealed that the underlying structure of items that make up teacher-based challenges affecting teaching of Mathematics as perceived by teachers in Egor Local Government Area, Edo State.

Research Question 5: What are the solutions to the challenges of teaching Mathematics as perceived by teachers?

Based on the suggestions provided by Mathematics teachers on the space provided in the questionnaire, the following were extracted and enumerated as solutions to the challenges of teaching Mathematics.

1. More mathematics teachers should be employed in order to reduce workload.

2. Conducive environment should be provided for the teaching of mathematics.

3. Better pay and incentives should be given to Mathematics teachers.

4. Training and workshops should be organized regularly for mathematics teachers.

5. Better and modern teaching aids and materials should be provided.

6. Proper supervision of mathematics teaching.

7. Mathematics should be taught in the morning.

The above solutions were advanced by teachers in solving the challenges of teaching mathematics in secondary schools.

Discussion of Results

The purpose of this study is to assess teacher-based factors in the teaching of mathematics in secondary schools in Egor Local Government Area, Edo State. In line with research question one, the results obtained from the study revealed that method of teaching mathematics like the discovery, problem-solving, project, cooperative, inquiry, discussion, demonstration and experimental/laboratory methods were adjudged as non-challenges for teaching Mathematics. The result from analysis of research question one revealed that Lecture method was highlighted as a challenge for teaching Mathematics. This is in consonance with the work of Oloke (2013) who advocated that Mathematics instructional delivery should aim at conceptual understanding rather than mere mechanical skills of lecture by Mathematics teachers. Teachers' attitude was influenced by students' fear and anxiety towards Mathematics and doubts of having future prospects in Mathematics. Motivation of mathematics teachers with better conditions of service, welfare packages and easy access to loans and heavy workload were stressed as challenges, indicating that teachers generally influence students; if a teacher is positive, it is likely that students will model such teacher and this will enhance mathematics learning.

Based on the findings from research question five, solutions were advanced by teachers to the effective teaching of mathematics in secondary schools. From the analysis, solutions such as employment of teachers, conducive environment, better remuneration, conditions of service and incentives, provision of moderns teaching aids and materials were highlighted as necessities to improve teacher's performance in the teaching of mathematics.

Conclusion

From the foregoing, it can be inferred that for effective teaching of mathematics in secondary schools, it is imperative that teachers who are the major conveyor of knowledge must overcome challenges that impedes their performance. Definitely, those factors which hinder the efficiency of mathematics teachers are to be highlighted and identified with solutions to eradicate them. The essential nature of Mathematics as a subject makes it imperative to address challenges confronting mathematics teachers in order to bring about the desired goal of teaching and learning process. Therefore, stakeholders involved in the funding, planning and implementation of educational objectives must live up to their responsibilities in order to enhance functional content-delivery, which helps the students to gain mastery of the content of mathematics.

Recommendations

Based on the findings of this study, the following were recommended:

1. Teaching methods that are innovative, like problem-solving, laboratory, discussion,

project, co-operative and inquiry should be frequently explored to teach Mathematics in the classroom than lecture method.

2. Mathematics teachers should display positive attitude at all times despite the challenges in order to encourage students to learn Mathematics.

3. Mathematics teachers should be motivated with better remuneration packages, easy access to study leave in and outside the country and be able to access loans from organizations like banks.

4. Qualified Mathematics teachers should be recruited to alleviate the stress of too much workload.

5. Training and workshops should be organized regularly to update mathematics teachers on the latest best practice in teaching mathematics.

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THE EFFECT OF TECHNOLOGY ON STUDENTS PERCEPTION AND ACHIEVEMENT IN MATHEMATICS AS IT AFFECTS DISTANT LEARNING IN POST- PANDEMIC.

