Chapter 12
Integrating STEAM Education in Nigeria's Basic Education Curriculum for Technological Advancement and Socially Just Economic Empowerment

Dominion Iwe Agunowei
North-West University, South Africa

Celestin Mayombe
North-West University, South Africa

ABSTRACT

The focus of this study was to ascertain if the integration of STEAM education in Nigeria's basic education curriculum might enhance technological advancement as well as socially just economic empowerment. The research design for this study is descriptive survey. The population of the study was all teachers at the basic education level in Nigeria. Three hundred teachers were randomly selected from six states to constitute the sample of the study. Four-point rating scale was used to illicit information from teachers to ascertain if integration of STEAM education in the curriculum might lead to technological advancement as well as socially just economic empowerment to the students on graduation. The reliability index of the research instrument was 0.79. The statistical tool adopted for the study was mean and standard deviation. The findings revealed that integration of STEAM will lead to significant technological advancement and economic empowerment. Recommendations were made to the Nigerian government and Nigerian Research and Development Council to increase funding to education.

INTRODUCTION

The wellbeing and economic empowerment of any nation is predicated on the prevailing economic indices. The report of National Bureau of Statistics (2024) shows a decline in the rate of unemployment, yet Nigeria's misery index - the aggregate of unemployment and inflation rates have sky-rocketed. The

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National Bureau of Statistics (NBS) reported Nigeria's headline inflation rate rose to 34.60 per cent in November 2024, a 0.72 percentage point increase from October's 33.88 per cent (Akubuike, 2024). It is a pointer to the fact that many Nigerians are still experiencing a cost of living crisis due to galloping inflation, which has pushed many into abject poverty. This corroborates World Bank report (2024) that more than half of Nigerians are currently living in poverty. It is no exaggeration that education is an indispensable factor for gainful employment in the formal sector, which eventually brings economic empowerment. It is worthy of note that unemployment based on the level of educational attainment revealed remarkable variations. The worst hit is individuals with upper secondary education as their highest academic qualification, which stood at 8.5%, followed by those with lower secondary education at 5.8%. Persons with post-secondary education recorded a lower unemployment rate of 4.8%, while the lowest rate of 2.8% was observed among individuals with only primary education (NBS, 2024). The prevalence of high rate of unemployment among holders of secondary school certificate is a manifestation of the existence of palpable mismatch between the knowledge and skills acquired at that level of education. Therefore, the need to equip students with multiplicity of knowledge and skills under the auspices of STEAM education at the basic education level for technological advancement and socially just economic empowerment is expedient.

Formal, informal and semi-formal education are the means through which knowledge is acquired to solve societal problems. Therefore, the growth and development of any society is tied to teaching and learning. It is worthy of note that teaching and learning process is evolving. This is aimed at better understanding, improved application of knowledge acquired and, subsequently add socio-economic value to the society (Galadima et al., 2019). The much needed added value, especially from the sciences was identified to emanate from STEM (Science, Technology, Engineering and Mathematics) education. STEM as a concept is considered as connected concepts and content from multiple science disciplines in the curriculum through an increasing focus on students' persistence in STEM (Struyf et al., 2019). Relatively, STEM is better understood as a connected discipline by eliminating disciplinary boundaries and teaching them as a single distinct entity.

In recent times, researchers and policy makers in the field of education have added the "Arts" dimension to STEM. This has given birth to STEAM (Science, Technology, Engineering, Arts and Mathematics). In the midst of this evolution of knowledge acquisition occasioned by STEAM education is aimed at enhancing understanding, improve creativity and increase employability (Chisom, Unachukwu, & Osawaru, 2023: Williams, 2018: Tokunbo, Adejumo, Oluwagbotemi & Frank, 2024). It has been observed that Nigeria's educational system, especially at the basic education level is not growing alongside this global trend. It is against this background that this study aims to ascertain if the integration of STEAM education in Nigeria's basic education curriculum might equip students with requisite knowledge and skills for technological advancement and economic empowerment.

Background to the Study

International organizations have emphasized the need for educational systems to be transformed in order to prepare a diverse workforce that should be able to proffer solution to the complex problems in our society. The essence is for education to equip individuals to be creative, work independently and collaboratively, as well as reason strategically (OECD, 2018; World Economic Forum, 2020). This is one of the reasons for which STEM concept was birthed. STEM education has to do with interdisciplinary approach that integrates the four distinct disciplines of science, technology, engineering, and