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Editorial

Journal of Education and Vocational Research (JEVR) provides an avenue for quality research in the ever-changing fields of Education and Vocational Research and related disciplines. Work submitted for publication consideration should not be limited by any narrow conceptualization of education and vocational research but comprises interdisciplinary and multi-facet approaches to education and vocational theories and practices as well as general transformations in the fields. The scope of the JEVR includes: subjects of educational technology, educational administration, educational planning, measurement and evaluation in education, developmental psychology, special education, distance learning, vocational education, technology-based learning, environmental education, business education, educational psychology, physical education, innovation, vocational training, knowledge management. Author(s) should declare that work submitted to the journal is original, not under consideration for publication by another journal and that all listed authors approve its submission to JEVR. It is JEVR policy to welcome submissions for consideration, which are original, and not under consideration for publication by another journal at the same time. Author (s) can submit: Research Paper, Conceptual Paper, Case Studies and Book Review. The current issue of JEVR comprises of papers of scholars from Nigeria, UK and Uganda. Global Partnership in Achieving Sustainable Development Goals, Education and Economic Growth in the Economic Community of West African States, Efficacy of Constructivist's Teaching Method in Proving Mensuration Theorem and Exploring the Values of Transformative Curriculum for Nation-Building are some of the major practices and concepts examined in these studies. Journal received research submission related to all aspects of major themes and tracks. All the submitted papers were first assessed by the editorial team for relevance and originality of the work and blindly peer-reviewed by the external reviewers depending on the subject matter of the paper. After the rigorous peer-review process, the submitted papers were selected based on originality, significance, and clarity for the purpose. The current issue will, therefore, be a unique offer, where scholars will be able to appreciate the latest results in their field of expertise and to acquire additional knowledge in other relevant fields.

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PAPERS

Journal of Education and Vocational Research (JEVR)
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Global Partnership in Achieving Sustainable Development Goals (SDGs) in Nigeria: The Role of Technology and Vocational Education and Training (TVET)

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Abstract: The paper examined the need for a global partnership with TVET to ensure that the sustainable development goals set out by world leaders are convincingly achieved. The paper dwell on the three dimensions of SDGs identified during the declaration- economic, social and environmental. With respect to the economy, a case was made for adequate investment in the areas of agriculture and manufacturing. The need to establish a strong partnership with TVET institutions for the training of the unemployed without regard to sex, tribe, religion or physical challenges has been advocated as a panacea to some of the challenges facing Nigerian society. With regard to the environment, this paper advocates for a global partnership on sustainable green TVET.

Keywords: *Global, Partnership, SDGs, TVET, Nigeria.*

1. Introduction

At the seventieth anniversary of the United Nations in 2015 which coincides with the meeting of heads of state and governments drawn from 193 countries of the world, the leaders declared as follows (United Nations, UN, 2015): We have decided today on new global Sustainable Development Goals (SDGs), we have adopted a historic decision on a comprehensive far-reaching and people-centered set of universal and transformative Goals and targets. We commit ourselves to the full implementation of this Agenda by 2030. We recognize that eradicating poverty in all its form and dimension including extreme poverty is the greatest global challenge and an indispensable requirement for sustainable development. We are committed to achieving sustainable development in its three dimensions- economic, social and environmental in a balanced and integrated manner. We are announcing today 17 sustainable development goals. We will implement the agenda for the full benefit of all, for today's generation and the future generation. We will not be able to achieve our ambitious goals without a revitalized and enhanced Global Partnership (p. 5). Sustainable Development Goals (SDGs) is a successor initiative to Millennium Development Goals (MDGs).

They are blueprints designed to achieve a better and more sustainable future for all in the areas of poverty eradication, inequality, climate change, environmental degradation, peace and justice among others. The declaration by prominent world leaders as quoted above underpinned the need to recognize the existence of the challenges, the goals sought to surmount, and the need for all and sundry to put all hands on deck to achieve these lofty goals. However, as the leaders aptly recognized in their declaration, this cannot be convincingly achieved without the active role of partners drawn all over the world and from diverse disciplines. The role of partnership in the achievement of the SDGs cannot be over-emphasized; no wonder, goal number 17 of the SDGs specifically sought to "strengthen the means to implement and revitalize the global partnership for sustainable development (UN, 2015). This paper shall explore the modest role Technology and Vocational Education and Training (TVET) can play when globally partnered in actualizing the SDGs. The discussion will be centered on the economic, social and environmental dimensions of the goals to bring to the fore the need and benefits that shall accrue when the partnership is vigorously pursued.

2. Concept of TVET

Currently, different terms are used in different countries and in different contexts to define "Technical and Vocational Education and Training" otherwise known as TVET. Terms such as "education and vocational training" (EVT), "vocational education and training" (VET), "technical and vocational education" (TVE), and "the development of technical and professional skills" (DTPS), are often used to describe the acquisition of employable skills (VOCED Plus, 2021). However, since the discussion here centered on the SDGs- a program championed by the UN and taking place in Nigeria, which is located in Africa, the definition of the term must be drawn from the perspectives of the organs of these bodies. According to the United Nations Education

Scientific and Cultural Organization, UNESCO (2013), TVET is a comprehensive term referring to those aspects of educational processes involving addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, and knowledge relating to occupations in various sectors of economic and social life.

The African Union (AU) (2017) on the other hand, sees TVET as a term when used in its broadest sense, covers all aspects of training and skills development of all cadres, whether formal, non-formal or informal; including the issues of demand and supply of skills, employability, improving skills, the ability for self-employment, and retraining, versatility and continuing apprenticeship. From these two definitions, it can be deduced that TVET:

- Recognizes the traditional apprenticeship system;
- Is a catalyst for training citizens for the world of work in diverse occupations;
- Is a mechanism for promoting a green environment; and
- Can be an effective means of poverty alleviation.

Therefore, there appears to be a strong connection between TVET and what the SDGs are set to achieve.

3. TVET, SDGs and the Economy

Countries all over the world are ranked based on the strength of their economy. The United States of America for instance, which is today referred to as the world's largest economy has its economic dominance anchored by service-oriented industries, particularly in areas such as technology, financial services, health care and retail (Focus Economic, 2019). These industries provide jobs for a large number of US citizens. It is a fact that the most visible sign of a healthy economy is the number of jobs it creates for the teaming population and its ability to sustain and progressively improve on these numbers over time. It is common knowledge that most of the countries that are recognized today as “developed” were at one time or the other, “under-developed”. Therefore, in achieving job creation which is the cornerstone of poverty alleviation as contained in the SDGs, TVET can play a vital role when a partnership is established in this regard. In order to give credence to this thesis, two vital sectors of the economy- Agriculture and manufacturing/construction industries will be briefly discussed-Agriculture and Manufacturing/Construction industries. Sustainable Agriculture which is goal number 2 in the SDGs is a key component of the TVET program.

This sector can be efficiently fine-tuned to achieve a healthy and robust economy (SMEDAN and National Bureau of Statistics, 2013). When TVET institutions are partnered to give the citizens adequate training and to equip them with appropriate skills in the areas of modern agriculture, they will have the capacity to go into farming and be able to produce sufficient food that will accommodate the need of their countries. When that happens, hunger will be dissipated and food security will be assured. Furthermore, with adequate incentives from the government; farmers can export their produce to other parts of the world. The multi-pliers effect is that the rate of importation will be drastically reduced thereby curtailing the much-dreaded demand for foreign exchange from the government for food importation; because when the agricultural products are exported, foreign exchange is earned. It will also provide means of livelihood to the farmers, the pick-up driver, the wheelbarrow pushers, the market women and other categories of people on the value chain (United Nations Development Program, UNDP, 2020). This is in addition to the nutritional value that the citizens stand to gain from the unpreserved food commodity thereby ensuring healthy lives and well-being for all ages. In the manufacturing/construction industry, there are reports of the paucity of skilled labor (Ihua-Maduenyi, 2018).

For instance, in most of the construction sites around Abuja, the capital city of Nigeria, or in Agbara, Ogun State, Nigeria, it is common to see expatriates doing carpentry, joinery, painting, tiling or operating machines respectively. These are jobs that ought to be handled by locals when they are properly trained and equipped with appropriate skills by the various TVET institutions. This unwanted situation is mostly attributed to the skill gap existing among the locals, as most of them may not be able to handle these tasks competently to the satisfaction of their employers (United Nations Development Program, UNDP, 2020). Where these situations continue unchallenged, the economy will be negatively affected. Fortunately, there is a way out of this

unwanted situation, TVET is synonymous with skills acquisition, when the government partners with TVET institutions in the areas of training and retraining of the citizens, the economy stands to benefit from it. When citizens acquire requisite skills, they will have something productive to do in the industry; through this, and earn their living (Auta, 2021). When citizens spend part of their earnings in the market either for food, cloth, land or medical bills, more funds are injected into the economy. This will be used to sustain the job of those employees in the production line of those industries as well as enhance the profit margin of the investors. Through these acts, the circular flow of income will continue for the betterment of the economy.

4. TVET, SDGs and Society

Modern societies around the world are currently battling with some emerging social problems which threaten the peaceful coexistence that should be in force. For instance, in Nigeria, there are incessant cases of communal clashes, banditry, armed robbery, kidnapping and so on which at the moment is threatening the sovereignty of the nation. Most of these societal problems can be attributed to several factors such as unemployment, under-employment, and poverty (George & Ukpong, 2013). These identified problems are becoming a threat to the realization of Goal number 11 of the SDGs which sought to "make human settlements inclusive, safe, resilient and sustainable" (UN, 2015). How can this goal be achieved in the face of this "impossibility"? It is a fact that no society is immune from one form of problem or the other (Weiping, 2018). However, the size, shape, and nature of the problems vary from one society to another. What is not in doubt is that these threats are not insurmountable, at least to achieve the lofty goals of the SDGs. This is practically possible when appropriate measures are put in place to subdue them. Establishing a strong partnership with TVET institutions for the training of the unemployed without regard to sex, tribe, religion or physical challenges will go a long way in achieving the SDGs. When individuals complete a training program in TVET institutions and are properly equipped with appropriate skills that will make the individual productive members of society; therefore, the likelihood to engage in social vises will be very slim.

In fact, such an individual may likely be carried away by the multitude of tasks to be accomplished in a chosen occupation without idle time. For instance, the demand for construction workers has been on the increase in recent years. A highly skilled carpenter who works on a construction site will naturally leave the house around 7 am and may not likely return until sometime around 5 pm. By the time he returns, he is most likely to be fatigued, all he needs is to bath, eat, and prepare for another day. The carpenter may not likely have time to engage in other unproductive endeavors. Poverty, which is one of the major areas of concern of the SDGs, can only flourish where there is a skill deficit among the people; where the majority of the people are highly skilled in one occupation or the other, their chances of survival are very minute. In China for instance, despite the fact that they have a very high population of about 1.42 billion people as of 2018 (Woldometers, 2019), China has been able to lift about 850 million people out of poverty. Using a benchmark of 1.9 dollars per day earning, the percentage of people living in extreme poverty fell from 88% in 1981 to 1.85% in the year 2013 (Weiping, 2018). This was largely achieved through the instrument of skill acquisition because China has a subsisting policy that ensures that an average secondary school student in China is skillful in a particular craft. Therefore, strong partnerships with TVET institutions in the training of a highly skilled workforce will go a long way in ensuring that the SDGs are achieved and their effect on society is positively felt.

5. TVET, SDGs and the Environment

Achieving sustainable development may become a mirage when environmental issues are not given the necessary attention they deserve. In recognizing this reality, the SDGs specifically sought to "protect, restore, and promote sustainable use of terrestrial ecosystem, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss" among other key goals that are tangential to it (UN, 2015). To achieve this, this paper advocates for global partnership on sustainable green TVET. Green TVET is any training program designed to inculcate in the participants the knowledge, and skills needed to deal carefully with the environment to reduce the environmental impact of production activities while enhancing productivity and the quality of goods and services being produced (UNESCO, 2013). In other words, green TVET is centered on instilling green knowledge, and green skills so that the trainees can engage in green jobs after graduation. According to the United Nations Environment Program (UNEP) (2008), Green jobs are works undertaken in the areas of agriculture, manufacturing, research and development that assist in

preserving and restoring the quality of the environment through the protection of the ecosystems and biodiversity, reduction of energy, materials and water consumption, de-carbonization of the economy and minimizing the generation of wastes and pollution.

The International Labor Organization (ILO) (2012) characterized green jobs as follows:

- Reduced consumption of energy and raw materials.
- Limitation of green, house gas emission.
- Minimizing waste and pollution.
- Protecting and restoring the ecosystem

In order to actualize this "green revolution", TVET institutions must ensure that environmental considerations are given all the attention they deserve. This according to UNESCO (2013) can be achieved by adopting the following concrete steps:

- Evaluation of the need for a green economy;
- Evaluation of green jobs and their working tasks;
- Development of curricula for education and training for green jobs;
- The training of teachers and trainers in this field;
- Development of learning and teaching materials;
- Development of infrastructure for training and education;
- Development of cooperation network between companies, schools, state institutions and vocational research institutions (p. 14). When these steps are adequately implemented, it will go a long way in ensuring that the training programs in TVET institutions are environmentally friendly. This will lead to the realization of the SDGs.

6. Conclusion

The paper examined the need for partnership with TVET to ensure that the sustainable development goals set out by world leaders are convincingly achieved. The paper dwell on the three dimensions of SDGs identified during the declaration- economic, social and environmental. It is expected that when the issues raised are properly addressed, it will go a long way in ensuring that the SDGs are achieved for the betterment of society.

References

Auta, M. A. (2021). The milk of human kindness: curbing Almajiri vulnerability through vocational skill training in construction crafts. *Canadian Journal of Educational and Social Studies*, 1(1), 63-77.

Focus Economics. (2019). The world's largest economies. Accessed http://www.focus-economy.com/blog/the-largest-economies-in-the-world.

George, I. N. & Ukpong, D. E. (2013). Contemporary social problems in Nigeria and its impact on national development: implication for guidance and counseling services. *Journal of Educational and Social Research,* 3(2), 167-173.

Ihua-Maduenyi, M. (2018). Nigeria records an annual decline in skilled construction workers. Accessed http://www.punchng.com/nigeria-record-annual-decline-in-skilled-construction-workers/amp

International Labor Organization, ILO. (2012). Green jobs. Accessed www.ilo.org/global/topics/green-jobs/lang--eng/index.htm.

SMEDAN and National Bureau of Statistics. (2013). SMEDAN and National Bureau of Statistics Collaborative Survey: Selected Findings. Accessed at https://www.smedan.gov.ng/images/PDF/2013-MSME-Survey-Summary-Report.pdf

UNESCO. (2013). Greening TVET for sustainable development. Germany: UNESCO-UNEVOC

United Nations Development Program, UNDP. (2020). Human Development Report 2020. Accessed at http://hdr.undp.org/sites/default/files/hdr2020.pdf

United Nations Environmental Program, UNEP. (2008). Green jobs report. Accessed www.unep.org/labour-environment/PDFs/Grrejobs/UNEP-Greenjobs.report.pdf

United Nations, UN. (2015). Transforming our world: the 2030 agenda for sustainable development. Accessed www.sustainabledevelopment.un.org

VOCED Plus. (2021). Glossary term: Vocational education and training. Accessed at https://www.voced.edu.au/content/glossary-term-vocational-education-and-training

Weiping, T. (2018). China's approach to reduce poverty: taking targeted measures to lift people out of poverty. Addis-Ababa: International Poverty Reduction Center

Worldometers. (2019). China population (live). Accessed at www.worldometers.info/worldpopulation/china-population.

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Education and Economic Growth in the Economic Community of West African States (ECOWAS)

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Abstract: The declining level of economic growth in the Economic Community of West African States (ECOWAS) has been attributed to the poor level of educational development in the bloc. Consequently, this study aims to assess the effect of primary, secondary and tertiary educational development on economic growth in the ECOWAS bloc. The study adopted an extended literature review/ desktop research methodology to address three research questions. Findings based on the extended literature review indicated negative and insignificant relationships between primary educational development and economic growth in the ECOWAS bloc. Secondly, findings also established largely positive relationships between secondary educational development and economic growth in the bloc. Lastly, the relationship between tertiary educational development and economic growth was largely mixed in the ECOWAS bloc. The three specific conclusions were, therefore, validated by both the institutional fitness theory and the new theory of growth. Consequently, to improve the contributions of primary, secondary and tertiary educational development to economic growth in the ECOWAS bloc, the present study recommends the promotion of enhanced social programs, integration of existing policies and creation of societal culture executed within a sound institutional framework, reduction in unemployment, regional disparities, defining the active role of non-governmental organizations (NGOs) and other independent institutions, as well as even distribution of political and financial power, especially in Nigeria, the largest country in the bloc.

Keywords: *Primary Education, Secondary Education, Tertiary Education, Economic Growth, ECOWAS.*

1. Introduction

The positive influence of education on economic growth in many developing countries has been largely debated in the literature (Okrah et al., 2020; Cleeve, 2019; Tsai, 2016; Ajayi, 2015). Measured in terms of gross domestic product (GDP), economic growth can simply be defined as an increase in goods and services arising from a country's productive capacity and is usually compared from one period of time to another (Awolusi, 2021; Onuonga, 2020). Economic growth is, therefore, an increase in national income and national output. If properly managed, an increasing growth may lead to the provision of good infrastructural facilities, education, health and general better well-being for the citizens. On the other hand, education can be defined as the process of facilitating learning or gaining knowledge, values, skills, habits and beliefs (Ajegbelen, 2016; Benade, 2015). This process can be through formal, non-formal and informal (Hickel & Kallis, 2020). Consequent to the above definitions, the important role of education in improving productive capacities, and by extension economic growth, can never be overemphasized. Education is often said to be related to higher productivity of workers, with the attendant increase in economic growth, but is, in turn, influenced and induced by Economic Growth (Awolusi & Jayakody, 2021; Cleeve, 2019). When a society is educated, average income increases, productivity increases, and unemployment decrease, hence, improving social stability and economic growth as a whole (Tsai, 2016).