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Abstract

This study investigated Information Technology (IT) on students' perception and achievement in Mathematics in Edo State, Nigeria. An e-learning open university where students are exposed to IT and two Universities where students are not exposed to e-learning facilities via IT were purposefully selected for the study. One hundred and eighty-seven (187) students of mathematics education were used for the study. The design is e-learning post- test experimental. The e-learning application was designed for excellent online distance learning by allowing the students to receive online course materials in mathematics. The experimental group exposed students to the e-learning application while the control group exposed students to the conventional classroom method. Both groups were administered a 100-item achievement test in mathematics. Results from the findings revealed that, the students exposed to the e-learning application facilities had a significantly higher achievement because of the IT facilities and the students' perception of mathematics improved significantly. The research therefore recommends that mathematics students should be provided with all that the information technology has to offer in relation to mathematics.

Keywords: E-learning, Mathematics, Information Technology, Open University, Distant learning.

Introduction

Advancement in information technology (IT) has caught the attention of educators, researchers and students. IT based teaching-learning applications are now considered more effective alternative to traditional teaching methods (Larkin, 2003). Thus Yushau (2006) submits that IT has been used in education for more than four decades, and they have been "unconditionally" accepted as an integral part of educational system. IT usage has generated new challenges one of which is the use of IT in the teaching and learning of mathematics, Odafe & Eriakhuemen (2010), opined that attitude relates directly with behaviour. This agrees with Griffin (1998) who posited that different attitude towards IT are important factors relating to the effective use of IT.

According to Odafe & Eriakhuemen (2010),

mathematics and technology are important base in technological development as the study of these are the very essence of natural phenomenon. (Zhaoya, 2002) opined that mathematics and IT not only modify our physical environment but also add life to our perception. They influence our decisions, providing humans with unparalleled capacity to organize and manage the material world around and improve the standard of living. Mathematics as a branch of science has many applications both in the Arts, Social Sciences and Sciences. Female students shun Mathematics when given an option and this is as a result of poor perception of the subject. Teaching approach adopted by a teacher can also factor. Odili (2004) opined that attention should be paid to pedagogical factors which include method and media of instruction.

The advent of e-learning and distance education through Open University system does not only enhance human development both in public and private sectors but also contributed to the sustainable national development. Distance education system in our present global village fosters the global slogan of education for all. One would have expected that in this IT age, with the marvel of IT in mathematics disciplines, universities will enhance students to perceive mathematics in an IT sphere with all that IT has to offer to provide an advanced and more productive learning environment, but the reverse is the case. It is for this fact that some educators have observed that formal education has failed to develop positive attitude in science related courses like Mathematics (Kahle, 1976; Yager, et. Al. 2005). In regards to mathematics education and its achievement in Nigeria, it is evident that we are rising a new generation of Nigerians that are mathematically and technologically illiterate. Often, the teacher is blamed for the poor performance among other factors such as availability of teaching facilities and the attitudes of the students towards the subject. Teaching methods therefore are a crucial factor that affects the academic achievement of the students.

Statement of the Problem

While it is evident that learning mathematics in an e-learning environment affords students unlimited opportunities to demonstrate mastery of content taught because the subject matter to be learned is broken down into units of learning, each with its own objectives; there has been little information related to the students level of perception and performance in mathematics in an e-learning environment and the extent to which IT knowledge in such environments compares with students perception and performance of mathematics in the traditional teaching-learning environment. It becomes crucial to provide information along this line in order to be able to make recommendations that will promote the use of IT and mathematics efficiency among students and lectures in Nigeria. This certainly will encourage the use of IT aided teaching strategies in Mathematics in Nigeria. This study therefore aimed at finding out students' perception and their performance in the e-learning environment as compared to the traditional teaching-learning environment.

Reglin (1990) studied the effects of IT in teaching mathematics on a sample of 53 minority teachers. Results revealed that the students who worked cooperatively with the IT significantly outperformed those who worked individually. Owens & Waxman

(1994) made a study on a sample of 231 students who were distributed in two groups; an IT usage group and a control group not used to IT. The results show that the students in the IT group had a significantly higher attitude towards mathematics at the end of the course. Moor & Zaskis, (2000) conducted a study on the use of IT for Mathematics education for elementary school teachers on a sample of 36 teachers. The results revealed that the major advantage of IT is that it affords students a variety of option in acquisition of knowledge.

