

MATHEMATICS AS A TOOL FOR ACHIEVING THE VISION 20:2020 GOAL OF NATIONAL TRANSFORMATION

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ABSTRACT: *Mathematics education is crucial in the development of any nation and anchors as one of the implications for the attainment of vision 20:2020 by the Federal Government of Nigeria. This paper discusses the challenges of mathematics education programmes to the nation's development as well as the importance of mathematics in facilitating the private and public sectors of the Nigerian economy towards the attainment of vision 20:2020. Finally, some recommendations were made on how to enhance the role of mathematics in the transformation of the nation.*

KEYWORDS: Mathematics, Vision 20:2020, National Transformation, Economy, Nigeria

INTRODUCTION

Mathematics importance to human existence cannot be overemphasized in view of its application to human everyday life activities (Sunday, Akamu & Fajemidagba, 2014). Mathematics is an essential discipline that is recognized as a tool for solving everyday problem faced by individuals. Mathematics is an important subject as knowledge of it enhances a person's reasoning, problem-solving skills, and in general, the ability to think. The place of mathematics for attainment of vision 20:2020 holds the potency to everyday problems being encountered by individuals in the nation.

Vision 20: 2020 as a Concept

The goal of government anywhere is the betterment of society by ensuring economic growth, development of infrastructure, national security, social justice and improvement in the welfare of all citizens.

As a developing independent country, Nigeria is bold and present ambition is to be ranked among the top twentieth developed economies in the world by the year 2020. Today, Nigeria is Africa's largest economy with a huge population of over 170 million people, gross domestic product (GDP) of about 195 billion dollars and a per capita income of 1,500 US Dollars. This however does not make Nigeria the most developed country in Africa. That is her goal. To attain this goal, the federal government of Nigeria outlined the vision 20:2020 economic transformation blue print as the nation's long term development agenda (Sambo, 2010). It is generally known however, that the need to realizing this vision is littered with many challenges; poverty; illiteracy; unemployment, weak infrastructure, weak economic base, standing on an ever declining oil prices and poor leadership. How then can we as a nation tackle these challenges in order to reach the noble goal of vision 20:2020? It is posited in their paper that there are sure way of addressing same, albeit most of these challenges in education particularly, Mathematics education.

One of the trusted instruments for solving problems or challenges is mathematics widely regarded as the science of all sciences and art of all arts. In developed societies, mathematics is the bedrock of transformation. Rapid national development can be achieved through application of mathematics on the national economy.

Mathematics can be used in finding solutions to everyday life such as power supply (Electricity). It stands to reason therefore that mathematics can be applied to every aspect of human existence including the economic development of any country like Nigeria.

The federal government of Nigeria has set an ambition that will transform the country from being a developing nation to one of the twenty most developed countries of the world by the year 2020, which is about five years from now. What then is the role of mathematics education in this vision? Important and standard reasons include the need to produce another generation of scholars to continue developing the discipline of mathematics, the supply of a cadre of scientist and other such engineers who need strong mathematics competence, (Greer, 2008). Mathematics education must therefore, give mental pleasure and develop creativity (Greer, 2008). Creativity leads to scientific innovation, industrial and economic transformation. This paper therefore is designed to illustrate the fact that mathematics is a tool for achieving national transformation as outlined in the vision 20:2020 blueprint. To capture the essence of this submission, this paper will focus on the following factors: the concept of mathematics education, role of mathematics education in achieving the goals of vision 20:2020 and challenges before mathematics educators in the achievement of this national vision 20:2020.

MATHEMATICS EDUCATION AND VISION 20:2020

Education will not be complete without mathematics. According to Ezeh and Ugwuanyi (2013), mathematics is a subject that develops critical creative and problem solving mind and skill to be learner which is also essential for the attainment of vision 20:2020.

Since the basis for all critical activities is a deep conceptual and principled understanding of mathematics (Batista, 2001), new technologies and industries that leads to the attainment of vision 20:2020 will favour better educated workers who are adapt at reasoning, problem solving and learning.

Ejeviome (2011) stated further that a sound mathematics education which teaches explicitly the deep affective qualities will harness the values in mathematics education which if utilized will help in attaining Nigerian vision 20:2020.

Ezeh and Ugwuanyi (2013) noted that the systematic analysis in mathematics problem solving can be applied to bring out exact and true result estimates of the growth rate for Nigerian economy over the years that can amount to the envisaged GDP of US and 900 billion. The study of mathematics topics like Number and Numeration, algebra, geometry and mensuration, probability and statistics can go a long way in helping to achieve the above. Mathematics as Ugwuanyi and Ezeh (2013) stated further is a universal language which creates an international value that help individuals in different countries of the world to use similar members and symbols in estimating GDP of their country and finding its interrelationship.

Furthermore, and in line with global concern, Batista (2001), noted that within the context of the growing importance of universal high quality mathematics education should stir a sense of

foreboding about the kind of nation such children will inherit. And Nigeria's economic well-being is in jeopardy since it must compete with other countries. It is high time for federal and state governments to start universally developing student's mathematical capabilities. Such capability functions in creating literate and informed citizens, helps each individual reach his or her full potential, both in work and personal life, and also helps in the attainment of vision 20:2020 within a globally competitive and increasingly technological environment.

IMPORTANCE OF MATHEMATICS FOR VISION 20:2020

A core school subject that can enable the attainment of the vision 20:2020 is mathematics. And the key to other science subjects if Nigeria is to become one of the top economies in the world by 2020. Adetunde (2009) noted that mathematics forms the foundation of a solid education and is the corner stone of modern society. Adetunde (2009) further stressed that the overall national development of any nation and the building of a healthy, happy and prosperous society or nation cannot be successfully achieved without mathematics. This fact implies that the pursuit of mathematics is vital and imperative for any society, community or nation in order to maintain its independence, ensure increased prosperity and keep its place among the civilized nations of the world in this era of technology.