The Economic Community of West African States (ECOWAS) is made up of fifteen (15) members (after the withdrawal of Mauritania from the bloc in December 2000), namely, Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo. ECOWAS Treaty is therefore a multilateral agreement signed by all member states. ECOWAS's headquarter is located in Abuja, Nigeria. The state goal of ECOWAS is to achieve collective self-sufficiency for its member states by creating a single large trading bloc of full economic and trading union (Onuonga, 2020). The ECOWAS Protocol on the Free Movement of People and Goods ensures free mobility of the citizens of member states. The declining level of economic growth in the Economic Community of West African States (ECOWAS) has been attributed to the poor level of educational development, in the context of educational efficiency, output, outcome and participation, in the region (Ajegbelen, 2016; Anyanwu & Yameogo, 2015). In recognition of the above problem, few studies have tried to solve this problem but achieved mixed results. Specifically, Lin's (2016), Okrah et al.'s (2020) and Ajayi's (2015) studies focused on the influence of different

levels of education, namely primary, secondary and tertiary educational development, on economic growth in ECOWAS, Ghana and Nigeria respectively.

Arising from the mixed results, many previous studies (Anyanwu & Yameogo, 2015; Chakrabarti, 2018: 21). However, posit a holistic study that will incorporate the three levels of educational development (namely, primary, secondary and tertiary levels) using a novel economic growth model in the perspectives of the four (4) dimensions of educational development, namely, efficiency, output, outcome and participation. Consequently, the present study aimed at assessing the effect of education on economic growth in the ECOWAS bloc. The above objective was based on an extended literature review on all three (3) levels of educational development, namely, primary, secondary, and tertiary. To comprehensively study the influence of education on economic growth, the following specific objectives are contrived:

- To investigate the influence of primary education on economic growth in the Economic Community of West African States;
- To examine the effect of secondary education on economic growth in the Economic Community of West African States, and
- To analyze the effect of tertiary education on economic growth in the Economic Community of West African States.

The Central Research Question Can be Formulated as Follows: What educational policy options are implied by the relationship between education (viewed from various levels of education) and economic growth to be fair to individual countries in ECOWAS? Specifically, the formulation of policies would require finding answers to the following specific questions: 1. What is the relationship between primary education and economic growth in the ECOWAS? 2. What is the relationship between secondary education and economic growth in ECOWAS? 3. What is the relationship between tertiary education and economic growth in ECOWAS? The above questions were answered by an extended literature review and critique. The three questions were analyzed and the evidence from the study guided the proposed policy options and recommendations that, if implemented, can lead ECOWAS to pursue growth in a manner that brings about improved educational development to every member making up the bloc. In line with the overall argument of the dissertation, the sub-questions underlying the study were based on the following arguments in the literature (Lin, 2016; Okrah et al., 2020; Ajayi, 2015): that primary educational development has the potential to improve economic growth in individual ECOWAS countries; 2) that secondary educational development has the potential of improving economic growth in individual ECOWAS countries, and 3).

That tertiary educational development in the ECOWAS countries could lead to improved economic growth in the bloc. The present study, therefore, serves as a strategic tripod of the nexus between the three levels of education (primary, secondary and tertiary) and economic growth in the ECOWAS bloc (Phong, 2019). The rationale for the present study is also to solve the aforementioned problem and also to fill related gaps raised in the literature (Lin, 2016; Ajayi, 2015). In a deviation from previous studies, the present study, therefore, seems to provide evidence that could serve as a basis for alternative policy options. Also, another novelty of the present study is the aggregated analysis of the nexus between educational development based on the dictates of institutional economics (theory), by looking at the three important levels of educational development, namely primary, secondary and tertiary in the ECOWAS bloc. Specifically, contrary to most literature on the topic, the study critiqued the inability of previous studies to correct for cross-sectional dependence, as well as addressed endogeneity issues in both linear and non-linear frameworks (Phong, 2019; Lin, 2016). The output of this study is therefore expected to be useful to policymakers in the ECOWAS countries in estimating the achievement of bloc educational development goals, as well as the goal of promoting sustainable economic growth of members (Okrah et al., 2020; Ajayi, 2015).

2. Review of Related Literature

Conceptual Review: A conceptual framework is the deliberate adoption of a premeditated concept to investigate expected relationships between variables (in this case, education and economic growth in the ECOWAS) based on existing theories and models (Fadila & Olure-Bank, 2019; Lin, 2016). However, much of the existing literature does not agree on the conceptual framework and constructs that should be used to explain the relationships between educational development and economic growth (Onuonga, 2020;

Błazejowski et al., 2019). That notwithstanding, the conceptual framework for this study is based on the nexus between educational development and economic growth in the ECOWAS countries (Gokmen et al., 2020). The reasons why existing models of economic growth and education are inadequate in explaining greater changes in the level of economic growth and educational development.

The ECOWAS countries could be traced to the approach toward understanding the relevant concepts. Namely, "economic growth" and "education," hence, a need for an accurate understanding of the various concepts. Measured in terms of gross domestic product (GDP), economic growth can simply be defined as an increase in goods and services arising from a country's productive capacity and is usually compared from one period of time to another (Onuonga, 2020). Economic growth is, therefore, an increase in national income and national output. On the other hand, education can be defined as the process of facilitating learning or gaining knowledge, values, skills, habits and beliefs (Daramola & Awolusi, 2021; Fariala & Awolusi, 2021). This process can be through formal, non-formal and informal (Hickel & Kallis, 2020). Consequently, if properly managed, an increasing educational development at primary, secondary, and tertiary levels may lead to a general improvement in economic growth in both developing and developed economies (Gokmen et al., 2020; Błazejowski et al., 2019).

Theoretical Framework: Similar to previous studies, a mixture of varied economic growth and educational theories and models are designed to address the complex relationships between education and economic growth in the ECOWAS bloc (Okrah et al., 2020; Ajayi, 2015). Thus, our adopted theoretical framework is built on the two common theories of economic growth-educational development nexus, namely, institutional fitness theory and the new theory of economic growth (Lin, 2016; Okrah et al., 2020; Ajayi, 2015). The institutional fitness theory, as suggested by Wilhelms (1998), formed an important part of estimating the influence of education on economic growth. Institutional fitness theory, therefore, posits a proper fit in all government institutional development efforts, namely rule of law, social equity and wealth distribution, educational institutions, government policies and civil authorities to achieve increased economic growth (Błazejowski et al., 2019). The link between educational development and economic growth in the ECOWAS countries can be further explained by the institutional fitness theory, which suggests that improved economic growth is determined more by institutional variables (Gokmen et al., 2020).

The presupposition is that government policies on education should be executed within a sound institutional framework for the country to achieve the desired improvements in economic growth (Fofuh & Awolusi, 2021; Wilhelms, 1998). Consequently, national institutions like educational institutions, markets, socio-cultural systems, and government, must be active and efficient in the process of transmitting various government policies on education to tangible derivatives. This enhanced capacity of institutions is termed institutional fitness (Onuonga, 2020; Wilhelms, 1998). Supporting the above linkages between educational development and economic growth, many studies on ECOWAS (Alege & Ogundipe, 2014; Adamu, 2013; Fadila & Olure-Bank, 2019) also attributed the present threats to economic growth in the bloc to inefficient government institutions. Specifically, Adamu (2013) and Fadila and Olure-Bank (2019) assert that attaining sustainable economic growth in the ECOWAS countries might be a mirage without a proper nexus between educational development, economic growth and sound government institutional variables.

For example, many studies often criticize the notion that corruption in the educational sector is caused simply by failing institutions (Onuonga, 2020, Lin, 2016; Ajayi, 2015). Many corrupt countries often experience a decline in the quality of education because those who are corrupt use the 'institutions' to perpetuate their corrupt practices in the educational sector (Kanneh & Awolusi, 2021; Fadila and Olure-Bank, 2019). On the other hand, the new theory of growth linked the attainment of economic growth in several developing countries (similar to ECOWAS) to the capacity of the host country to implement and adopt technological developments and innovations in education from developed economies (Lin, 2016; Ajayi, 2015). This can be made possible in the ECOWAS bloc due to its penchants for the adoption and implementation of new technology and innovations at all levels of educational development (Okrah et al., 2020; Ajayi, 2015). The new growth theories, therefore, strategically positioned many ECOWAS countries in a way to better catch up with developed countries given the presence of abundant labor stocks with the required skills to either develop or adopt new foreign educational policies (Alege & Ogundipe, 2014; Adamu, 2013).

Empirical Review: Relationships Between Education and Economic Growth: Many studies have investigated the relationships between education and economic growth in many developing and developed economies but achieved mixed results (Reza & Widodo, 2013; Babatunde & Adefabi, 2015; Dumciuviene, 2015; Alege & Ogundipe, 2014; Adamu, 2013; Fadila & Olure-Bank, 2019; Lin, 2016; Okrah et al., 2020; Chakrabarti, 2018; Lin, 2016; Ajayi, 2015). Specifically, Gaspar et al. (2017), Dumciuviene (2015), Ayres et al. (2007) and Reza and Widodo (2013) are some of the previous studies on the nexus between education and economic growth in developed and emerging countries of Europe and Asia. For example, Ayres et al.'s (2007) study examined the role of education on continued growth in many European economies. The paper identified improved tertiary education as a potential means of increasing energy efficiency and usage for continued long-term economic growth. However, the study aimed at challenging the neoclassical growth theory that assumed that growth is automatic, cost-free, and inevitable. Similarly, Gaspar et al. (2017) examine the nexus between government expenditure on educational development and economic growth using a panel of annual data sets of 20 European countries from 1995–2014. The findings of the study rely on traditional economic growth rather than on the Index of Sustainable Economic Welfare (ISEW). Findings from the study observed a new negative feedback hypothesis for ISEW (the alternative measure of economic growth) but maintained a conservative hypothesis for the nexus between economic growth and educational development.

The study, therefore, concluded that policies focused on educational development might find it difficult to improve the much-desired economic growth due to wrong interpretations of the economic growth approach (using GDP) by policymakers in their quest for the much-desired increased economic growth. Similarly, notable studies on the relationship between educational development and economic growth in the ECOWAS bloc are Lin (2016), Okrah et al. (2020), Ajayi (2015), Alege and Ogundipe (2014), Adamu (2013) and Fadila and Olure-Bank (2019). Lin's (2016) study assessed the nexus between primary education and economic growth in the ECOWAS region. However, the evaluation of Lin's (2016) study depicts mixed results. Specifically, the study observed an insignificant relationship between economic growth and government expenditure on primary schools in the ECOWAS countries during the study period. However, the influence of the total number of graduates from primary education (output) on economic growth was negative, while the effect of research and development on economic growth was positive and significant. The mixed results may not be unconnected with poor fiscal and monetary policies adopted within the ECOWAS region during the study period (Okrah et al., 2020; Ajayi, 2015). Contrary to Lin's (2016) study, similar studies by Okrah et al. (2020) and Ajayi (2015) observed positive relationships between economic growth and government spending on education in both Ghana and Nigeria respectively.

The conflicting results in previous studies have been largely attributed to the various measures and theoretical conceptualization of educational development and growth variables (Cleeve, 2019; Tsai, 2016). For example, Lin's (2016) study assessed the influence of Primary educational development (proxied by total government expenditure on primary education) on economic growth in ECOWAS, using an econometric data set from 1980 to 2014. Notwithstanding the econometrical deficiencies, the main conclusion in Lin's (2016) study depicts the insignificance relationship between economic growth and government expenditure on primary schooling in the ECOWAS region. The above conclusion depicts the inefficiency of government expenditure in bringing the much-desired economic growth in the bloc. Also, estimates from the various robustness checks justify the conclusion of the study. The study, therefore, recommends improvement and better coordination amongst the three levels of education, namely, primary, secondary and tertiary education in any growth model. The conclusion also presents accurate and balanced linkages between the research questions, hypotheses and various recommendations. However, the contradictory findings in many of the aforementioned literature could be attributed to weak methodological and theoretical conceptualization. For example, Lin's (2016) study observed mixed results between government expenditure on primary educational variables.

Economic growth in the fifteen (15) ECOWAS countries is due largely to the low data sets and poor explanatory estimates (Cleeve, 2019). Furthermore, the small data sets and weak econometrical analysis in many of the aforementioned studies seem to limit the capacity to generalize the contrived conclusions and recommendations (Okrah et al., 2020; Ajayi, 2015). For comprehensive coverage of many identified linkages between educational development and economic growth in the ECOWAS countries, this dissertation has been

positioned to fill any identified gaps in the literature: First, understanding the knowledge of how educational development would affect the economic growth of individual countries in ECOWAS is important in solving the declining levels of educational development within the bloc (Fadila & Olure-Bank, 2019; Lin, 2016). Also, comparing the three levels of educational development (primary, secondary and tertiary) with economic growth in all the 15 ECOWAS countries, as a bloc, is important as it provides evidence that could serve as a basis for alternative policy options, a gap in literature positioned by previous studies (Onuonga, 2020; Błazejowski et al., 2019). Although empirical studies on the education-economic growth nexus are on the increase, many of the studies have mainly focused on a single country (Babatunde & Adefabi, 2015; Lin, 2016).

Developed (Gaspar et al., 2017; Ayres et al., 2007) and emerging economies analysis (Reza & Widodo, 2013; Dumciuviene, 2015). According to Babatunde and Adefabi (2015) and Lin (2016), there seem to be few studies concentrating on a comparative study on the influence of education on economic growth within a group of developing economies like ECOWAS. Also, continuously evaluating the process of economic change has been seen as an essential precondition to improving economic growth (Onuonga, 2020). Again, we all live in a world that is characterized by dynamic economic change, while the theories we use to understand the present world are still largely static, with little emphasis on the role of institutions and government (Błazejowski et al., 2019). The adoption of institutional fitness theory, in this study, is also a veritable means of accounting for the array of heterogeneous variables that are usually involved in the economic growth process, by giving more significance to institutions, over both the entire economy and firms (Fadila & Olure-Bank, 2019). In a deviation from previous studies that used singular measure of educational development, part of the novelty of the present study is the aggregated analysis of the nexus between educational development based on the dictates of institutional economics (theory), by looking at the three important levels of educational development (namely primary, secondary and tertiary) in the ECOWAS bloc (Onuonga, 2020; Błazejowski et al., 2019).

3. Methodology

The methodology is one of the three elements of a paradigm that researchers either implicitly or explicitly work within (Awolusi & Mbonigaba, 2020; Chudik et al., 2015). The other elements of a paradigm include ontology and epistemology (Chudik & Pesaran, 2015). Although research methodology is an integral part of conducting an empirical study, however, the present study adopted an extended literature review/ desktop research methodology since it addressed specific research objectives and questions to guide the study (Menon, 2017). Consequently, the present extended literature review was conducted systematically. First, the study described its scope, limiting it to the influence of educational (primary, secondary and tertiary) development on economic growth. Consequently, the study described the wider topic of education and economic growth nexus literature and reached the more specific topic of the influence of primary, secondary and tertiary educational development on economic growth in developed, developing and ECOWAS countries respectively. The fifteen (15) ECOWAS countries are Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, the Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo. Though, since a research design forms a critical connection between theory and arguments that inform the research study to the empirical data that are collected and analyzed, the adopted research design is deemed appropriate because our focus is on measurement (of concepts, variables, and building relationships).

Establishing causality (between education and economic growth); however, generalizations of our findings and replicability may be limited (Awolusi & Mbonigaba, 2020). Lastly, an extended literature review/ desktop research design can easily facilitate the comparison of groups, like the ECOWAS countries, and provide insight into a breadth of experiences (Lamar & Awolusi, 2021; Olayisade & Awolusi, 2021). The study is therefore based on a deterministic philosophy, where causes are deemed to determine outcomes or effects (Creswell, 2014). Consequently, this study was mostly aimed at assessing and analyzing previous literature on the effect of independent variables (education) on the dependent variable (economic growth) in the ECOWAS bloc. This aim was in line with similar stated research questions and hypotheses, intending to ultimately draw upon a few theoretical frameworks from the social sciences (Mosteanu, 2019). To assess the influence of educational development variables (efficiency, output, outcome and participation) in primary, secondary and tertiary institutions on economic growth (Gross domestic products) in the ECOWAS bloc, the study adopted an

extended literature review/ desktop research design. The study used three major databases to search the literature on economic growth and education. These are; the Google scholar, Inderscience and Proquest databases. The search keywords and the results obtained from each database are shown in table 1.

Table 1: Number of Total and Relevant Literature in Each Database

Keywords and Strings	Google Scholar Database		Inderscience Database		ProQuest Database	
	Total	Relevant	Total	Relevant	Total	Relevant
"Economic growth" and "Primary Education"	21	2	35	3	0	0
"Economic growth" and "Secondary Education"	21	3	30	4	10	2
"Economic growth" and "Tertiary education"	15	4	17	2	8	1
"Economic growth" and "Educational/ Human Capital development" Theories	19	2	15	1	5	1

However, the search was majorly limited to journal articles between the years 2015 and 2020. For each search result, the present study reviewed the title and abstracts of the respective articles to select the major ones that are capable of contributing to the overall three research questions/objectives of the paper. The study focused on finding articles on the nexus between the three levels of educational development (primary, secondary and tertiary) and economic growth in the ECOWAS bloc. Also, reading that has an empirical research focus in top-rated Journals, like SCOPUS, Inderscience publishers, Emerald, and Sage publications were majorly selected. Reading the publisher's blurb at the back or inside sleeve for an overview of the content and checking the contents page for relevant chapters in a specific Journal's edition also formed part of the selection process. I also looked up references to each journal article to select specific methodologies in the literature related to education and economic growth in ECOWAS countries. Lastly, I made sure that all literature is relevant and adaptable to my unit of analysis (ECOWAS). However, the major issues I encountered during the process of selecting and formulating the research design revolved around the decision about the purpose of the study (exploratory, descriptive, hypothesis testing), scope of the study and data availability (Tsai, 2016; Usman & Ibrahim, 2017). However, the study early became aware that we would have to infer these nexuses from the reviewed articles.