A number of researchers have investigated the role of IT in students' achievement in various subject areas. Attwell & Battle (1999) examined the relationship between having access to IT and not having access to IT and school performance, for a sample of approximately 64,300 students in the United States. Their findings suggest that students who are exposed to IT facilities for educational purposes have improved scores in reading mathematics. Sosin et al (2004) constructed a database of 67 sections of introductory economics, enrolling 3,986 students, taught by 30 instructors in 15 institutions in the United States of America during the spring and autumn semesters of 2002. They found significant but low, positive impact on students' performance due to IT usage. But they however showed that some IT seems to be positively correlated to performance while others are not. After taking into account selection bias and differences in students characteristics, they reported that the average TUCE scores are almost 15% higher for the face-to-face format than for the online format. A research done in the teaching of agriculture by Kibett & Kathuri (2005) revealed that students who were taught using IT based learning outperformed their counterparts in regular teaching approach.

E-learning at the national Open University Benin City study center, Edo State, Nigeria, offer dual mode of delivery of higher education degrees to students. Approximately half of the students' body completes some or all the degree through distance education. Students completing a degree in mathematics must complete an entire subject course online. There is achieved through the university e-learning environment. The university also facilitates and provides bulletin boards, synchronous chat rooms, whiteboards and the likes for communication and collaboration. Static course content is delivered in HTML, PDF or PowerPoint formats. The university also provides tools for management of assignments, assessments as well as class management.

The university seeks to continuously develop its E-learning environment to enhance the experience of all distance and on-campus learners. This study therefore investigates the effects of IT on the learning of mathematics by University students on an e-learning platform.

Research Questions

1. To what extents does the use of IT facilities affects the achievement of mathematics students?

2. Is there any significant difference between the achievement of mathematics students taught with IT facilities and those taught with the traditional teaching methods?

3. Is there any significant difference on the effect of IT facilities on students perception of mathematics?

Hypotheses

1. There is no significant difference in the achievement of mathematics students taught with the use of IT facilities and those taught with the traditional teaching methods ($p>0.05$).

2. There is no significant difference in students perception of mathematics by students taught with the IT facilities and students taught with the traditional teaching methods ($p<0.05$).

Method

The problem of this study consisted of some of the students studying mathematics in two universities, comprising of one e-learning Open University where students are exposed to IT facilities and another university where students are not exposed to e-learning via IT facilities. The researchers visited the school to ascertain that they were suitable for the research. The e-learning Open university was selected because it was the only one in Edo State situated at Oredo Local Government Area. The other university was selected through stratified sampling from four (4) existing universities in Edo State. It is situated at Ugbowo i.e. University of Benin, in Ovie-North east Local Government Area. During the visit the researchers obtained information on class composition and learner characteristics from some non-academic staffs, academic colleagues and departmental records.

A total of 187 students willing to participate were used for the study and they have been studying Mathematics for at least two years. But due to the reduced number of NOUN students gotten via tutorial classes were held in the NOUN site, a sample of 150 students was selected for analysis. A breakdown of the 150 students gave 75 students in the treatment group (49 males and 26 females) and 75 students (58 males and 17 females) in the control group. Thus 75 of the students were exposed to e-learning facilities via IT facilities while 75 were exposed to the traditional teaching method.

The researchers made use of achievement test (AT), a lesson plan and research model called the National Open University of Nigeria portal model (NOUNPM) for the study.

AT*:** This is a post-test with 100-item achievement test administered in mathematics with options A-E designed by the researchers based on the year 1 to year 3 mathematics prospectus in the area of operations research and algebraic computations. The test was designed to cover the area of knowledge, comprehension and application. Each part of the test has 25 multiple choice objectives item with options A to E. the maximum obtainable score was 100. ***AT was used for the control and treatment groups (see table 1). The validity of the items was assessed by three Mathematics Education experts.