Overall, to develop our analysis in the present study, the whole analysis is approached from a project network perspective (Holmen & Pedersen, 2003), and then grouped according to the respective effect of educational development on economic growth that we have subtracted from the sample of articles. All research involving human subjects should be conducted per four basic ethical principles, namely respect for persons, beneficence, non-maleficence, and justice (Tsai, 2016; Usman & Ibrahim, 2017). It is usually assumed that these principles guide the conscientious preparation of projects for scientific studies. In practice, these ethical principles mean that as a researcher, I need to: obtain informed consent (voluntary informed consent) from potential research participants, minimize the risk of harm to participants and avoid deception, protect their anonymity and confidentiality, avoid using deceptive practices; and give participants the right to freely participate or withdraw from the survey (Pelinescu, 2015; Usman & Ibrahim, 2017). However, the present study is purely secondary research (extended literature review/ Desktop Research) and does not involve human subjects. That notwithstanding, the following ethical principles of typical secondary/ desktop research were followed: all reviewed literature followed the above-mentioned ethical principles. Also, the research reported in the project, except where otherwise indicated, was deemed to be my original research and has not been submitted for any degree or examination at any other university.

Secondly, I ensured that the project does not contain other data, pictures, graphs, or other information unless specifically acknowledged as being sourced from other persons. Thirdly, I ensured that the project does not contain other writing unless specifically acknowledged as being sourced from other researchers. However, where other written sources have been quoted, then, their words have been re-written, but the general information attributed to them has been referenced; and where their exact words have been used, their

writing has been placed inside quotation marks and referenced (Usman & Ibrahim, 2017). Furthermore, I ensured that the project does not contain text, graphics, or tables copied and pasted from the internet unless specifically acknowledged and the source is detailed in the project and the references sections. Also, since the study's evaluation of all literature was limited to the paper's information, there was no need to contact the respective authors for further details (Wheeler & Mody, 2018). Developing my methodology, therefore, involves studying the research methods used in major extended literature reviews in education economics and the theories or principles that underpin them, to choose the approach that best matches my questions/ objectives (Tsai, 2016). Furthermore, in the methodology chapter, the following criteria were adopted in the selection for or exclusion of past research: the study majorly reviewed readings that are recent, especially the 2015 to 2020 literature. This was done by checking the date of publication to know if the information is up-to-date.

4. Results and Discussion of Findings

Education and Economic Growth: We begin exploring management literature on the nexus between economic growth and educational developments at the three strategic levels, namely, primary, secondary and tertiary. The aim is to clarify how the literature differentiates, analyzed and enumerates the specific relationships between the two concepts. In many of the literature reviewed, there is indeed a distinction between education and economic growth; nevertheless, out of the 21 articles reviewed; only Błazejowski et al. (2019) and Onuonga (2020) provide a clear definition of the two concepts. In general, most of the authors refer to the two concepts but they do not clearly define them (Okrah et al., 2020; Ajayi, 2015). The reasons for the blurred definition of the two concepts also contribute to why existing models of economic growth and education are inadequate in explaining greater changes in the level of economic growth and educational development in many developing countries, hence, a need for an accurate understanding of the various concepts (Fadila & Olure-Bank, 2019; Lin, 2016; Onuonga, 2020). Measured in terms of gross domestic product (GDP), economic growth can simply be defined as an increase in goods and services arising from a country's productive capacity and is usually compared from one period of time to another (Onuonga, 2020).

Economic growth is, therefore, an increase in national income and national output. On the other hand, education can be defined as the process of productive capacity (Błazejowski et al., 2019). This process can be through formal, non-formal and informal (Hickel & Kallis, 2020). From the above definitions, the present study posits that economic growth is a holistic concept of improved national income and national output that can be achieved through enhanced productive capacity through formal, non-formal and informal educational development at all levels. However, previous studies often argue that little attention has been given to a holistic study of the influence of the three important levels (primary, secondary and tertiary) of educational development on economic growth in many developing countries (Fadila & Olure-Bank, 2019; Lin, 2016; Onuonga, 2020). Therefore, the following questions are answered based on the extensive review of the literature:

- What is the relationship between primary education and economic growth in ECOWAS?
- What is the relationship between secondary education and economic growth in ECOWAS?
- What is the relationship between tertiary education and economic growth in ECOWAS?

Effect of Primary Educational Development on Economic Growth in ECOWAS Bloc: The relationship between primary educational development and economic growth has been largely discussed in the literature (Lin, 2016; Adamu, 2013; Alege & Ogundipe, 2014; Onuonga, 2020; Usman & Ibrahim, 2017; Younsi & Bechtini, 2018). The main focus has been largely on assessing the influence of government total investment in primary education on economic growth. Appendix 1 depicts the major reviewed literature and the corresponding relationships between total government investment in primary education and economic growth. Contrary to the general notion that if properly managed, an increasing educational development at the primary level may lead to a general improvement in economic growth in both developing and developed economies (Gokmen et al., 2020; Błazejowski et al., 2019), the general findings in literature depicts otherwise. Lin's (2016) study assessed the nexus between primary education and economic growth in the ECOWAS region. However, the evaluation of Lin's (2016) study depicts mixed results. Specifically, the study observed an insignificant relationship between economic growth and government expenditure on primary schools in the ECOWAS countries during the study period. The negative and conflicting results in Lin's (2016) study

could be attributed to the various measures and theoretical conceptualization of primary educational development and growth variables (Cleeve, 2019; Tsai, 2016).

For example, Lin's (2016) study assessed the influence of Primary educational development (proxied by total government expenditure on primary education) on economic growth in ECOWAS, using an econometric data set from 1980 to 2014. However, the second measure was based on the influence of the total number of graduates from primary education (output) on economic growth. The mixed results may also be attributed to the poor fiscal and monetary policies adopted within the ECOWAS region during the study period (Okrah et al., 2020; Ajayi, 2015). Additionally, much of the reviewed literature also fails to account for cross-sectional dependence errors in their studies (Onuonga, 2020; Usman & Ibrahim, 2017; Younsi & Bechtini, 2018). Ordinarily, results of the Pesaran CD test on economic growth (ln_GDP) are expected to refute the presence of cross-sectional dependence (Okrah et al., 2020; Ajayi, 2015) in the dependent variable since the test accepts the H0 of cross-section independence (at the 1% level of significance). This is an indication that the respective variables do not possess a high degree of cross-sectional heterogeneity (Jamel & Maktouf, 2017). Furthermore, based on the eight reviewed literature, the link between primary educational development and economic growth in the ECOWAS countries can be further explained by the institutional fitness theory.

This suggests that improved economic growth is determined more by institutional variables (Lin, 2016; Adamu, 2013; Alege & Ogundipe, 2014; Onuonga, 2020; Usman & Ibrahim, 2017; Younsi & Bechtini, 2018). The presupposition is that government policies on education should be executed within a sound institutional framework for the country to achieve the desired improvements in economic growth (Onuonga, 2020; Wilhelms, 1998). Consequently, national institutions like educational institutions, markets, socio-cultural systems, and government, must be active and efficient in the process of transmitting various government policies on education to tangible derivatives (Onuonga, 2020; Wilhelms, 1998). Similar studies on ECOWAS by Adamu (2013) and Fadila and Olure-Bank (2019) also corroborated the present threats to economic growth in the bloc to inefficient government institutions. Specifically, Adamu (2013) and Fadila and Olure-Bank (2019) assert that attaining sustainable economic growth in the ECOWAS countries might be a mirage without a proper nexus between primary educational development, economic growth and sound government institutional variables.

Effect of Secondary Educational Development on Economic Growth in ECOWAS Bloc: The majority of the reviewed literature established a positive relationship between secondary educational development and economic growth in the ECOWAS bloc, as well as other developing and developed economies (Okrah et al., 2020; Alege & Ogundipe, 2014; Fadila & Olure-Bank, 2019; Ajegbelen, 2016; Babatunde & Adefabi, 2015; Tsai, 2016; Akinola & Bokana, 2017; Dumciuviene, 2015; Mosteanu, 2019; Jamel, & Maktouf, 2017; Menon, 2017; Reza and Widodo, 2013). For example, contrary to Lin's (2016) study, similar studies by Okrah et al. (2020) observed positive relationships between economic growth and total government spending on secondary education in Ghana. The positive relationships in many of the reviewed studies were largely attributed to the validation of the new theory of growth which linked the attainment of economic growth in several developing countries (similar to ECOWAS) to the capacity of the host country to implement and adopt technological developments and innovations in education from developed economies (Lin, 2016; Ajayi, 2015).

In a related contrived model by Alege and Ogundipe (2014), secondary educational development seems to contribute to the increasing level of economic growth in the ECOWAS bloc during the study period. Specifically, estimates from both the co-integration test and Toda and Yamamoto causality seem to suggest a positive relationship and effect of secondary educational development on economic growth in the ECOWAS bloc. Similar to previous studies (Adamu, 2013; Fadila & Olure-Bank, 2019). The estimates of the study showed a cointegrated relationship and also that secondary educational development and economic growth move in parallel directions in the long run (Alege & Ogundipe, 2014). The positive relationships between secondary educational development and economic growth in the ECOWAS countries are also supported by other reviewed studies in many emerging and developed countries (Gaspar et al., 2017; Dumciuviene, 2015; Ayres et al., 2007; Reza & Widodo, 2013). Specifically, Ayres et al.'s (2007) study examined the role of education on continued growth in many European economies.

The paper identified improved secondary education as a potential means of increasing energy efficiency and usage for continued long-term economic growth. However, the main findings were aimed at challenging the neoclassical growth theory that assumed that growth is automatic, cost-free, and inevitable (Ayres et al., 2007). Similarly, Gaspar et al. (2017)'s study examines the nexus between government expenditure on secondary educational development and economic growth using a panel of annual data sets of 20 European countries from 1995–2014. Findings from the study observed a new negative feedback hypothesis for ISEW (the alternative measure of economic growth) but maintained a conservative hypothesis for the nexus between economic growth and secondary educational development. The study, therefore, concluded that policies focused on educational development might find it difficult to improve the much-desired economic growth due to wrong interpretations of the economic growth approach by policymakers in their quest for much-desired increased economic growth.

Effect of Tertiary Educational Development on Economic Growth in ECOWAS Bloc: Lastly, the relationships between tertiary educational development and economic growth have been largely mixed in the ECOWAS bloc and many other developed and developing economies (Ajayi, 2015; Adamu, 2013; Nosheen et al., 2019; Błazejowski et al., 2019; Gaspar et al., 2017; Ayres et al., 2007; Javeria et al., 2017). Specifically, contrary to Lin's (2016) study, similar studies by Ajayi (2015) observed positive relationships between economic growth and total government spending on tertiary education in Nigeria, while negative and conflicting results in Adamu's (2013) study could be attributed to the various measures and theoretical conceptualization of tertiary educational development and growth variables (Cleeve, 2019; Tsai, 2016).

Specifically, Alege & Ogundipe's (2014) and Adamu's (2013) study assessed the relationships between tertiary education and economic growth in the ECOWAS countries using annual panel data. The study confirmed a mixed long-run cointegration relationship between tertiary education and economic growth in the bloc countries. While estimates from fixed effects results posit the positive and significant influence of tertiary education on economic growth, the coefficient of its squared term depicts a significant negative effect. However, due to the only bidirectional causal relationships between tertiary educational development and economic growth in the bloc, many studies posit that poor institutional fitness and foreign direct investment in the educational sector may have altered the influence of economic growth on tertiary educational development in the ECOWAS bloc over the years (Fadila & Olure-Bank, 2019). Most importantly, the mixed relationships between tertiary educational development and economic growth in the ECOWAS countries, as well as many developing countries have been largely attributed to the inability to validate the new theory of growth which linked the attainment of economic growth in several developing countries to the capacity of the host country to implement.

Adopt technological developments and innovations in tertiary education from developed economies (Lin, 2016; Ajayi, 2015). However, many studies seem to see future positive relationships between government investment in tertiary education and economic growth in the ECOWAS bloc due to its increasing penchants for the adoption and implementations of new technology and innovations at all levels of educational development (Okrah et al., 2020; Ajayi, 2015). Also, to achieve improved value from government investments in the tertiary educational sector, scholars opine that the new growth theories should be strategically positioned by many ECOWAS countries in a way to better catch up with developed countries given the presence of abundant labor stocks with the required skills to either develop or adopt new foreign educational policies in the bloc (Alege & Ogundipe, 2014; Adamu, 2013). Many studies also advised on different integration orders in all the series for the ECOWAS countries. Consequently, economic growth series may be integrated in the order of null I(0) while tertiary educational development series are integrated in first order I(1) (Breitenbach et al., 2017).

The contradictory findings in many of the aforementioned literature could be attributed to weak methodological and theoretical conceptualization. For example, Lin's (2016) study observed mixed results between government expenditure on primary educational variables and economic growth in the fifteen (15) ECOWAS countries due largely to the low data sets and poor explanatory estimates (Cleeve, 2019). Also, the study failed to account for cross-sectional dependence errors and small sample bias which may invalidate the findings, hence, the need for further studies to address the aforementioned issues. Furthermore, the small data sets and weak econometrical analysis in many of the aforementioned studies seem to limit the capacity

to generalize the contrived conclusions and recommendations (Okrah et al., 2020; Ajayi, 2015). In conclusion, based on the twenty-one (21) critically reviewed literature, the present study, therefore, recommends improvement and better coordination amongst the three levels of education, namely, primary, secondary and tertiary education in any growth model (Nosheen et al., 2019; Błazejowski et al., 2019).

5. Conclusion and Policy Implications

This paper is an extended literature review on the effect of educational development on economic growth in the ECOWAS bloc. The study was motivated by the myriad of mixed and contradicted findings from many stand-alone measures of educational development in the bloc. The above objective is based on an extended literature review on all three (3) levels of educational development, namely, primary, secondary, and tertiary. Consequently, the central research question was formulated as follows: What educational policy options are implied by the relationship between education (viewed from various levels of education) and economic growth to be fair to individual countries in ECOWAS? Specifically, the formulation of policies would require finding answers to the following three specific questions: 1. what is the relationship between primary education and economic growth in the ECOWAS? 2. What is the relationship between secondary education and economic growth in ECOWAS? 3. What is the relationship between tertiary education and economic growth in ECOWAS? The study used three major databases to search the literature on economic growth and education. These are; the Google scholar, Inderscience and Proquest databases. However, the study early became aware that we would have to infer these nexuses from the reviewed articles. Overall, to develop our analysis in the present study, the whole analysis is approached from a project network perspective (Holmen & Pedersen, 2003), and then grouped according to the respective effect of educational development on economic growth that we have subtracted from the sample of articles.

Conclusion: Our findings largely indicate a positive relationship between educational development and economic growth in the ECOWAS bloc. However, based on the three contrived research questions that guided the present study, the following three conclusions are hereby presented: Findings indicated negative and insignificant relationships between primary educational development and economic growth in the ECOWAS bloc. Contrary to the general notion that if properly managed, an increasing educational development at the primary level may lead to a general improvement in economic growth in both developing and developed economies (Gokmen et al., 2020; Błazejowski et al., 2019), the general findings in literature depicts otherwise. The negative and conflicting results in the literature could be attributed to the various measures and theoretical conceptualization of primary educational development and growth variables (Cleeve, 2019; Tsai, 2016). Furthermore, Furthermore, based on the eight reviewed literature, the negative and insignificant relationships between primary educational development and economic growth in the ECOWAS countries were largely explained by the institutional fitness theory.

This suggests that the declining economic growth in the ECOWAS bloc is determined more by poor institutional variables in the primary educational sector (Lin, 2016; Adamu, 2013; Alege & Ogundipe, 2014; Onuonga, 2020; Usman & Ibrahim, 2017; Younsi & Bechtini, 2018). The presupposition is that government policies on primary education were not adequately executed within a sound institutional framework for the bloc to achieve the desired improvements in economic growth (Onuonga, 2020; Wilhelms, 1998). Secondly, based on our findings, the present study concluded the positive relationship between secondary educational development and economic growth in the ECOWAS bloc (Okrah et al., 2020; Alege & Ogundipe, 2014; Fadila & Olure-Bank, 2019). Additionally, the positive relationships between secondary educational development and economic growth in the ECOWAS bloc were largely attributed to the validation of the new theory of growth which linked the attainment of economic growth in the ECOWAS bloc to the capacity of many ECOWAS countries to implement.

Adopt technological developments and innovations in secondary education from developed economies (Lin, 2016; Ajayi, 2015). Our main findings in the ECOWAS countries were also supported by other reviewed studies in many emerging and developed countries (Gaspar et al., 2017; Dumciuviene, 2015; Ayres et al., 2007; Reza & Widodo, 2013). Lastly, the relationship between tertiary educational development and economic growth has been largely mixed in the ECOWAS bloc (Ajayi, 2015; Adamu, 2013; Nosheen et al., 2019). Most importantly, the mixed relationships between tertiary educational development and economic

growth in the ECOWAS countries have been largely attributed to the inability to validate the new theory of growth which linked the attainment of economic growth in the bloc to the capacity of the ECOWAS country to implement and adopt technological developments and innovations in tertiary education from developed economies (Lin, 2016; Ajayi, 2015). The contradictory findings in many of the extended literature reviews could also be attributed to the weak methodological and theoretical conceptualization.

Policy Implication and Recommendations: To improve the contributions of primary educational development to economic growth in the ECOWAS bloc, effort should be geared towards the promotion of enhanced social programs, integration of existing policies and creation of societal culture to support primary educational development in the ECOWAS countries (Lin, 2016; Adamu, 2013; Alege & Ogundipe, 2014). Also, based on our findings that government policies on education should be executed within a sound institutional framework for the ECOWAS countries to achieve the desired improvements in economic growth (Onuonga, 2020; Wilhelms, 1998), consequently, national institutions like educational institutions, markets, socio-cultural systems, and government, must be active and efficient in the process of transmitting various government policies on education to tangible derivatives (Onuonga, 2020; Wilhelms, 1998).

This is on the premise that specific studies on ECOWAS by Adamu (2013) and Fadila and Olure-Bank (2019) firmly corroborated the contrived threats (inefficient government institutions) to economic growth in the bloc. Specifically, Adamu (2013) and Fadila and Olure-Bank (2019) assert that attaining sustainable economic growth in the ECOWAS countries might be a mirage without a proper nexus between primary educational development, economic growth and sound government institutional variables. Fiscal policies in the ECOWAS countries could also be aimed at increasing Foreign Direct Investment (FDI) into the primary education sector, as well as reducing socio-economic inequalities through short-term inequality rates to enhance the quality of output in the sector (Younsi and Bechtini, 2018). Also, strategic adoption of focused liberalization and financial openness policies to attract higher Research and Development (R&D).

Related foreign direct investment is capable of generating spillover effects in the sector (Lin, 2016). Lastly, general policies should focus more on population growth control, radical law reforms and the creation of independent organizations to assist poor people, basic education; speedy poverty alleviation and market development (Lin, 2016; Adamu, 2013; Alege & Ogundipe, 2014). Overall, the impact of the aforementioned recommendations will be beneficial to policymakers in all the ECOWAS countries in estimating the achievement of the bloc's goal of inclusive economic growth and educational development (Lin, 2016). Our findings showed that secondary educational development greatly impacted economic growth in the ECOWAS bloc; consequently, this study posits a more radical policy mix to strengthen the impact of secondary educational development on economic growth in the bloc. Specifically, there may be an urgent need to define the active role of NGOs and other independent institutions in promoting qualitative secondary education at both local and national levels. There may also need to have a national standard for reporting Corporate Social Responsibilities (CSR) by international donor agencies, civil society organizations (CSOs) and corporations in the secondary educational sector (Okrah et al., 2020; Alege & Ogundipe, 2014).

Also, the increasing trends in secondary education drop-out rates in Nigeria, Togo and Gabon require a radical policy mix on population growth control, swift poverty alleviation programs, basic and inclusive secondary education for all citizens (Fadila & Olure-Bank, 2019). In secondary education, content-related coordination for secondary education policy should be encouraged, by designing programs that are capable of integrating learning methods and materials on socioeconomic inequality into an agreed percentage of all classroom curricula in all secondary schools in all countries (Fadila & Olure-Bank, 2019). Policymakers must also guide against wrong interpretations of educational development strategies and economic growth approach (using GDP) since policies focused on educational development might find it difficult to improve the much-desired economic growth (Nosheen et al., 2019). Lastly, our findings also established mixed relationships between tertiary educational development and economic growth in the ECOWAS bloc (Ajayi, 2015; Adamu, 2013; Nosheen et al., 2019). Consequently, to improve the contributions of tertiary educational development to economic growth in the ECOWAS bloc, the present study recommends a reduction in unemployment, regional disparities, as well as uneven distribution of political and financial power, especially in Nigeria (Nosheen et al., 2019).

This is on the premise that it is only through even development strategies and viable interactions between the private sector, general public and government that can engender the formulation of transparent and equitable policies needed for the much-desired sustainable economic growth in the ECOWAS bloc (Ajayi, 2015; Adamu, 2013). Furthermore, strategic validation of the new theory of growth is imperative in the ECOWAS bloc (Okrah et al., 2020). The new theory of growth linked the attainment of economic growth in several developing countries to the capacity of the host country to implement and adopt technological developments and innovations in tertiary education from developed economies (Lin, 2016; Ajayi, 2015). Consequently, investment in tertiary education and economic growth in the ECOWAS bloc must be linked to optimal adoption and implementation of new technology and innovations at all levels of educational development (Okrah et al., 2020; Ajayi, 2015). The new growth theories should, therefore, be strategically positioned by many ECOWAS countries in a way to better catch up with developed countries given the presence of abundant labor stocks with the required skills to either develop or adopt new foreign educational policies in the bloc (Alege & Ogundipe, 2014; Adamu, 2013).

Managerial and Theoretical Contributions/ Implications: Investigating the influence of educational development at both primary, secondary and tertiary levels on economic growth in the ECOWAS bloc have both managerial/ societal and theoretical implications/ contributions. First, the study provides a tool to understand the importance of strategic government's educational investment in the ECOWAS bloc (Ajayi, 2015). In line with a recent gap positioned in the literature and also to aid education and economic growth policy options, the main essence of determining the nexus between economic growth and educational developments in the ECOWAS bloc is to derive educational development criteria for economic growth to be sustainable (Nosheen et al., 2019). Consequently, to the best of the researcher's knowledge, the present study seems to be the first comprehensive study on the nexus between education and economic growth within the ECOWAS bloc to propose specific policy options at the primary, secondary and tertiary educational levels (Okrah et al., 2020; Alege & Ogundipe, 2014). Moreover, due to the strategic importance of ECOWAS countries in enhancing global inclusive educational drive and economic growth, the paucity of comprehensive studies on the above trending issue, in the bloc has been described as a major concern in the literature (Okrah et al., 2020; Younsi & Bechtini, 2018).

Consequently, the present study has been able to provide new empirical evidence concerning the aforementioned relationships. Additionally, in a deviation from previous studies that used a singular measure of educational development, part of the novelty of this paper is the combined analysis of the joint influence of education, at the primary, secondary and tertiary on economic growth in the ECOWAS bloc. Also, many empirical works on the educational development-economic growth nexus are often seen as confusing and contradictory, probably due to the use of singular measures and perspective of the constructs (Okrah et al., 2020; Zha et al., 2019). A generalization of the findings of the present study, an extended literature review, seems to be the major limitation due to the inability to collect and analyze own data on the contrived phenomenon (Younsi & Bechtini, 2018). Poor data collection by relevant government agencies.

As well as the specifications/constructs used to measure both educational developments and economic growth in many of the aforementioned reviewed empirical literature (Younsi & Bechtini, 2018). This is based on the myriad of constructs of conflicting measures used to measure educational development at the primary, secondary and tertiary levels in both developing and developed economies (Okrah et al., 2020). However, the adopted and cross-validation of various estimation techniques in many of the reviewed empirical studies has been adjudged as a deliberate attempt to address any potential ambiguity and endogeneity (Okrah et al., 2020; Alege & Ogundipe, 2014). However, the present study could serve as a foundation for novel comprehensive future studies on the influence of educational developments, at the primary, secondary and tertiary levels on economic growth in many developing countries.

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References

Adamu, P. A. (2013). The impact of foreign aid on economic growth in ECOWAS countries: A simultaneous-equation model, WIDER Working Paper, No. 2013/143, The United Nations University World Institute for Development Economics Research (UNUWIDER), Helsinki.

Ajayi, E. (2015). The impact of human capital on economic growth, *Procedia Economics and Finance*, 22(1), 184-190.

Ajegbelen, A. J. (2016). The use of ICT to enhance University education in Nigeria, *International Journal of Education, Learning, and Development*, 4(5), 1-11.

Akaike, H. (1974). A new look at statistical model identification. *IEEE Transactions on Automatic Control,* 19(1), 716-723.

Akinola G. W. & Bokana K. G. (2017). Human Capital, Higher Education Enrolment and Economic Growth in the SSA Countries (Panel Model Approach), *Journal of Economics and Behavioral Studies*, 9(6), 215-226.

Alege, P. O. & Ogundipe, A. A. (2014). Foreign direct investment and economic growth in ECOWAS: a system-GMM approach, *Covenant Journal of Business and Social Sciences,* 5(1), 1-22.

Alzoubi, W. K. A., Khasawneh, S. N. D. & Zoubi, O. M. A. (2020). The Relationship between Public Debt and Economic Growth in Jordan for the Period (1990-2018), *Journal of Economics and Sustainable Development*, 11(12), 62-71.

Anyanwu, J. C. & Yameogo, N. D. (2015). What drives educational investments in West Africa? An empirical investigation, *African Development Review*, 27(3), 199-215.

Arellano, M. & Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *The Review of Economic Studies* 58(2), 277-297.

Awolusi, O. D. & Mbonigaba, J. (2020). Economic growth and environmental sustainability within BRICS countries: A comparative analysis, *International Journal of Green Economics,* 14(3), 207–246.

Awolusi, O. D. (2021). Economic Growth and Socioeconomic Sustainability in BRICS Countries: A Vector Error Correction Modeling Approach, *Journal of Economics and Behavioral Studies,* 13(3), 1-23.

Awolusi, O. D. & Jayakody, S. S. (2021). Exploring the Impact of Human Resource Management Practices on Employee's Retention: Evidence from the Food and Beverage Industry in the State of Qatar', *Journal of Social and Development Sciences*, 12(2), 45–64.

Ayres, R. U., Turton, H. & Casten, T. (2007). Energy efficiency, sustainability and economic growth, *Energy*, 32(5), 634-648.

Babatunde, M. A. & Adefabi, R. A. (2015). Long-Run Relationship between Education and Economic Growth in Nigeria: Evidence from the Johansen's Cointegration Approach, Paper presented at the Regional Conference on Education in West Africa: Constraints and Opportunities Dakar, Senegal, November 1st - 2nd. Cornell University / CREA / Ministèrede l'Education du Sénégal.

Balogun, T. A. & Kezie-Osuagwu, C. N. (2020). Improving Learners' Oral Proficiency in French Through the Communicative Approach: Colleges of Education in Oyo in Focus', *Journal of Curriculum and Teaching*, 9(1), 55-62.

Benade, L. (2015). Teachers' Critical Reflective Practice in the Context of Twenty-first Century Learning, *Open Review of Educational Research*, 2(1), 42-54.

Bese, E. & Kalayci, S. (2019). Testing the environmental Kuznets Curve hypothesis: Evidence from Egypt, Kenya and Turkey, *International journal of energy economics and policy*, 9(6), 479-491.

Błazejowski, M., Kwiatkowski, J. & Gazda, J. (2019). Sources of Economic Growth: A Global Perspective, *Sustainability*, 11(1), 275-288.

Blundell, R. & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics,* 87(4), 115-143.

Brack, D., Rose, D. & Church, A. (2016). The Evolution and Devolution of 360° Feedback, *Society for Industrial and Organizational Psychology*, 9(4), 761-794.

Breitenbach, M. C., Tipoy, C. K. & Zerihun, M. F. (2017). Equilibrium Exchange Rates and Misalignments: The Case of Homogenous Emerging Countries, Economic Research Southern Africa (ERSA) working paper 713.

Chakrabarti, A. (2018). The determinants of Education: Sensitivity analyses of cross-country Regressions, *Kyklos*, 54(1), 89-114.

Chudik, A., Mohaddes, K., Pesaran, M. H. & Raissi, M. (2015). Long-Run Effects in Large Heterogeneous Panel Data Models with Cross-Sectionally Correlated Errors, Federal Reserve Bank of Dallas Globalization and Monetary Policy Institute, Working Paper No. 223.

Chudik, A. & Pesaran, M. (2015). Common correlated effects estimation of heterogeneous dynamic panel data models with weakly exogenous regressors, *Journal of Econometrics*, 188(2), 393–420.

Cleeve, E. (2019). How effective are fiscal incentives to attract Quality Education to sub-Saharan Africa? *The Journal of Developing Areas*, 42(1), 135-153.

Danso, S. A. (2018). Moral education and the curriculum: The Ghanaian experience, *International Journal of Scientific Research and Management,* 6(1), 34-42.

Daramola, G. A. & Awolusi, O. D. (2021). Competencies and Development Needs of Physician Managers in Nigeria: A Case Study of Selected Hospitals in Ibadan City, Oyo State, *Journal of Social and Development Sciences*, 12(2), 1–19.

Dumciuviene, D. (2015). The Impact of Education Policy on Country Economic Development, *Procedia – Social and Behavioral Sciences*, 191(1), 2427–2436.

Fadila, K. U. & Olure-Bank, A. (2019). Effect of Human Capital Development on Economic Growth of ECOWAS Member States, *Advances in Sciences and Humanities,* 5(1), 27-42.

Fariala, A. & Awolusi, O. D. (2021). An assessment of Key Success Factors for Construction Projects in the Democratic Republic of Congo, *Information Management and Business Review*, 13(2), 16-34.

Fofuh, P. & Awolusi, O. D. (2021). Corporate Social Responsibility in Cameroon: Practices and Environmental Impact, *Journal of Education and Vocational Research*, 12(1), 1–18.

Gaspar, J. D., Marques, A. C. & Fuinhas, J. A. (2017). The traditional energy-growth nexus: A comparison between sustainable development and economic growth approaches, *Ecological Indicators*, 75(1), 286-296.

Gokmen, G., Vermeulen, W. N. & Vézina, P. (2020). The imperial roots of global trade, *Journal of Economic Growth,* 25(1), 87–145.

Hickel, J. & Kallis, G. (2020). Is Green Growth Possible? *New Political Economy*, 25(4), 469-486.

Jamel, L. & Maktouf, S. (2017). The nexus between economic growth, financial development, trade openness, and CO2 emissions in European countries*, Cogent Economics & Finance* 5(1), 134-145.

Javeria, M., Ashok, M. & Vishal, S. (2017). C02 Emissions, Energy Consumption and Economic growth in BRICS: An empirical analysis, *IOSR Journal of humanities and social science*, 22(2), 53-58.

Johansen, S. & Juselius, K. (1990). Maximum likelihood estimation and inference on Cointegration– with application to the demand for money, *Oxford Bulletin of Economics and Statistics*, 52 (2), 169-210.

Kanneh, A. A. & Awolusi, O. D. (2021). Staff Assignment Rotation and Project Sustainability in South Sudan, *Journal of Education and Vocational Research*, 12(1), 38-56.

Kwiatkowski, D., Phillips, P. C. B., Schmidt, P. & Shin, Y. [KPSS] (1992). Testing the Null Hypothesis of Stationary against the Alternative of a Unit Root, *Journal of Econometrics*, 54(1), 159-178.

Lamar, S. C. B. & Awolusi, O. D. (2021). Computer-Mediated communication use and Employees Incivility in a historically Black University: An Action Research Perspectives, *Journal of Business and Social Science Review*, 2(9), 1–24.

Lee, H. H. & Tan, H. B. (2006). Technology transfer, FDI and economic growth in the ASEAN Region, *Journal of the Asia Pacific Economy,* 11(4), 394–410.

Lin, T. (2016). Alternative measure for education variable in an empirical economic growth model: Is primary education less important? *Economics Bulletin,* 15(5), 1-6.

Menon, A. A. (2017). Performance of Economic Growth in BRICS Countries, *International Journal of Informative & Futuristic Research,* 4(5), 6200-6203.

Mikulewicz, M. & Taylor, M. (2020). Getting the Resilience Right: Climate Change and Development Policy in the 'African Age, *New Political Economy*, 25(4), 626-641.

Mosteanu, N. R. (2019). Regional development and economic growth approach in Europe and GCC countries, *ECOFORUM,* 8(2), 1-12.

Newey, W. K. & West, K. D. (1994). Automatic lag selection in covariance matrix estimation. *Review of Economic Studies*, 61(1), 631-653.

Nosheen, M., Iqbal, J. & Hassan, S. A. (2019). Economic growth, financial development, and trade in nexuses of CO2 emissions for Southeast Asia, *Environ Sci Pollut Res*, 26(1), 36274–36286.

Okrah, A. K., Ampadu, E. & Yeboah, R. (2020). Relevance of the Senior High School Curriculum in Ghana in Relation to Contextual Reality of the World of Work, *Journal of Curriculum and Teaching*, 9(1), 1-14.

Olayisade, A. & Awolusi, O. D. (2021). The effect of Leadership Styles on Employee's Productivity in the Nigerian Oil and Gas Industry, *Information Management and Business Review*, 13(1), 47-64.

Onuonga, S. M. (2020). The Impact of Financial Development and Economic Growth on Environmental Quality of Kenya, *Journal of Economics and Sustainable Development,* 11(12), 15-26.

Pelinescu, E. (2015). The impact of human capital on economic growth, *Procedia Economics and Finance*, 22(1), 184-190.

Pesaran, M. H., Shin, Y. & Smith, R. J. (2001). Bounds testing approaches to the analysis of the level relationship. *Journal of Applied Economics,* 16(1), 289-326.

Phong, L. H. (2019). Globalization, financial development and environmental degradation in the presence of environmental Kuznets curve: Evidence from ASEAN-5 countries, *International Journal of Energy Economics and Policy*, 9(2), 40-50.

Reza, F. & Widodo, T. (2013). The impact of education on economic growth in Indonesia, *Journal of Indonesian Economy and Business,* 28(1), 23–44.

Toda, H. Y. & Yamamoto, T. (1995). Statistical inference in vector autoregressions with possibly integrated processes. *Journal of Econometrics*, 66(1), 225-250.

Tsai, P. (2016). Determinants of Educational development and its impact on economic growth, *Journal of Economic Development*, 19(1), 137-163.