Table 1: Summary of Instrument

GROUPS	TREATMENT	POST TEST
Treatment Group (n=75)	NOUNPM	AT
Control Group (n=75)	Traditional Teaching Methods	AT

Lesson plan: The plan was divided into two sections:

1. PLAN A that used the NOUNPM as a teaching aid for the treatment group.
2. PLAN B that utilize the conventional teaching aid for the control group.

Research Model

The effectiveness of IT on student's perception and achievement in mathematics was analyzed using NOUNPM, which was for the treatment group made of students already exposed to e-learning facilities. The treatment group were registered, authenticated and have been making use of NOUNPM for their e-learning environment (see figure 1). The portal provides students with a personalized, single entry point to essential educational courses and other administrative information.

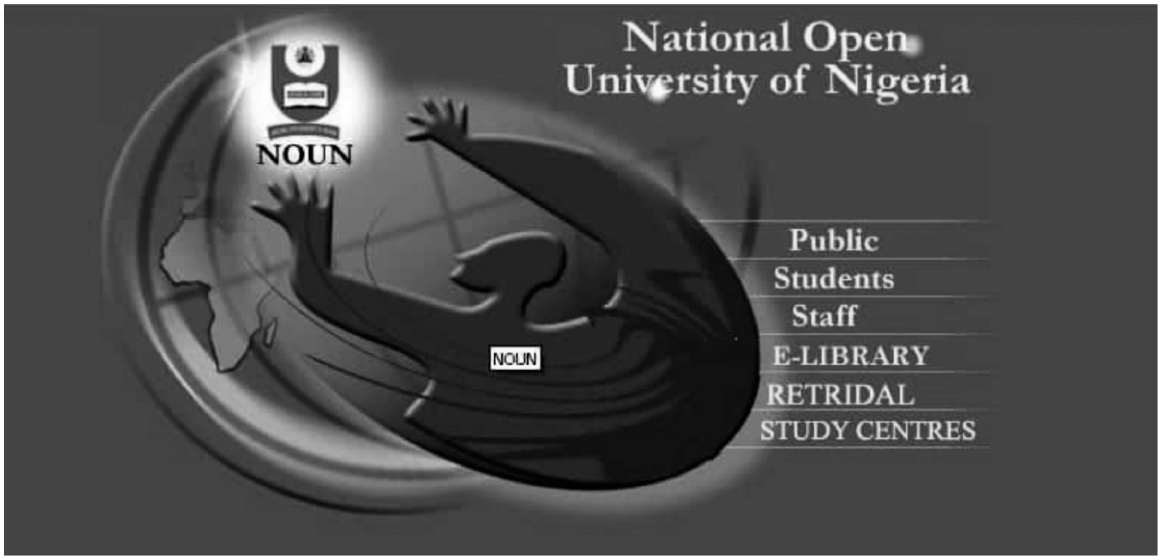

Figure 1: NOUNPM Home page

Research Procedure

Students who formed part of the treatment group made use of plan A lesson plan and thus were presented with some mathematical concepts using automated facilities in NOUNPM. The control group use plan B, and was taught the same concept using the traditional teaching methods. The teachings in the two universities span a period of four months. One of the researchers took the treatment group tutorial classes in some mathematics courses in NOUN and the control group assigned same Mathematical courses in the department of mathematics education in the University of Benin. Both groups were examined. The other researcher marked the students' scripts and compiled results; this helped in controlling teacher's variable.

Method of Data Analysis

The data collected were analyzed using

mean, standard deviation, percentage mean and t-test.

Research Question One: To what extent does the use of IT facilities affects the achievement of mathematics students?

The analysis of research question one is shown on Table 2. The mean in achievement of students in treatment group is 75.75 with a standard deviation of 1.295 while that of the control group is 52.05 with a standard of 1.935, and this is with a mean difference of

Table 2: Analysis of Research Question One

GROUPS	MEAN POST TEST	STANDARD DEVIATION	Mean Difference
Treatment Group (n=75)	75.75	1.295	
Control group(n=75)	52.05	1.935	
			23.70

***Research Question Two*:** Is there any significant difference between the achievement of mathematics students taught with facilities and those taught with the traditional teaching methods?

The analysis of research question two is shown on Table 3. The mean in achievement of students in treatment group is 31.05 with a standard deviation of 8.9 while that of the control group is 21.23 with a standard deviation of 7.5, with a t-value of -9.7 and a p-value of 0.001.

Table 3: Analysis of Research Question Two

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Hypothesis One: There is no significant difference in the achievement of mathematics students taught with the use of IT facilities and those taught with the traditional teaching methods.

Research Question Three: Is there any significant difference on the effect of IT facilities on student's perception of mathematics?

The analysis of research question three is shown on table 4. The mean in achievement of students in treatment group is 21.5867 with a standard deviation of 7.3505 while that of the control group is 30.9067 with a standard deviation of 9.1566, with a t-value of 8.874 and a p-value of 0.000.

Table 4: Analysis of Research Question Three

Group	Mean	Standard deviation	t-value	p-value
Treatment group n=75	21.5867	7.3505	8.874	0.000
Control group n=75	30.9067	9.1566		

Hypothesis Two; There is no significant difference in students perception of mathematics taught with IT facilities and students taught with the traditional teaching methods ($p<0.05$).

Discussion of Results

Analysis of table 3 reveals better achievement of students in the treatment group. With a mean of 62.03 and percentage mean of 73.1% compared to the control group performance mean of 48.29 and percentage mean of 49.1% as the approved pass mean is 50%. In addition, testing at α level of .05, $t = 3.280 > 1.78$ with the degree of freedom71). this shows that there is a significant difference in performance. Therefore Ho is rejected and this implies that H_1holds. Hence H_1 which states that there is a significant difference in the performance or achievement of students taught with IT facilities holds.

Conclusion

Based on the findings in this study, it is evident that IT based applications should be integrated into the development of mathematical theory and its use. There can be no e-learning of mathematics theory without the use of IT in an Open and Distance University. At present, it appears that theory is taught first, followed by application skills. In many cases, a Mathematics lecturer teaches the theory with a traditional method, and an IT professional teaches the application skills. Theory and application should be interwoven and integrated. Or, at least applications should be considered first, and then theory, to ensure that theory is related to real-concepts. Teaching mathematics with IT facilities would improve the perception of students to mathematics and enhance the comprehension of Mathematics by students. Combining Mathematics concepts with IT applications will allow students to form conceptual relationships between theory and applications within daily jobs, and they will be able to build upon their education foundation to create life-long learning experiences. Creating IT-based case studies and interdisciplinary scenarios in mathematics courses would ensure the integration of mathematical concepts and their application. The students will be involved in defining relevant mathematical concepts, identifying theories and tools needed to solve the problems, processing data, reporting results, and providing all relevant documentation. To accomplish this, faculty from the IT department and mathematics department must work as a team and curriculum interwoven. The team should discover, discuss and implement the interweaving of course materials.

Recommendations

The following recommendations were based on the finding of the study:

1. Mathematics teachers should use IT facilities in teaching Mathematics.
2. Mathematics and information technology facilities should be developed. Also IT courses and its associated mathematical courses should be interwoven.
3. Seminars/workshops should be organized for mathematical teachers in secondary school on the use of IT facilities.
4. The government should establish IT facilities in all schools like other science subjects laboratories and make it possible for all disciplines to make use of it.

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EFFECTS OF THINK-PAIR-SHARE LEARNING STRATEGY ON STUDENTS' ACHIEVEMENT IN PROBABILITY

By

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Abstract

This study investigated the effect of Think-Pair-Share learning strategy on students achievement in probability. Two research questions and two hypotheses guided the study. The study adopted Quasi-experimental design. The population of the study was 456 Senior Secondary School Two (SSII) students in Kazaure. A sample of 78 students from two randomly selected schools were used for the study. Instrument for data collection was Probability Achievement Test (PAT). Reliability was obtained as .78 using Kuder-Richardson K-R_{21} formula. Data collected were analyzed using Analysis of Variance ANOVA at 0.05 level of significant. Findings of the study revealed significant difference in achievement of students in probability as a result of Think-Pair-Share learning strategy. An additional result of the study revealed that male students perform better than female students in probability as a result of Think-Pair-Share learning strategy. The study recommends that mathematics teachers should adopt think-pair-share in aiding students understanding of mathematics considering it effects on academic performance.