Tsaurai, K. (2019). Impact of Financial development on CO2 in Africa, *International Journal of Energy Economics and Policy*, 93(1), 144-153.

Usman, A. & Ibrahim, W. (2017). Education and monetary union in ECOWAS sub-region: Lessons from abroad, *Journal of Applied Finance & Banking*, 2(4), 185-192.

Wheeler, D. & Mody, A. (2018). Educational investment locational decisions: The case of US Firms, *Journal of International Economics*, 33(2), 57-76.

Wilhelms, S. K.S. (1998). Foreign Direct Investment and its determinants in emerging economies, African Economic Policy Paper Discussion Paper Number 9, July.

Wyk, J. V. & Lal, A. K. (2019). Risk and FDI flow to developing countries, *South African Journal of Economic and Management Sciences,* 11(4), 511-528.

Yasin, M. (2019). Official development assistance and education investment flow to sub-Saharan Africa, *African Development Review,* 17(1), 23-40.

Younsi, M. & Bechtini, M. (2018). Economic Growth, Financial Development and Income Inequality in BRICS Countries: Evidence from Panel Granger Causality Tests, Munich Personal RePEc Archive (MPRA) Paper No. 85249.

Zha, J., Tan, T., Yuan, W., Yang, X. & Zhu, Y. (2019). Decomposition analysis of tourism CO2 emissions for sustainable development: A case study of China, *Sustainable Development*, 10(1), 1-18.

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Efficacy of Constructivist's Teaching Method in Proving Mensuration Theorem: Implications for Nigeria Senior Secondary School Student

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Abstract: The study was conducted to determine the efficacy of the constructivist's teaching method (CTM) on teaching proof of mensuration theorem: a panacea for senior secondary school students' interest and achievement. The population of the subjects was 3095 SSS II students composed of students in secondary schools in the Agbani Education zone of Enugu State. Four research questions and four null hypotheses guided the study. Multi-stage sampling technique was used for the study, based on which 197 students composed of 95 males and 102 females were randomly sampled. Data was collected using Mathematics Achievement Test (MAT) and Mathematics Interest Inventory Test (MIIT). The Cronbach alpha statistic and test-retest methods were used in determining the reliability estimates of the MAT and MIIT respectively which yielded 0.89 and 0.91 respectively. The data obtained with the instruments were analyzed with descriptive statistics (mean and standard deviation) in answering the research questions. The findings of the study clearly showed that CTM is effective in enhancing students' achievement and interest in mathematics learning, especially in proving mensuration theorems. Those exposed to the treatment performed significantly higher than those exposed to the expository method after the treatment. Moreso, those in the experimental group showed a significant difference in mean interest rating in Mathematics than those in the control group after the treatment (post-test). These recorded significant mean differences in achievement and interest of the students after they were exposed to the treatment showing that CTM is responsible for such enhanced increase in performance of the students and their interest. The observed no significant mean difference in performance and interest between male and female subjects shows that CTM is capable of bridging the existing gap in performance and interest in mathematics between males and females.

Keywords: *Constructivist, Mensuration, mathematics, Mathematical Proof, Cylinder and Cardboard Sheets.*

1. Introduction

Over a long period of time now, Mathematics Education researchers have been working relentlessly to determine the best method to reverse the trend of poor performance of students on the subject. For instance, WAEC Chief Examiner (2016) reported that candidates' performance in Mathematics was generally poor; many of the candidates do not apply Mathematical principles correctly and others left their final answers as improper fractions. Previously, WAEC Chief Examiners also reported that candidates' performance in Mathematics is declining and getting worse every year, even though the rate of failure in all subjects appeared to have declined when compared to previous years (WAEC, 2013 & 2014). These seemingly incessant reports on students' poor performance in Mathematics by WAEC Chief Examiners were strongly anchored on teachers' failure.

To use activity-based teaching methods in mathematics instruction to enhance students' achievements in mathematics (Eriyagama, 2018; Pokhrel, 2018; Unodiaku, 2018; FRN, 2013; and Daponte, 2007). For instance, National Policy on Education (NPE), FRN (2013) recommended that to fully realize the goals of education in Nigeria and gain from its contributions to the national economy, the government shall take adequate measures to ensure that mathematics instruction shall be practical, activity-based, experiential and IT-supported. Moreso, in Sri Lanka, primary school Mathematics teachers are encouraged to use activity-based teaching methods (Eriyagama, 2018). According to Unodiaku (2018), activity-based learning appears to be widely used in the recent time in teaching and learning science subjects, particularly mathematics subject. The clarion call/recommendation of activity-based learning upheld that learning can be best.

When it is initiated by the surrounding environment and motivated by giving the learners maximum opportunities for learning to enable them to build or create their meanings and knowledge. Constructivist teaching method belongs to such activity-based in so far, the methods can practically demonstrate an

alternative way of proving the mensuration theorems one of which states that the volume of a sphere (in terms of its radius) is $\frac{4}{3}\pi r^3$. According to Daguplo (2014), the importance of mathematics proofs was elusive to many learners, which make them less appreciative of proof writing activities which increased the difficulties they have in understanding and constructing valid proofs. Many students see mathematics proofs as just some esoteric, jargon-filled technical writing that only a professional mathematician would care about (Daguplo, 2014). For some students, proof writing is a mathematical trick and manipulation that can be learned by memorization only. Some believed that no number of proofs can show how mathematical formulas can be remembered. The above assertions show the negative conceptions students have about learning mathematical proofs of theorems.

The above mindset of the students made them fails to understand and appreciate writing mathematical proofs, thereby losing an insightful understanding of rudiments, concepts and algorithms of mathematical theorems. This situation leads to poor achievement in mathematics among 21st-century learners on mathematics. It is against this notion that the present research on the efficacy of the constructivist teaching method (CTM) on students' performance achievement and interest in mathematics is carried out. According to Kelly (1991), constructivism is a philosophy of education that says that people learn based on their experience, and not by hearing someone give a lecture. Twomey (1989) views constructivism using four principles: learning, in an important way, depends on what we already know; new ideas occur as we adapt and change our old ideas; learning involves inventing ideas rather than mechanically accumulating old ideas and coming to new conclusions about new ideas which conflict with our old ideas. Piaget (1977) believes that learning occurs by active construction of meaning than by passive recipience.

This is to say that a constructivist mathematics teacher and a constructivist mathematics classroom exhibit a number of discernable qualities markedly different from a traditional or normal mathematics instruction classroom. Constructivist mathematics classrooms ought to be democratic, interactive as well as student-centered to enable students to be active and autonomous learners (Resen Blatt, 1978). The constructivist classroom is quite unlike a traditional classroom where the expository method is used and in which students have limited participation. The teacher is the central focus of the students for information transfer and learning is achieved by repetition and memorization whereas, in a constructivist classroom, the student's active participation is encouraged. In the context of proving the mensuration theorem practically, the students are encouraged to learn through the constructivist teaching method (CTM). This research claimed CTM can be modeled and used in teaching and learning proofs of mensuration theorems and formulae, particularly in demonstrating how to arrive at the mensuration theorems and formulae, practically in tenet with the demands of the constructivist's teaching method (CTM).

Problem Statement: The poor achievement of students exhibit in mensuration and mathematics, in general, has been attributed to their inability in understanding and construct proofs of mensuration theorems practically. The difficulty students exhibit in understanding and constructing proofs of mensuration theorems was linked to teachers' use of conventional methods in teaching proofs of mensuration theorems. It could be that teachers are not hands-on with the availability of new method that is practically oriented and activity-based. Due to the paucity or non-availability of the method for teaching and learning proofs of mensuration theorems (formulae) that can encourage active participation and interaction among students in mathematics classes that this study is conducted to determine the efficacy of the constructivist teaching method and interest in proving that the volume of a sphere is $\frac{4}{3}\pi r^3$. The problem of the study put in question form is, how far can the constructivist method of teaching and learning mathematics enhance students' achievement and interest in mathematics?

Objectives of the Study: The major objective of the study is to find out if a constructivist teaching method (CTM) when used as an alternative method to the Expository method, can enhance students' achievement and interest in mathematics learning. Specifically, the study was geared towards investigating:

- If there is a mean difference in the performance of students exposed to the CTM (Experimental treatment) and those exposed to the Expository method before and after treatment.
- If there is a mean difference in the performance of male and female students when exposed to the experimental treatment before and after treatment.

- If there is a mean difference in interest rating in mathematics between male and female students exposed to the experimental treatment before treatment.
- If there is a mean difference in interest rating in mathematics between male and female students exposed to the experimental treatment after treatment.

Research Questions: The study was guided by four research questions as follows:

- What is the mean difference in mathematics performance between students taught with the CTM and students taught with the Expository method before and after treatment?
- What is the mean difference in mathematics performance between male and female students taught with the experimental treatment before and after treatment?
- What is the mean difference in mean interest ratings in mathematics between male and female students taught mathematics using experimental treatment before treatment?
- What is the mean difference in mean interest ratings in mathematics between male and female students taught mathematics using experimental treatment after treatment?

Hypotheses: Four research hypotheses were formulated and were tested at a 5% significant level. They were stated as follows:
Ho_1: CTM has no significant effect on students' academic achievements in mensuration before and after treatment.
Ho_2: CTM has no significant effect on male and female students' academic performance on mensuration.
Ho_3: CTM has no significant effect on male and female students' interest in mensuration before treatment.
Ho_4: CTM has no significant effect on male and female students' interest in mensuration after treatment.

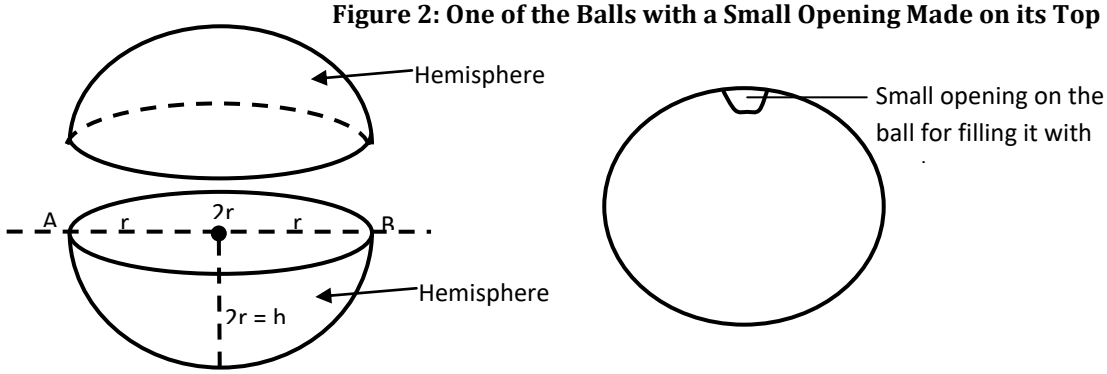
2. Materials and Experimental Procedure

Materials used in the conduct of the Experiment were as follows: Cardboard sheets, a pair of compasses, scissors, a ruler, a pencil, liquid gum or paper tape, and a football made of rubber (of any desired size). Lesson Plan: Both the experimental and expository methods groups were taught with a lesson plan while the experimental group was taught with CTM in addition to the lesson plan.
Pre-Requisite Knowledge: At the Junior Secondary School level, the students have been taught the volume of cylinders and the volume of a sphere and their properties and their use in problem-solving. The students have gained the previous knowledge that: (i) Vol. of Cylinder = $2\pi r^2h$ (ii) $\theta h = 2r$.

Experimental Procedure: The procedure used was the art of paper-cutting and folding; cutting rubber balls into two halves and perforating another ball (2nd ball) of the same size as the one cut into two halves. In both experimental and control groups, the subjects in the two groups were taught the same content, by regular class teachers (without any advanced organizer) and subjected to the same pre-testing. This pre-testing of both groups helped to partially out pre-existing differences in mathematics knowledge among the students. Mathematics Achievement Test (MAT) which the researcher developed and subjected to experts for validation was used to pre-test the testees and the scores obtained were used as a covariate measure. The teachers that taught both experimental and control groups were briefed by the researcher to partially out pre-existing differences between the subjects. The purpose of the training was to control teachers' quality variables. Regular class teachers of those in the experimental group were used to teach them using CTM and lesson plans. The Control group (Expository) was taught by their regular class teachers without using any advanced organizer but were taught the same unit which is verifying that the volume of a sphere is $\frac{4}{3}\pi r^3$. The lessons lasted for three weeks and each week two contacts were made with 2 hours for each contact. The procedure for the experiment was organized by taking the following steps below:
Step 1: Cut one of the two identical rubber balls into two halves to form two equal hemispheres (see fig. 1 below). On the other ball, make a small opening on the hollow sphere where you can fill it with sand (see fig. 2 below).

Figure 1: One of the Balls is cut into Halves to form 2 Hemispheres.

Figure 2: One of the Balls with a Small Opening Made on its Top



On one of the hemispheres, use a ruler and measure the diameter AB i.e. 2r. Note here that half of the diameter (2r) gives the radius (r) of the ball used in the experiment. Step 2: Spread two rectangular cardboard sheets on a table and firmly hold them on the table with paper tape (see Fig. 3).

Figure 3: Two Rectangular Sheets Spread on a Table and Firmly Held with Paper Tape

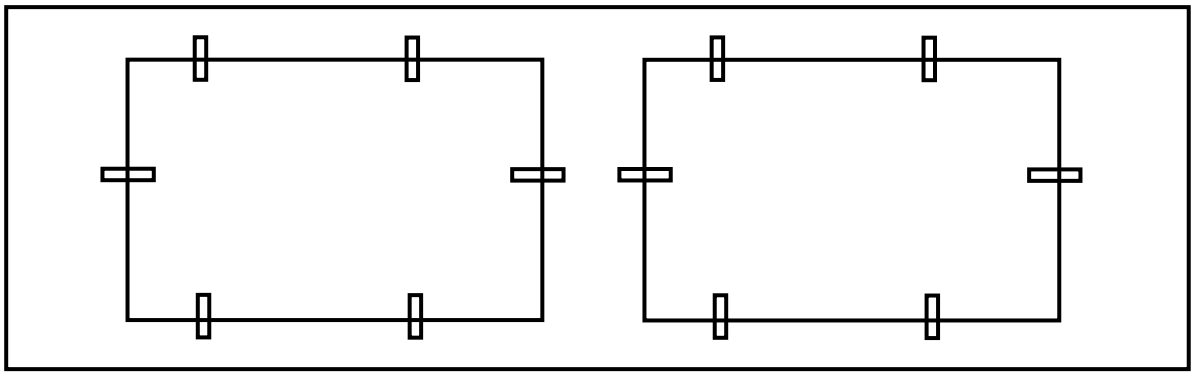
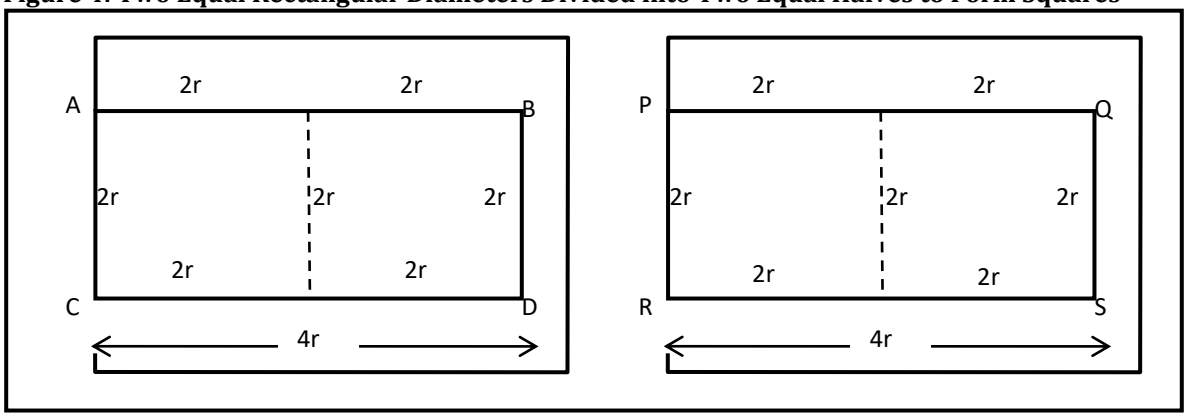
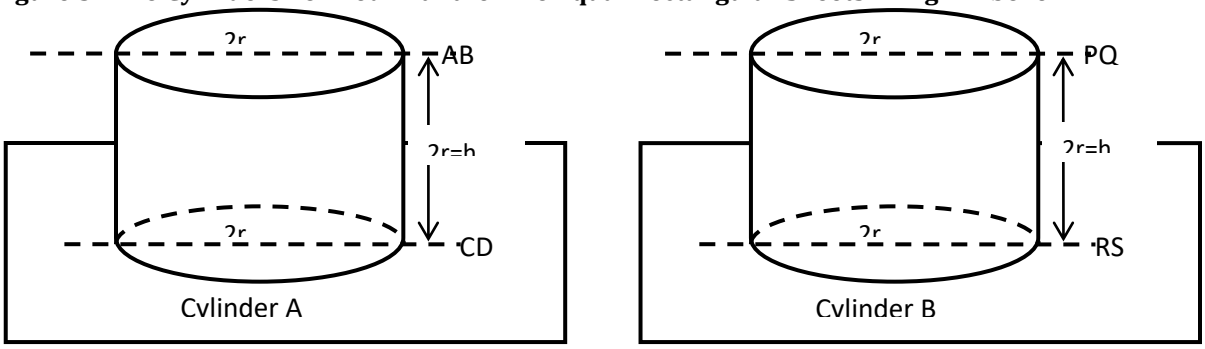


Figure 4: Two Equal Rectangular Diameters Divided into Two Equal Halves to Form Squares



Step 4: Cut rectangles ABCD and PQRS of breath 2r and length 4r. Then, fold them to form cylinders of the same heights and diameters all equal to 2r (ensuring that the edges do not overlap) as shown in Fig. 4.