Keywords: Think-Pair-Share, Student, Achievement, Gender and Probability.

Introduction

Development of a nation depends on the extent to which science, technology and mathematics are being harness. Mathematics plays critical role on a nation economic development make it a compulsory subject to all students at the primary and secondary schools in Nigeria (Olorundare, 2007). National Policy on Education (NPE), (2013)regards mathematics as a core subject in the school curriculum. The senior secondary school mathematics curriculum is made up of Geometry, Algebra, Trigonometry, Probability and statistics.

Probability a component in the mathematics curriculum plays a vital role in finding solution to real world problems such as analysis of data and pricing methods for financial assets, equities and bonds(Sarah & Wing, 2015).In spite of the importance of probability in finance however the West Africa Examination Council (WAEC) chief examiners reports revealed that questions on probability were poorly answered by most students who experience difficulties with the concept of prime number in experimental probability, solving problems of 'at least' and 'at most' and developing probability sample space which have partly contribute to students poor achievement. Shaughnessy (2003) observed most students experience difficulties with concepts of sample space in probability. Orji and Umoru

(2010)attributed these difficulties experience by students to in-correct operational step use in solving problems.

Studies such as Concrete Model (Yagci, 2010); Team-Game Tournament (Odabasi, 2013); Ludo Games (Sam-Kayode & Salman, 2015); Teacher and Students Base Instruction (Pale, 2016) were conducted to remedy difficulties experiences by students in probability but this problem of students poor achievement in probability still persist as reported by WAEC chief examiners the present study aimed to try a new instructional strategy which is more of students centered that could improve on achievement in probability, such strategy is the Think- Pair-Share (TPS).

TPS strategy was first proposed in 1981 by Frank Lyman at University of Maryland Washington in United State of America USA with the idea of making students more active in learning. Kagen (2009) highlighted five operational steps use in TPS to include organizing students into pair, posing questions, giving time to think, sharing ideas with partners and calling on few students to share their idea with rest of the class also TPS enables students to formulate individual ideas. Miller (2012) observed sharing of ideas allows for great deal of interaction among students. Peer interaction provides opportunity for students to engage in higher level cognitive activities and improve achievement in mathematics (Clarke, 2001).

Gender difference in academic achievement have remain global issue among researchers in recent time. Studies on gender have long been of interest among researchers who found that female students excel more on fluency tasks while male students excel on cognitive tasks such as problem solving(Lindberg, Hyde, Petersen, & Linn, 2010). Study conducted by Abiam and Odok (2006) found no significant relationship between gender and achievement in numbers and numeration, algebraic process and statistics. Adeniyi (2012) found that the influence of Personalized System of Instruction on students' achievement in indices and logarithms on student gender has no influence on their achievement. Akanmu (2013) found that gender influences senior school students' achievement when taught using guided discovery method.

Conceptual Framework

Think-Pair-Share (TPS) instructional strategy is a new trajectory teaching methods against the long live convectional method of teaching and judging students intelligence base on ability to solve problem utilize logic and think critically. TPS approach has evolved and been embrace widely especially in the United State (US) where it was first developed, many educators and researchers are of the view that TPS improves students academic achievement in all subjects.TPS is a collaborative learning strategy where students work together in group in finding solution to specific task assign to them in the class room. TPS requires students to think individually about a topic or answer to a question and shares ideas with the entire class. TPS is a model of cooperative learning in which students are put into groups with aim of sharing ideas in finding solution to a specific task.Sejani (2016) found that TPS improves students academic achievement.