Figure 5: Two Cylinders Formed with the Two Equal Rectangular Sheets in Fig. 4 Above



Step 5: Fill the hollow sphere of the ball of Fig. 3 above with sand once and empty it into one of the two cylinders, say cylinder A. You can replicate the experiment with Cylinder B
Step 6: Fill the hollow sphere of the ball of Fig. 3 above again (i.e. second time) with sand and empty it into Cylinder A. You can replicate the experiment with Cylinder B or more cylinders as you may desire.
Step 7: Finally, fill the hollow sphere of the ball of Fig. 3 above again (i.e. third time) and empty it into the remaining space of Cylinders A. You can do the same in Cylinder B. This third time can now make the cylinders to be filled up to the brim.

Observations

- The students observed that after the second time of emptying the sphere filled with sand into the cylinders, the cylinders were not yet completely filled.
- The students observed that after the third time of emptying the space filled with sand into the gender, the cylinder become completely filled with the brim.
- The students observed that the total number of times the pouring of the sphere filled with sand into cylinder A to make it completely filled with the brim was three times.
- Moreso, the students observed that the total number of times the pouring of the sphere filled with sand into cylinder B is three times also.

The students, therefore, concluded that:
3 times the vol. of sphere = 2 the vol. of cylinder = $2\pi r^2 h$ (known from previous knowledge)
$= 2 \times 2\pi r^2 h$
$= 4\pi r^2 h$ (since h = r (radii)
The volume of the sphere $= \frac{4}{3}\pi r^3$ QED (by dividing both sides by 3).

3. Methodology

The quasi-experimental research design of pre-test post-test non-equivalent intact class type was adapted in the conduct of the experiment. It was composed of one each of the experimental and groups. Those respondents in the experimental group were taught a lesson plan on mensuration. The lesson plan used was developed by the researcher from the National Mathematics curriculum for senior secondary schools, science and technology (2013). The research was conducted in Agbani Educational Zone, Enugu State. The population of the study is made up of 3095 SSS II students schooling at government-owned secondary schools in the zone (PPSMB, statistical unit, 2022). The study adopted a multi-stage sampling technique in sampling the subjects. The first stage adopted a simple random sampling technique in which 6 schools out of the 44 schools were randomly sampled. The second stage also adopted a simple random sampling technique to draw two intact classes from each of the 6 schools which yielded 12 SSS II, intact classes. This yielded 197 subjects composed of 95 males and 102 females. The third stage involved using a simple random sampling procedure to randomly assign the subjects to treatment and expository groups which yielded 113 subjects in the experimental group (composed of 65 males and 48 females) and 84 in the control group (composed of 46 males and 38 females). The instruments used for collecting data were MAT and MIIT.

Both instruments were developed by the researcher, subjected to experts for validation and used for data collection. Cronbach alpha statistic was applied in obtaining the MAT reliability estimate of 0.89 while the test-retest method was used to establish the reliability estimate of MIIT was obtained test-retest method which yielded 0.91. The samples used in establishing the reliability of the instruments were not used again in the main study. The MAT is a test instrument that covers all the aspects of mensuration taught with regard to the proof of the theorem that the volume of a sphere is $\frac{4}{3}\pi r^3$. The MAT is a 50 marks practical method of proving the theorem that the volume of a sphere is $\frac{4}{3}\pi r^3$ instrument developed for SSS I students. The MIIT was organized into sections A and B. Section A consists of the Bio-data of the respondents while Section B contains information on the research problem. A Likert scale type of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD) was adopted in determining the response options of the respondents, concerning their feelings on the use of CTM in proving the mensuration theorem. Mean scores ranging from 3.50 and above = SA; 2.5 to 3.4 = A; 1.50 to 2.4 = D; and 1.40 and below = SD.

The reliability estimates of the instruments were also determined by administering them to SSS II students in a school that did not participate in the main research but was from a school with the same population characteristics as the one used in the main study. The data obtained from this administration was adopted in determining the reliability efficiency of the MAT computed with KR_{21} statistic which yielded 0.89 and Cronbach coefficient alpha statistic for the MIIT which yielded 0.91. The statistical coefficients of the instruments were therefore considered reliable. The pre-MAT, pre-MIIT, post-MAT and post-MIIT were administered to all the SSS II students in the two groups. However, in the post-MAT, the students in the experimental group were tested with CTM. Both the treatment and expository groups were tested at the same time to prevent students from discussing the test items, leakage of the items or exchange of ideas about test conditions. The researcher administered the pre-MIIT to sampled schools. Thereafter, the pre-MIIT and pre-MAT were retrieved from the respondents the same day by the research assistants. At the end of each teaching, the post-MAT and post-MAT were administered to the students in their normal classroom environment.

Each item was in essay format and so was scored based on skills obtained correctly by the testees while taking steps in proving the theorem. That is to say that marks are awarded to the steps as students demonstrate practically in proving the theorem. Data collected were analyzed with descriptive statistics (mean and SD) in answering the research questions while the hypotheses were tested at 0.05 level of significance using ANCOVA statistics.

4. Result

Data for the study obtained with the instruments were presented in line with the posed questions and the null hypotheses.

Research Question One: What is the mean difference in mathematics performance between students taught with the CTM and students taught with the expository method before and after treatment?

Table 1: Mean Achievement Scores and Standard Deviations (SD) of Respondents Exposed to the Treatment and those Exposed to the Expository Method (before and after treatment)

Teaching Method	Type of Test	N	Mean	SD
Constructivist Teaching method (CTM) (Experimental)	Pre-MAT (Before)	113	37.87	7.59
	Post-MAT (After)	113	38.56	8.36
	Mean difference		0.69	
Expository method (Control)	Pre-MAT (Before)	84	37.85	9.91
	Post-MAT (After)	84	37.82	10.44
	Mean difference		0.03	
Mean Post-test difference			0.74	

In table 1 above, the mean pre-MAT test score for the CTM group was 37.87 with an SD of 7.59. Pre-MAT score (before treatment) for the Expository method group was 37.85 with an SD of 9.91. The post-MAT score for those exposed to CTM was 38.56. The post-MAT (after treatment) score for those exposed to the Expository method was 37.82 with an SD of 10.44. From the mean test scores of the two groups, the mean post-test difference was 0.74 in favor of the Experimental groups (CTM group), meaning that the CTM group made a higher mean gain score than the Expository group. To determine whether the observed mean difference between the groups in the achievement test scores of the subject after treatment (post-test) is statistically significant, hypothesis one was therefore tested at a 0.05 level of significance. Hypotheses one and two were answered using Table 2 below:

Ho_1: There is no significant effect of CTM on students' academic achievement in mensuration before and after treatment.

Ho_2: There is no significant effect of CTM on male and female students' academic achievement in mensuration.

Table 2: Summary of ANCOVA Results on Students' Achievement by Pre-Test, Post-Test and Instructional Method

Source of Variation	Type III Sum of Squares	DF	Mensuration	F	Sig.	Dev.
Covariates	1003.257[a]	1	1003.257	8.134	.000	S
Pre-test	2005.152	1	2005.152	16.257	.081	NS
Main effects	3021.199	2	1510.6	12.247	.000	NS
Post-test	46082.663	1	4376082.663	373.611	.022	S
Method	44101.146	1	44101.146	357.546	.000	S
Gender	2309.794	1	2309.794	18.726	.086	NS
Pre-test by method	2014.039	1	2014.039	16.329	.104	NS
Post-test by method	4561.029	1	4561.029	36.978	.190	NS
Error	23682.061	192	123.344	-	-	-
Residual	72604.029	4	18151.007	147.158	.000	NS
Total	97500.863	196	497.453			

a. R^2 = .483 (Adjusted R^2 = .461). b. Computed using α = .05.

The dependent variable (pre-test was found not statistically significant since 0.08 was higher than 0.05. The null hypothesis was accepted: that means before the students were exposed to the treatment they were performing equally in mathematics. Table 2 above reveals that the covariance is not significantly the same as the dependent variable. Thus, a significant value of 0.000. However, the significance of the dependent variable (post-test) in the two methods is 0.000. Since this value is less than 0.05, the level of significance, the null hypothesis is rejected. This result reveals that there is a statistically significant difference in the mean achievement test scores of those students' taught mensuration in the experimental group and control group after treatment. The significant difference must be due to the new method (CTM) used which enabled the experimental group to perform higher than the Expository method group. Table 2 shows that gender has $F_{cal.}$ val. of 18.726 and significant. at .086. This significant value of .086 is greater than 0.05 and so the null hypothesis is rejected. This means that is no significant mean difference in the performance of male and female subjects exposed to the treatment. Gender by method interaction was significant at 0.190, This significant value was more than the level of significance. In so far (0.190) is greater than the significant level of 0.05, the null hypothesis is accepted. This means when CTM is used in Mathematics instruction, the male and female students' performances will be at the bar.

Research Question Two: What is the mean difference in mathematics performance between male and female students taught with the experimental treatment before and after treatment?

Table 3: Mean Achievement Test Scores and SD Based on Gender

Teaching Method	Gender	N	Type of Test	Mean	SD
Constructivist teaching method	Male	95	Pre-MAT	61.13	3.05
			Post-MAT	59.27	3.26
			Mean Gain	-1.86	
	Female	102	Pre-MAT	60.62	3.17
			Post-MAT	62.05	3.01
			Mean Gain in post-test	2.78	

Table 3 reveals that the means of male and female subjects who were pre-tested before the constructivist teaching method was applied were 61.13 and 60.62 with SD of 3.05 and 3.17 respectively. This result reveals that both the male and female students exposed to CTM performed almost at the same level of knowledge in mathematics before they were exposed to the treatment, although the males had a little higher mean score of 0.51. However, the mean achievement test scores in mathematics of the male and female students in the post-test of the CTM group are 59.27 and 62.05 with standard deviations of 3.26 and 3.01 and a mean difference in means of 2.78 in favor of females. The result shows that the female subjects exposed to the CTM improved upon their performance which made them perform higher than males must be due to the new method used, while the males showed a mean decline of -1.86, meaning that after the pre-test score of 61.13, their mean score reduced to 59.27 in post-test. To find out the statistically significance of this finding, hypothesis 2 was further tested at a 5% level of significant level (see table 2 above).

Research Question Three: What is the mean difference in the mean interest ratings in Mathematics between male and female students taught mathematics using experimental treatment before treatment?

Table 4: Mean Interest Scores and SD by Experimental Subjects (Male and Female) before Treatment

S/N	Items Description	Male Mean ($\bar{X}$)	SD	Rmk	Female Mean ($\bar{X}$)	SD	Rmk
1	I hate Maths because it does not involve practical activities, thereby making it look abstract.	3.50	1.486	SA	3.31	1.561	A
2	Maths teacher dominates the whole teaching process, thereby making the lesson more of a lecture in nature.	3.31	1.511	A	2.93	2.003	A
3	I hate Maths because I ended up memorizing formulae that I do not know how they were formulated, thereby making me forget them easily.	2.51	1.413	A	3.42	1.131	A
4	Maths class does not give me an opportunity to exchange ideas collaboratively with my colleagues while the lesson is going on.	2.55	0.968	A	3.07	1.513	A
5	The time allotted to Maths is too short, thereby making it difficult for me to be an autonomous learner through practical activities.	3.46	0.994	A	3.10	1.042	A
6	I lost interest in Maths because there is no student-teacher interaction in the teaching-learning process.	2.82	1.601	A	2.90	1.025	A
7	I do not have an interest in Maths because I am only required to identify my teacher's constructions rather than giving me room to construct my own meaning.	3.66	1.636	SA	2.82	1.717	A
8	I do not like Maths, because I am not allowed to share responsibilities with my teacher.	2.98	0.678	A	3.03	1.263	A

9	I am interested in Math because I was allowed to share decision-making with my teacher	1.20	2.013	SD	1.33	2.001	SD
10	I love Math because my teacher and I demonstrated mutual respect for each other.	2.30	2.442	A	0.461	1.431	SD
	Total	3.881	1.4158		3.033	1.6319	
	Difference in means	0.848					

The results of Table 4 show that the students exposed to the experimental treatment (CTM) group, agreed that they do not have an interest in Math because it was not practically oriented; Math teacher dominates the whole process; Maths learning was by memorization of formulae; no collaborative learning with colleagues/classmates; no student-teacher relationship; no sharing at responsibilities or decision making with the teacher. However, the students agreed that they dislike Maths because they were not allowed to share decision-making with their teacher and that their teacher and themselves do not demonstrate mutual respect for each other. The table shows that the respondents agreed that items 1, 2, 3, 4, 5, 6, 7, and 8 are the reasons why they hate mathematics and therefore lose interest in studying the subject. The items' mean are all higher than the criterion mean of 2.50, except items 9 and 10 which have means of 1.20 and 1.33 for males and females respectively. The respondents strongly disagreed on the items as being the reason for their love of mathematics. The mean and SD of males responses ($\bar{X}_m = 3.881$; $SD_m = 1.4158$) and mean and SD of females responses $\left(\bar{X}_f = 3.033;\ SD_f = 1.6319\right)$ and mean difference of 0.848 which favored males with regards to the rate of their interest in Maths learning before they were exposed to the treatment. The difference in means of 0.848 was further tested for a statistically significant difference at α = 0.05 significant level in hypothesis three. Hypothesis Three: There is no significant effect of the constructivist teaching method on male and female students' interest in mensuration before they were exposed to the treatment.

Table 5: Results of the Independent T-Test on the Mean Interest Ratings of the Male and Female Subjects in the Experimental Group, Before the Treatment

Gender	N	Mean	SD	DF	t_{cal}	t_{crit}	Decision
Males in the Experiment group	65	3.881	1.4158	111	2.886	1.96	Reject Ho
Females in the Experiment group	48	3.033	1.6319				

Table 5 above indicates that the t-test calculated (2.886) is greater than the t-critical value (1.96). Thus, the hypothesis was rejected. This result means that within the experimental group there is a significant difference between the male and female students' interest in mathematics learning. The result clearly indicates that male and female students exposed to the treatment differ significantly in different levels of interest in learning mathematics. The mean interest of males (3.881) is higher than the mean interest of females (3.033) which shows that males are far more interested in learning mathematics than their female counterparts. Research Question Four: What is the mean difference in mean interest ratings in Mathematics between male and female students taught mathematics using the experimental treatment after treatment?

Table 6: Mean Interest scores and SD by Experimental Subjects (Males and Females) After Treatment

S/N	Items Description	Male Mean ($\bar{X}$)	SD	RMK	Female Mean ($\bar{X}$)	SD	RMK
	I love Maths because it is student-centered.	2.59	0.146	A	2.50	0.808	A
	I am interested in Maths because I can learn the subject.	2.99	1.103	A	3.14	1.092	A
	I love Math because the activities in it are interactive.	3.03	0.644	A	3.08	1.103	A
	I love Maths because my classroom environment provides me with meaningful learning experiences through practical activities unlike before.	2.78	0.863	A	2.71	0.798	A
	I can now construct my own knowledge and skills out of experiences and interactions with	3.11	1.201	A	3.15	1.043	A

my classmates.						
I have come to love Maths because I can be involved in deciding my own learning.	2.88	1.053	A	3.02	0.801	A
My own reasoning skills can now develop since I can arrive at mathematical formulae practically.	3.05	0.771	A	3.12	1.270	A
I am interested in learning Math because I have control over my thinking.	3.31	0.698	A	3.25	1.008	A
I cannot still remember the formulae even after I have practically demonstrated how to obtain the formulae.	1.32	1.004	D	1.11	0.964	D
I love Maths because I have the opportunity to carry out practical activities in the Math laboratory like my counterparts in Physics, Chemistry and Biology	2.30	1.018	D	2.17	1.301	D
Grand Mean	2.736	0.8411		2.725	1.0189	
Difference in means	0.011					

The results of the Table show that after the subjects were exposed to the treatment, they agreed that they have now developed an interest in mathematics learning because Math teaching is student-centered; practically oriented; students can learn Maths co-operatively with their classmates; Maths activities are interactive; the practical activities provides them with meaningful learning experiences; their interaction with their classmates can now enable them to construct their own knowledge and skills they can now remember Maths formulae because they can arrive at the formulae practically; they have control over their own learning now and can be involved in deciding their own learning. The table shows that the respondents agreed that items 1,2,3,4,5,6,7, and 8 are the reasons why they are interested in learning mathematics and therefore like learning the subject. All the mean values of items 1 to 8 are greater than the criterion means of 2.50, except items 9 and 10 which have mean scores below 2.5 in both male and female respondents. The mean and SD of male responses ($\bar{X}_m = 2.736$; $SD_m = 0.8411$) and mean and SD of female responses $(\bar{X}_f = 2.725;\ SD_f = 1.0189)$ and mean difference of 0.011 in favor of males and the rate of their interest in mathematics After they were exposed to the treatment. The difference in means of 0.011 was further subjected to a statistically significant difference at p ≤ .05.

Hypothesis Four: There is no significant effect of the constructivist teaching method on male and female students' interest in menstruation after treatment.

Table 7: Analysis of the Independent T-Test on the Mean Interest Ratings of Male and Female Students in the Treatment Group the Students Were Exposed to Treatment

Gender	N	Mean	SD	DF	t_{cal}	t_{crit}	Decision
Males in Experimental group	65	2.736	0.8411	111	0.061	1.96	Accepted Ho
Females in Experimental group	48	2.725	1.0189				

Table 7 above revealed that the t-test statistic value of 0.601 is less than the t-critical value of 1.96. Thus, the null hypothesis was not rejected. That means that within the experimental group there is no significant difference between the male and female students' mean interest ratings in mathematics. This clearly shows that in the experimental group both male and female students share an equal level of interest in Learning Mathematics due to the treatment.