Probability is the likelihood or uncertainty of the possibility of an event (Ferrei&

Tavares, 2008). Probability that a certain event *A* will occur is denoted by (*A*) .Experimental probability is based on previous know results, the relative frequency of the number of times the event has previously occurred is taken as the indication of likely occurrence in the future. Take an example of a random batch of 240 component subjected to strict inspection and 20 items are found at random from the sample. The chance of its being faulty is '20 in 240' that is 1 in 12.

Classical probability is based on a consideration of the theoretical number of ways in which it is possible for an event *A* to occur as before.

Research Questions

1. What is the difference in the mean achievement score of students taught probability using think-pair-share strategy and those taught using lecture method?

2. What is the difference in the mean achievement score of male and female students taught probability using think-pair-share strategy?

Hypotheses

$H_{01:}$ There is no significance difference in the mean achievement score of student's taught probability using think-pair-share strategy and those taught using lecture method.

$H_{02:}$ There is no significance difference in the mean achievement score of male and female students taught probability using think- pair-share strategy.

Method

The study adopted quasi-experimental design of pre-test post-test non-equivalent control group design. A population of 456 Senior Secondary School Two (SSII) students in Kazaure Local Government Area were used for the study. A sample of 78 students was obtained through randomly sampling of two schools. Instrument for data collection was Probability Achievement Test (PAT).Reliability of .78was obtained using K-R_{21} formula. Data collected were analyzed using Analysis of Variance ANOVA at 0.05 level of significant.

Results

Table 1: ANOVA Results between Experimental and Control groups.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	173.841	1	173.841	4.779	0.0386
Within Groups	5130.159	43	223.050		
Total	5304.000	34			

Table 1 reveal P-value of 0.03 is less than 0.05 level significant and F-value was 4.779. The null hypothesis is therefore rejected. There is significant different in the mean achievement score of students taught probability using think-pair-share strategy and those taught using lecture method

Table 2: Experimental Group Male and Female Students Achievement in Probability.

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Male	28	64.4444	15.03808	3.54451	56.9662	71.9227	40.00	90.00
Female	15	58.5714	14.63850	5.53283	45.0331	72.1098	40.00	80.00
Total	43	62.8000	14.86607	2.97321	56.6636	68.9364	40.00	90.00

The mean scores of male students was 64.44 while the mean score of female students was 58.57. This implies that male students have higher achievement in probability than female students when taught using think-pair-share strategy.

Findings

Result of the study revealed is significance difference in mean achievement score of student's taught probability using think-pair-share strategy and those taught using lecture methods. Additional indicated a difference in mean achievement score of male and female students taught probability using think- pair-share strategy

Discussion of Findings

The results of data analysis reveal a significant difference in the mean achievement score of students taught probability using think-pair-share strategy and those taught using lecture methods. This agrees with studies conducted by Cheryl, Hui and Masitah (2018) in utilizing think-pair-share techniques in teaching probability and found that think-pair-share improves student's achievement in probability. Sejani (2016) had worked on the effect of the use of think-pair-share on students' academic achievement in mathematics. The study found that think-pair-share is effective in improving students' academic achievement. Akanmu (2019) found statistical significant difference in achievement of students taught set theory using think-pair-share compared with those taught using lecture method in the control group.

Further result of the study revealed male students achieve higher in probability than female students as a result of think-pair-share strategy. This corresponds with Bassey, Joshua and Asim (2016) who found significance difference in achievement of male and female students. Akanmu (2019) who found no significant difference in achievement of male and female students in mathematics when taught using think-pair-share contradicts findings of the present study.

Conclusion and Recommendations.

The results of the study showed that think-pair-share improves students achievement in probability than the lecture method of teaching. Male students perform better than the female students in probability as a result of think-pair- share strategy. Findings of the study has proven that think-pair- share strategy is effective in aiding students understanding of probability. The study therefore recommends that mathematics teachers should adopt think-pair-share strategy in aiding students understanding considering it effects on academic achievement.

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