Summary of the Findings: The findings were summarized below:

- Before treatment (pre-test), students in the treatment (CTM) group scored a higher mean gain score of 0.02 than students in the expository method group. This mean difference of 0.02 was tested for a significant difference in means and the test showed no significant difference (P ≤ .05).
- After treatment (post-test), students exposed to the treatment (CTM) scored a higher mean gain score of 0.74 than their counterparts exposed to the expository method. This means the difference of 0.74 which was further tested for statistically significant difference and was found significant (P ≤

.05). This significant difference must be due to the new method used which led to an increase in the mean gain score (performance).

- The experimental group, before treatment (pretest), achieved a higher mean score than females with a mean gain score of 0.51. This mean difference of 0.51 was further tested for statistically significant mean difference and was found to be statistically significantly different at P ≤ .05.
- Moreso, in the experimental group, after treatment (posttest), the females performed higher than males with a mean gain difference of 1.43. The mean gain difference of 1.43 was further tested for statistically significant difference and was found statistically not significantly different at P ≤ .05. That means gender is not a significant factor of variance when CTM is used. That means males and females exposed to the treatment shared equal strength in Mathematics performance when CTM is used in mathematics instruction.
- The mean difference between the interest ratings of male and female students before they were exposed to treatment was 0.848 in favor of males. The difference in means in interests rating was further tested for statistically significant difference and was found statistically significant at P ≤ .05. This means that before the students were exposed to the treatment, they have different interests in mathematics learning.
- The mean difference between the interest ratings of male and female students after the treatment was administered to the subjects was 0.011 in favor of male. The difference in means in interest rating was further tested for statistically significant difference (P ≤ .05) and no significant mean difference. This change in interest rating after the administration of the treatment must be due to new method used which thereby brought male and female students' interest in Mathematics to bar.

5. Discussion and Conclusion

The discussion section was organized in accordance with the findings of the study. The result of research question one showed that in the post-test, the treatment group outperformed those taught with an expository method with a mean post-test difference of 0.74 in favor of those exposed to the CTM. This result shows that CTM is effective in teaching mathematics. Insofar constructivist teaching method is activity-based, practically oriented and student-centered, the result is confirmed by earlier demands of Blogspot (2018), Samanta and King (2018) and FRN (NPE, 2013), who all advocated that the activity-based method should be used in teaching mathematics because the activity-based method makes the teaching of mathematics practical and experiential. This mean difference of 0.74 was subjected further to a statistical test to determine how significant the mean difference was. The mean difference (0.74) was found statistically significant difference (P ≤ .05). Research question two revealed that in the pre-test (before treatment), males had a little higher mean gain of 0.51 than their female counterparts. However, in the post-test, within the treatment group, the females achieved higher than their male counterparts with a mean gain score of 2.78.

This finding corroborated earlier reports (Hydea & Merzb, 2009; and Unodiaku, 2015) all found that female students performed better than their male counterparts in mathematics achievement tests. However, the finding contradicts earlier reports (Asante, 2010; Olasunde and Oladeye, 2010; and Unodiaku, 2018) all found that males achieved higher mean gain test scores in mathematics than females. These contradicting reports on gender superiority in mathematics achievement is appearing inconclusive. The difference in mean (2.78) between male and female subjects was further subjected to statistically significant difference and was found no significant difference (P ≤ .05). Research question three showed that males were more interested in studying mathematics before they were exposed to the treatment with a mean difference of 0.848 in favor of the males. The interest difference in mean of 0.848 was further tested for a statistically significant mean difference (P ≤ .05). That means before the subject (in the Treatment group) was exposed to the treatment, the males and females in the group (Experimental group) were tested for difference in mean interest in mathematics (without treatment) and the result showed that there was a significant difference in the mean interest ratings of male and female. Although in the experimental group before treatment males showed more interest in mathematics than females, the mean was found statistically not significant (P ≤ .05).

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References

Agwagah, U. V. N. (1993). Instruction in Mathematics Rending as a factor in Students' Achievement and Interest in Word Problem-Solving. Unpublished Ph.D. Thesis, UNN.

Ajai, J. T. & Imoke, I. I. (2015). Gender Differences in Mathematics Achievement and Retention Scores: A Case of Problem-Based Learning Method. *International Journal of Research in Education and Science* (IJRES), 1(1), 45–50.

Asante, K. O. (2010). Sex Differences in Mathematics in Ghana. Retrieved from https://www.org/periodical=2010/218771338/html.

Da Ponte, J. P. (2007). Investigations and Explorations in the Mathematics Classrooms. ZDM – *The International Journal of Mathematics Education*, 39, 419–430.

Daguplo, M. S. (2014). The determination of students' difficulties in proving geometrical propositions using exploratory factor analysis. *Journal of Educational and Human Resources Development,* 2, 1–8.

Diane, F., Halpera, Camilla, P., Benbou. & Morton Ann Gernsbacher. (2020). The Science of Sex Differences in Science and Mathematics. www.ncbi.nlm.nih.gob.

Eriyagama. (2018). Activity-based teaching methods for, *better living in primary mathematics classrooms,* 2(2). www.worldccess.org.article-3.

Federal Republic of Nigeria (FRN). (2013). National Policy on Education, Lagos: NERDV Press.

Ganley, C. M. & Lubienski, S. T. (2016). Mathematics Confidence, Interest, and Performance: Examining gender patterns and reciprocal relations. *Learning Individual Differences,* 41, 182–193, dio:10.1016/j.lind.2016, 01.002.

Guo, J., Parker, P. D., Marsh, H. W. & Morim, A. J. (2015). Achievement, Motivation and Educational Choices: a Longitudinal Study of Expectancy and value using a multiplicative perspective. Dev. *Psychol*, 51, 1163–1176, dio:10.1037/a0039440.

hydea, J. S. & Merzb, J. E. (2009). Gender, Culture and Mathematics Performance. Retrieved from http://tetvideo.madso.com/uw/gender.

Kelly, G. A. (1991). The Psychology of Personal Constructs: Volume one-A Theory of Personality. London: Routledge.

Marshall, Lisa. (2018). Math Myths: Are Boys Really Better at Maths? www.webmd.com.

Olusunde, G. R. & Olaleye, O. O. (2018). Effect of Concept Mapping on Senior Secondary School Students' Performance in Mathematics. *Journal of Mathematics Education,* 1(1).

Piaget, J. (1977). The Development of thought: Equilibration of Cognitive Structures. (A Rosing Trans). New York: The Viking Press.

Pokhrel, T. R. (2018). Activity-based math instruction: Experiences in addressing the 21st Century Skills. www.semanticscholar.org.

Post Primary Schools Management Board (PPSMB). (2022). Statistical Unit. Agbani Education Zone.

Rosen Blat, L. (1978). The reader, the text, the poem: The transactional theory of the literary work. Carbondale, II: Southern Illinois University Press.

Samarita, C. & King, E. M. (2018). 6 Key Insights into the data and information Education leaders want. Mist http://www.bookings.edu.

Susana, R., Isabel, P. & Antonio, V. (2019). Gender differences in Maths motivation: Differential Effects on Performance in Primary Education. www.frontiersin.org>articles>full.

Twomey Fosnot, C. (1989). Enquiring teachers, enquiring learners: A Constructive approach for teaching. New York: Teachers College Press.

Unodiaku, S. S. (2015). Comparative Study of Mathematics Potentials of Single-Sex Secondary Schools in Enugu State. *International Journal of Education, Michael Okpara University of Agriculture, Umudike,* 1(1), 121–128.

Unodiaku, S. S. (2018). Teaching Geometrical and Mensuration Proofs with Origami-Based Instructional Model Approach among Senior Secondary Schools' Students: in Abacus, *The Journal of Mathematical Association of Nigeria,* 43(1), 14–24.

WAEC Chief Examiner's Report. (2016). Yaba, Lagos State.

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Exploring the Values of Transformative Curriculum for Nation-Building: The Challenge of Curriculum Enactment in Citizenship Education

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Abstract: The challenges to nation-building are overwhelming in Nigeria due to large withdrawal and lack of commitment to public issues with trust and unity decreasing daily among the citizens. The lack of skills and opportunities on how to effectively engage in providing solutions also slows down the task of nation-building which results in breeding irresponsible citizens. Hope therefore lies in an educational program that enhances students' capacity for leadership, transforming students into agents of social change. This research employed a descriptive case study design through qualitative methods (observation, interview and content analysis). Multiple cases were used as the sample size (10 secondary school teachers and six student-interviewees from Case Study A & B). A purposive, non-probability sampling technique was used regarding the sample size. The content analysis findings revealed rich transformative qualities in citizenship education through Civics content. The Civics contents investigated are intellectually stimulating. However, the required transformational components of motivation and ideal influence that will stir students' actions through the teacher's enactment were poorly delivered. The gaps discovered showed students were hindered from practical and responsible contributions to their immediate community as a result of disparity and disregard for curriculum-recommended activities by the teachers. Therefore, thorough supervision of the curriculum enactment process in the classroom was recommended. Teachers should also switch to innovative, practical activities emphasizing roles expected of students in real life. These will transform students' mindsets as change agents in working solutions to observed challenges around them.

Keywords: *Values, Curriculum, Transformative curriculum, Nation-building, Curriculum Enactment, Citizenship Education.*

1. Introduction

The neglect of joint efforts towards public courses has protracted efforts towards nation-building in Nigeria. Citizens' apathy is partly due to the wrong perception of leadership, inadequate understanding of nation-building and the required efforts in the building processes. This poor understanding leads to irresponsible attitudes of many including adults and youths across Nigeria. Many youths are rarely worried about how to fix challenges in their communities but rather feel comfortable blaming the politicians for failing in the public systems and advancing the nation's course. Citizens distorted perceptions of true leadership and how to exert impact in changing society flow together. Worst of all is the pursuit of self-gains which ruins the trust required to achieve teamwork in Nigeria at all levels (Unya & Onyemauwa, 2020). The lack of capacity building in individual citizens towards contributing to nation-building in Nigeria is therefore considered a great challenge. Therefore, there is a need to transform the mindset of the citizens and equip the human capital of the state to join efforts with the government in achieving national integration in Nigeria.

According to Gambari (2008), nation-building is the process of developing common sense of purpose, belongingness and shared destiny to bind diverse people of a country as one. Osisioma (2019) and Igbini (2020) equally agreed with Gambari that nation-building involves processes taken towards achieving national integration that will lead to establishing a modern nation-state. Unya and Onyemauwa (2020) further stated that the national integration processes need consolidation among individuals and groups in a country. Nation-building, therefore, is an adhesive process promoting social unity, national identity, peace, stability and sustainable development across communities in a nation-state. Osisioma (2019) citing Gambari (2008) stated that nation-building task requires a demonstration of exemplary life by both men and women with a resolute vision of a great nation. The process of nation-building is long, unending and politically challenging (Gambari, 2008; Unya & Onyemauwa, 2020). This is due to the need for constant nurturing and dealing with new challenges that face the country. The outcome of nation-building includes attaining a common national identity for the citizens.

Establishing a homogeneous society, increasing loyalty by the citizens and achieving stability that positions the country to become economically viable. The overall goal of nation-building is to achieve stability or peace that aids development (Alozie, 2018; Igbini, 2020). This benefit made Osisioma (2019) concludes that it will be a very costly error not to pay the price of building a strong and viable nation where development can be sustained. Igbini (2020) described such a costly error as a compromise of development. Igbini (2020) citing Carolyn Stephenson argued that despite people having different views of nation-building, the concept is essentially about all the programs adopted by the government of any failing or dysfunctional state to promote the stability of the country. These include ensuring economic assistance to the citizens, infrastructural development, measures for conflict resolutions; and enhancement of civil society contributions towards the functioning of the country. These efforts were equally listed by Gambari and cited by Alozie (2018) but categorized as building political entities and building institutions of which education is a part. Alesina and Reich (2012) in Igbini (2020) clarified these strategies as either state-building or nation-building due to differences in the approach or process used. Nation-building involves the construction of national identity described as an internal cohesion or transformation of the mind (Igbini, 2020) while state-building is the construction of infrastructures and government institutions described as external efforts (Igbini, 2020). The purpose of both will enhance the functioning of the state by attainment of peace or stability (Alesina & Reich, 2012; Igbini, 2020).

Without equal nation-building efforts, state-building will be a little or total failure to attain stability (Igbini, 2020). The root of problems with nation-building in Africa and Nigeria specifically began with the creation of States and subsequent colonialism experienced by the continent which forced people who were formerly strangers to become fellow citizens in the same countries. In Nigeria, the continuous breakdown of democratic institutions, the civil war experienced and military takeovers interfering with the political rule in the country complicated a series of efforts towards building an integrated modern nation among the citizens. Therefore, Osisioma opined that African nations including Nigeria are fragile states (Osisioma, 2019). The process of building a nation thus demands the state employ the powers at its disposal including using various government institutions such as education among others (Osisioma, 2019; Igbini, 2020). However, Igbini (2020) opined that Nigeria is yet to make a genuine attempt at nation-building when compared with Israel and the United States where the government's efforts have been consistently built. Building any worthwhile project can be considered as a crucial exercise that requires time and a specified pattern because of the need to measure the project's effectiveness and processes. Nation-building consists of many co-builders who are professionals of diverse disciplines and critical among whom are the builders and managers of human resources (Igbini, 2020).

Gambari (2008) and Unya & Onyemauwa (2020) highlighted many of the critical challenges to nation-building in Nigeria which slow down the country's development. These include concern about leadership qualities (integrity, competencies, tolerance, corruption, and so on) with a lack of collective leadership vision for Nigeria. Igbini (2020) considered the presence of pure scientists occupying political leadership offices rather than real political scientists as the cause of leadership problems in Nigeria. The historical problem of colonial rule resulted in tribalism, discrimination and prejudice among Nigerians as evident in regional crises between the North and South parts of Nigeria. Socioeconomic inequalities limit the sense of common citizenship among the people. There is wide unequal access to health, education, housing, etc. among regions, gender and social classes. Constitutional issues about federal structure, unequal power sharing, and revenue allocation frequently lead to demand for state creation. Democratic practices are failing in Nigeria with principles of rule of law consistently violated, intolerance, human rights abuse, etc. (Gambari, 2008; Osisioma, 2019; Unya & Onyemauwa, 2020). Osisioma (2019) summarized the concerns into three basic areas which are issues of national integration, concerns of social and political development, and challenges of developing national consciousness amongst the individuals and diverse heterogeneous groups in the country. It is against this backdrop that this paper searches for transformational characteristics in Civic Education as a subject being used to promote Citizenship Education among Nigerian students and the impact of the enactment process in motivating students to contribute towards nation-building in Nigeria.

2. Transformational Leadership Theory (TLT)

The Transformational Leadership Theory (TLT) is an ideal approach to leadership, to effect changes in individuals and society (Bass, 1985; Towler, 2019). The theory started with Burns in 1978 and was later developed by Bass in 1985. Chan and Mak (2014) stated that if delivered (enacted) in its real form, Transformational Leadership (TL) values change followers' behavior and sense of identity. Followers with motivation will take responsibility like leaders to influence changes around them. The TLT redefines the opinions, values and expectations of followers into performing leaders at different levels. A transformational leader stimulates followers intellectually to catch visions, develop values for common good and propel followers to action. That is, encouraging followers to devise solutions to change society (Prachi, 2018; Khan, Rehmat, Butt, Farooqi, & Asim, 2020). Basic characteristics in transformational leadership involve promoting followers' integrity with fairness, setting clear goals, building expectations, supporting each other; and stirring strong emotions that inspire the followers to take actions that change society. The followers do not act for self-gain but are motivated to a higher level of performance for the good of all. TLT is portrayed by four elements or components generally which include individualized consideration, intellectual stimulation, inspirational motivation and ideal influence (Towler, 2019; Stanescu, Zbuchea, & Pinzaru, 2021).

Chan and Mak (2014) established that there is a relationship between transformational leadership and the followers' behavior. It is in hope of this statement the study looks into the nature of a curriculum that is transformational with the impacts it is likely to produce on the student's actions. A transformative curriculum, therefore, is an ideal curriculum that empowers the students' potential for leadership. This will be done by boosting students' morals (values) and motivation to create solutions that positively change their communities. That is, a curriculum reflecting the characteristics of transformational leadership, able to shift students' mindset from self-gains; provoke vision in students and work as a team (trust) in realizing the desired changes (Towler, 2019; Khan, et al., 2020). Mulenga (2018) opined that an unclear understanding of curriculum due to mere assumptions results in poor quality of implementation. Mulenga defines curriculum as *"all the selected, organized, integrative, innovative and evaluative educational experiences provided to learners consciously and unconsciously under the school authority to achieve the designated learning outcomes….to be best utilized for life in a changing society".* Curriculum enactment refers to how specific content of the curriculum is taught by a teacher and studied by the students during lesson delivery in the classroom (Prevost, Nathan, Stein & Phelps, 2010). That is, the actual content of the curriculum the students engaged with.

Learning occurs within the enacted curriculum making it an important indicator of curriculum features (Porter & Smithson, 2001). The process or approach to enacting the curriculum varies from one teacher to another. Documenting how lessons are delivered is considered vital because students will only learn "what they are taught and what they spend time doing" (Prevost, et al., 2010). Doyle and Rosemartin (2012) observed a common practice of teachers not enacting the curriculum as designed. Citizenship education is the teaching and socialization process for students to become enlightened citizens to effectively participate in public and private matters in making their nation better (Infoguide, 2022). This education includes community participation, morals (values) and social responsibility, and political literacy (Crick, Tew, Taylor, Ritchie, Samuel & Durant, 2005). Oluniyi (2011) and the Nigerian Educational Research and Development Council (NERDC, 2012) in tracking the evolutionary pattern of citizenship education in Nigeria established the unique roles played by Social Studies curriculum from the beginning (after independence, 1963) till present creation of Civics as a separate subject from it (Social Studies a mother-subject). Citizenship Education's goal is to promote a nationalistic spirit (unity, patriotism, tolerance, etc.) in students.

To promote responsive citizenry, Civic Education was reintroduction in 2007 as a separate subject in both primary and junior secondary schools and 2009 for senior secondary across Nigeria (NERDC, 2009). Olaniyi (2011) confirmed that citizenship education aspects were disarticulated from the Social Studies curriculum by NERDC. Balogun and Yusuf (2019) defined Civic Education (CE) "as a body of knowledge imparted through selfless efforts of efficient and effective teachers and received by conscious learners to showcase the right type of values and attitudes for the growth and building of the society". Crick, et al. (2005) emphasized that learning processes for citizenship education should include volitional activities along with cognitive and affective learning. Balogun and Yusuf (2019) expressed the mediating factors in the CE curriculum's

effectiveness as a function of the teacher's efficiency and learners' consciousness during the interactive process of lesson delivery. As a core subject at senior secondary school in Nigeria (NERDC, 2009), CE is saddled to develop students into responsible and disciplined members of society. The specific curriculum's objectives include among others promoting the understanding of the inter-relationship between man/woman, the government and the society; highlighting the structure of government, its functions and the responsibilities of government to the people and vice-versa; et cetera.

Research Questions

- What is the extent of transformational leadership qualities in CE curriculum content?
- How well do the teachers enact the curriculum to impact students' motivation for civic action?
- What gaps exist in the curriculum enactment of Citizenship Education for the students?

3. Research Method

A descriptive case study design was adopted to guide this study whereby data gathered from the subjects were compared later with a pre-existing theory (TLT). The design enables descriptors and explanations to be built from the context of cases that were studied. This study used a qualitative method comprising content analysis, participant observation and interviews to gather data from the subjects. The observation guide titled "Teachers' Pedagogical Model of Curriculum Enactment (TPMCE)". The guide contained 10 activity descriptors developed around exposition, laboratory, and pictorial and concrete models of curriculum presentations. The number of teachers engaging students in model activities was simply counted, along with the performance goals (5 levels adopted) that affect learning. The interview was structured with two questions for the students to describe their experiences of CE lessons within the first six weeks of resumption. The content analysis involved the identification and selection of topics including teacher and student activities from the Civics curriculum. It is for the understanding of the pattern of intersection between content coverage and performance demands dimensions of the curriculum.

The area of study involved two public senior secondary schools (full-boarding, mixed-gender of boys & girls) within Education I, Lagos State. However, attention was paid to only SS1 students while all Civics teachers in senior secondary classes were observed as subjects. The study sample size comprises multiple cases with 10 teachers as subjects observed (7 females and 3 males) and 6 student-interviewees (3 each from Case Study A & B). The purposive sampling procedure adopted involved census sampling of teachers and a convenience method for students' selection. The observation guide had content validity with an adaptation of the multi-dimensional, taxonomy-based curriculum analysis descriptors suggested by Porter and Smithson (2001). It involved the use of a common language in a systematic manner to examine curriculum enactment. The protocol for the observation, students' interviews as triangulation and coding processes improved the study's reliability. Researchers visited the schools twice a week (visits 2X4weeks = 8 times per case study). Data analysis included using descriptive statistics of frequency count and percentage and thematic analysis of the text. The findings outcome was richly presented through a narrative pattern comparing cases understudied.

4. Results and Discussion

Question 1: What is the extent of transformational leadership qualities in CE curriculum content?

Table 1: Civic Education Content with Teacher and Students' Intended Activities

TLT Characteristics	Content Categories	Students' Activities	Teacher Activities
*Integrity, Fairness, *Clear goals Setting, *Build Expectations, *Supporting/Sharing resources *Emotional connection *Inspires followers to Action	*Our Values: Justice, Selflessness (Community Services) *Emerging Issues: HIV/AIDS	Define, Explain, Observe & Ask Questions, Participate in Community Activities, Write Reports on the project involved, Discuss, Analyze, Demonstrate, Visit Hospital and Observe & Ask questions.	Lead Discussion, Explain, Invites Resource Person, Lead Students on Community Project, Identify, Analyze, Highlight Facts, Lead Students to Visit Hospital

Source: NERDC (2009) and Towler (2019).

Table 1 shows the expected characteristics outcome of Transformational Leadership in a column. Two (2) content areas selected from the CE curriculum for investigation are values (Selflessness and Community Services) and Emerging Issues (HIV/AIDS). The curriculum-recommended activities for teachers' and students' engagement were listed above also. Teachers were intended to provoke students' activities (from simple to complex) in solving specific problems in the students' community. Question 2: How well do the teachers enact the curriculum to impact students' motivation for civic action?

Table 2: Observation of Curriculum Enactment Models by Civic Education Teachers

	Model of Presentation	Performance Goal	Case Study A Female = 4 Male= 1	Case Study B Female = 3 Male =2	Remarks
A. Exposition Model					
1	*General class lecture	*Memorize Facts	5	5	*All teachers
2	*Teacher demonstration	*Concept Understanding	3	3	*Few did not empathize
	*Test/quizzes	*Communicate Empathy	4	3	*Low analysis of issues
3		*Analyze	3	2	*No specific problem was solved
		*Solve Novel Problems	0	0	
B. Laboratory Model					
4	Individual Student work	*Memorize Facts	2	2	Few employed it
5	Small Group work	*Concept Understanding	2	3	Very few give group task
6	Field trip/ Out-of-Class Investigation	*Communicate Empathy	1	0	1 teacher leads students on a community project
		*Analyze	1	1	
		*Solve Novel Problems	1	0	
C. Pictorial &Concrete Model					
7	Whole Class Discussion	*Memorize Facts	1	1	*Very poor
8	Students Demonstration	*Concept Understanding	1	1	*Low involvement
9	Multi-media Presentation (film, internet, etc.)	*Communicate Empathy	2	1	*low use of multi-media
		*Analyze	0	2	*Very low application to solve real problems
10	Class Simulation (role-play, games, etc.	*Solve Novel Problems	1	0	
A	**Exposition Model**		**15**	**13**	**Richly Used**
B	**Laboratory ''**		**7**	**6**	**Poorly Use**
C	**Pictorial/Concrete ''**		**5**	**5**	**Very Poor Use**

Source: Field Observation Report, Adeduntan & Omiyefa (2022).

Table 2 showed that ten (10) teachers from two different schools (Case Studies A & B) observed and compared their models of curriculum enactment including the performance goals they engaged. Seven (7) of the subjects observed were females while three were males. Generally, the exposition model was used 28 times (54.9%) in both Case Study A & B, while the laboratory model was used 13 times (24.49%) and the Pictorial model was adopted 11 times (19.7%). Table 2 also identified three (3) models of pedagogy which are exposition, pictorial/concrete; and the laboratory or fieldwork models. Each model has descriptors around activities carried out by the teacher. The observation showed more use of an expository model with all teachers (10) engaging in a general lecture from Case Study A and B. Six of the teachers (3 from each case study A & B) demonstrated deep conceptual understanding. There was good communication of empathy through the teachers' talk (4 from case A & 3 from case B). Teachers (3 from case study A & 2 from case B) also quizzed the students averagely (with general responses) for concept memorization and analysis of case stories while explaining to the class. Generally, the level of case analysis was low and no specific problem was solved through the exposition model in Case Study A & B.

The exposition model was used by teachers to meet the delivery time of lessons for the students. In contrast, there is low usage of the Laboratory model in both schools (case studies A & B). Students were rarely given individual work to do and where it was done, the exercise was oral or mere reading exercise (2 teachers from each Case study A& B gave take-home tasks). A small group works given to students were carried out in the classrooms without strategic formation of groups. Situations observed in both case studies A & B (to answer questions and debate topics) involved teachers grouping students based on gender alone except for Case Study A where only 1 teacher assigned the students to well-designed groups on other parameters to engage in the out-of-class investigation to solve a real-life problem. The pictorial and concrete model was the least used among the teachers from Case Study A and B (19.7 %). Tangible students' demonstration was not observed while school B employed the use of the internet (phone usage) right in the classroom, the teachers from Case study A only made imaginary references to previous films and stories students were familiar with for analysis. The difference was due to phone use permitted on Fridays by the teacher in School B while phone use in case study A was contraband in school.

Question 3: What gaps exist in the curriculum enactment of Citizenship Education of students? Three students from SS1 classes were each interviewed in both case studies A and B.

Question A: Describe what you enjoy most about Civics lessons. Students appreciated topics taught in Civics to make them better citizens generally especially values and stories often told during the lessons. The lessons are judged to be simply being related to their daily experiences. For instance, Favour, age 15 (girl) spoke of her experience during the community project the class undertook. Favor said *"I have a wonderful time out to work with my mates, we had meetings after prep time and everyone was excited to contribute money including boys. The actual fumigation day was all fun, at least out of normal classroom work".*

Question B: What do you dislike most about the Civics lessons?
Students complained about writing long notes and teachers' methods. A student in Case study A complained of the teacher's approach which denied them active involvement during classroom interaction. According to Tim, age 14 (boy) "*the class can be boring most times, especially after the break with the teacher's long talking".* Christy, age 14 (girl) from case study B lamented how the teacher's method frustrated her expectation of the subject. Christy said, "*as an art student, I look forward to doing practical work in Civics like going on field trips or getting into the community but hmmm…our teacher does the talking and when we told her to let us do a playlet she complained of time".*

Discussion of Findings

Findings emanated from the study indicated transformational leadership characteristics were found to be present in the selected content areas of Civic Education as planned for SS1 students in Nigeria. The Content Categories relate well to the challenges of nation-building highlighted by Gambari (2008) and Unya and Onyemauwa (2020) as faced in Nigeria. For instance, issues of self-gain, discrimination, and withdrawal from committed service to the communities are well addressed by the values in 'Selflessness and Community Services" (NERDC, 2009). The intended content areas are also intellectually stimulating (Towler, 2019) and

stir emotional concerns in students with examples of desirable actions for the communities. As clarified by Alesina & Reich cited by Igbini (2020) Civic Education is geared toward the construction process constituting an internal effort to transform the mindset of students towards nation-building and the subject is intentionally planned. The CE goal of enhancing citizenship education by making the students responsible also coincides with the overall goal of nation-building which that makes targets the promotion of national identity for the effective functioning of the state as Gambari (2008), Alozie (2018) and Igbini (2020) all confirmed.

According to Towler (2019) and Emerald Works (2020), virtues recognized in TLT such as fairness, selflessness, and support for others were explicit through the CE topics. The citizenship responsibilities of students were highlighted through recommended, behavioral and practical activities for learning. However, students' engagements in these activities were dependent on the teacher's instruction and leading thus corroborating Prevost, et al., (2010) statement that students only learn what they are taught and are allowed to spend time doing by their teacher. This called for focusing attention on the teacher as a vital mediating factor in learning stated by Balogun and Yusuf (2019). Without teachers' adequate guiding roles to motivate and influence actions during curriculum enactment, the students' contribution to community development will be weak. Findings further revealed a critical disparity in approaches used by teachers for curriculum enactment as earlier reported by Prevost, et al., (2010). Also, the results proved Doyle and Rosemartin's (2012) findings of teachers' not enacting curriculum as intended to be true. Most teachers observed deviated from the recommended activities for both teacher and students. Only 1 teacher (Case study A) out of 10 actually motivated students for practical problem-solving tasks.

The teacher guided the students committedly through the application of out-of-classroom investigation/fieldwork to take action in a real-life problem. The students cooperatively organized themselves raised funds and solved the identified bedbug problem in their hostels. The exposition model was most frequently used by the observed teachers at a 54.9% rate in curriculum enactment for citizenship education. This led to failure in promoting three transformational leadership elements which are individualized consideration, inspirational motivation and ideal influence (Towler, 2019; Stanescu, et al., 2021). This was a failure in the transformation of students into leaders through enacting the contents in real form as stated by Chan and Mak (2014). The interview session revealed the impact of teachers' methods helped students interviewed in recognition of citizenship virtues however; the approaches to lesson delivery projected Civic Education as boring and theoretical too. Teachers' approaches failed in changing students' mindsets which contradicted the TLT goal expressed by Prachi (2018) and Khan, et al, (2020). This showed Civics teachers observed lacked the competence to model transformational leadership traits among their students. Student learning is therefore questionable since Porter and Smithson (2001) submitted that learning occurs within the enacted curriculum making.

5. Conclusion and Recommendations

This study found that Civic Education contents investigated in schools A and B contained characteristics to make students transformational leaders. The topics relate well to the nation-building challenges Nigeria is facing and helped stirred up emotional concerns from the students. However, translating the values in CE into real action by the students will be dependent on the teacher's approach to curriculum enactment. The observation results showed the use of different models at diverse levels of enacting the curriculum by Civics teachers. Furthermore, teachers were discovered to have abandoned curriculum activities recommended by NERDC. This is detrimental to nation-building as the intended vision of raising responsible students for Nigeria is being deviated from indirectly. For instance, the students in the observed schools are not being practically engaged and lacked opportunities for teamwork to devise solutions to issues challenging their community. Summarily, this study revealed that the nation-building process is not adequately enacted through the observed teachers.

Recommendations: The education quality assurance team and school supervisors should increase efforts in monitoring to ensure teachers are familiar with and adequately enact the recommended approaches in the curriculum plan. School management should widely promote and adopt innovative activities to supplement curriculum enactment processes. This helps in translating the values in CE into real action for the students.

References

Alozie, C. C. (2018). The Nigeria state and the challenges of nation-building in the 21st century: The way forward. *South East Journal of Political Science,* 14(1), 333-356.

Balogun, I. N. & Yusuf, A. (2019). Teaching Civic education to learners through best practices. *Anatolian Journal of Education*, 4(1), 39-48.

Bass, B. M. (1985). Leadership and performance beyond expectations. New York. NY: Free Press.

Chan, S. & Mak, W. (2014). Transformational leadership, pride in being a follower of the leader and organizational commitment. *Leadership Organization Development Journal,* 35(8), 674-690.

Crick, R. D., Tew, M., Taylor, M., Ritchie, S., Samuel, E. & Durant, K. (2005). A systematic review of the impact of citizenship education on student learning and achievement-EPPI-Centre. Retrieved July 7, 2022, from https://eppi.ioe.ac.uk

Doyle, W. & Rosemartin, D. (2012). The ecology of curriculum enactment. Interpersonal Relationships in Education, Chapter 7. Advances in Learning Environments Research, 3. Retrieved July 6, 2022, from https://link.springger.com/chapter/10.1007/978-94-6091-939-8_9#citeas

Gambari, I. A. (2008). The challenges of nation-building: The case of Nigeria. Retrieved July 10, 2022, from https://www.mafng.org/anniversary/challenges_nation_building_nigeria.htm

Igbini, M. D. (2020). The challenges of nation-building and peace-building in Nigeria. Retrieved October 16, 2022, from https://dj.univ-danubius.ro/index.php/JDSR/article/view/566/837

Infoguide. (2022). The role of citizenship education in Nigeria. Retrieved July 23, 2022, from https://infoguidenigeria.com

Khan, H., Rehmat, M., Butt, T. H., Farooqi, S. & Asim, J. (2020). The impact of transformational leadership on work performance, burnout and social loafing: A mediation model. *Futur Bus Journal*, 6(1), 40-53.

Mulenga, I. M. (2018). Conceptualization and definition of a curriculum. *Journal of Lexicography and Terminology,* 2(2), 1-23.

Nigerian Educational Research and Development Council. (2009). Federal Ministry of Education Senior Secondary School Curriculum: Civic Education for SSS 1-3. Abuja-Nigeria. www.nerdcnigeria.org

Nigerian Educational Research and Development Council. (2007, 2012). Federal Ministry of Education 9-Year Basic Education Curriculum: Religion & National Values JSS 1-3. Abuja-Nigeria. NERDC Printing Press.

Olaniyi, O. (2011). Country report: Citizenship Education and Curriculum Development in Nigeria. *Journal of Social Science Education,* 10(4),61-47.

Osisioma, B. C. (2019). Nation-building in Nigeria: Realities, challenges, prospects. Conference paper presented at Landmark Grand Hotel, Dubai Retrieved October 16, 2022, from https://www.researchgate.net

Porter, A. C. & Smithson, J. L. (2001). Defining, developing, and using curriculum indicators. Consortium for Policy Research in Education. Retrieved July 10, 2022, from https://repository.upenn.edu/cpre_researchreports/69

Prachi, J. (2018). Transformational Leadership theory. Retrieved July 5, 2022, from https://managementstudyguide.com/transformational-leadership.htm

Prevost, Nathan, Stein. & Phelps. (2010). The enacted curriculum: A video-based analysis. American Society for Engineering Education, 1-23.

Stanescu, D. F., Zbuchea, A. & Pinzaru, F. (2021). Transformational leadership and innovative work behavior: The mediating role of psychological empowerment. *Kybernetes,* 50(5), 1041-1057. Retrieved July 10, 2022, from https://www.emerald.com

Towler, A. (2019). The qualities of transformational leaders and what distinguishes them from transactional leaders. Retrieved July 5, 2022, from https://www.ckju.net/en/dossier/qualities-transformational-leaders

Unya, I. U. & Onyemauwa, V. A. (2020). The problems of nation building in Nigeria. Retrieved July 20, 2022, from https://www.researchgate.net/publication/359735346.