Since mathematics deals with logical reasoning and quantitative calculations (John, 2013), Sadiq (2011) opined that a visible knowledge of mathematics is a necessity for social and economic transformation of any nation. This is because developed countries have utilized the opportunities offered by the current phenomenal increase in science technology and mathematics especially information and communications technology, applied science whose main engine force is mathematics. The so-called Asian tigers such as Singapore, South Korea, Indonesia, India, and Malaysia which in the 1960's were at the same level of development as Nigeria, have witnessed improvement in their economics through the development and application of science, technology and mathematics.

Success in a modern economy requires an appropriate labour force, no factor is currently more important to the economic well-being of nations and states than the capacity to develop their human resources (Hershberg, 2000).

In fact, Ale (2009) noted that no nation can make any meaningful achievement, particularly in economic development without technology, which foundations are science and mathematics.

Furthermore, Dambatta (2013) puts it more succinctly when he opined that the knowledge of mathematics allows scientists to communicate ideas using universally accepted technology since it is truly the language of sciences. He noted that the results of mathematical research benefits the economy in the fibre-optic network carrying telephone conversations, computers that carry out various functions, weather forecasting and predictions, the design of fuel efficient automobiles and airplanes, traffic control and medical imaging.

Femi (2012) observed that the two major stake holders of vision 20:2020 are the government and private sector. The government being the enabler, the facilitator and the and the regular needs knowledge of mathematics in form of logic to form logical, reasonable and accurate decisions as well as laws and policies to establish enabling environment that will help the private sector to grow and prosper. On the other hand, the private sector cannot do without mathematics since committing one's capital to economic activities in which the capital is

committed and managing the business all require some element of mathematics. For instance, financial experts who specialize in making profitable investments as well as provision of such services to non-experts, depend heavily on commercial mathematics that contain topics such as simple and compound interest, amortization, annuity, marker chains, matrices, gave theory and host of other topics.

CONCLUSION

This paper highlighted the role mathematics playing the attainment if vision 20:2020. Mathematics basic requirements for the study of science and technology, it had contributed positively to the development of mankind. Also quality mathematics equation programme helped to inculcate faith in man's ability to make rational decision for its intrinsic value and its ability to make man reason logic ally and think critically.

RECOMMENDATIONS

The following recommendations are made:

1. Mathematics education programmes should focus on developing in students' deep and genuine understanding of mathematical ideas through focused students' cognition process.
2. There should be sufficient classroom time to be mandated for mathematics instruction each day and also increased financial support for mathematics teacher education programmes.
3. The learning environment should be made adequate for effective learning to take place. Thus necessary infrastructure and facilities should be made available.
4. The programmes and practices of largest economics should be emulated such that policies should be matched with action in the required direction.

REFERENCES

- Adetunde, A.A. (2009). Improving the teaching and learning of mathematics in second circle institutions in Ghana. Paper 2 <http://www.science pub.net>.
- Ale, S. (2009). A welcome address at the joint inauguration ceremony of the 1st comsats, consultative committee and the 12th comsats' co-ordinating council meetings being hosted by the national mathematics centre, Abuja Nigeria.
- Ale, S. (2011). The national mathematics centre and mathematics improvement project in nation building. A paper presented at the prize giving ceremony of 2011 cowbell national secondary school mathematics competition organized at Abuja.
- Batista, M.T. (2001). A new vision for mathematics education in Ohio. A paper prepared for the Ohio mathematics and science coalition.
- Dambatta, B.U. (2013). Transforming Nigeria for vision 20:2020: implication for mathematics and mathematics education. *Abacus. Journal of Mathematics Association of Nigeria* 38(1), 137-145.

- Ejeviome, E.O. (2011). The challenges of Realizing Nigeria's vision 20:2020. Paper presented at the annual Convention of the Government College, Ughelli, Old boys Association in North America. Retrieved 13/04/12 from www.goggle.com
- Ezeh, S.I. and Ugwuanyi, C.C. (2013). Transformation of mathematics education programme. A step towards the attainment of vision 20:2020 *Abacus. Journal of Mathematical Association of Nigeria*, 38(1), 75-82.
- Femi, A. (2012). Critical success factors in achieving Nigeria's vision 20:2020. The case of the oil subsidy controversy. The bi-weekly bulletin of socialist workers league, Retrieved on 16th June 2013 from <http://socialistbulletin.wordpress.com/2012/03/07/critical-factors-in-achieving--nigerias-vision-20:2020-the-case-of-the-oil--subsidy-controversy-by-femi-abonshdy>.
- Greer, B. (2008) Guest Editorial. Reactions to the Final Report of the National Mathematic Advisory Panel. *The Montana Mathematics Enthusiast*. 5(283), 365-370
- Hershberg, T. (2000). Long-term skills for quick term tech Government Technology, 13(7), 32-37.
- John, L.B. (2013). Encyclopedia, Britannia <http://www.britannia.com/search?query=mathematics>.
- Sadiq, J.O. (2011). A keynote Address presentation at the 2011 National Conference of school of social sciences Federal college of Education Katsina, on innovative methods of teaching and learning science, Technology and mathematics for Quality Education.
- Sambo, M.N. (2010). Vision 2020: Nigeria's Agenda for the Membership of the New Emergent G20 Global Economic Group. Nigeriafirst.org. Paper presented to the oxford international Relations society of the University of Oxford.
- Sunday, Y., Akamu, M.A. & Fajemidagba, M.O. (2014). Effects of Target-Task Mode of Teaching on Students' Performance in Geometrical Construction. *Abacus. Journal of Mathematical Association of Nigeria*, 39(1), 33-42.
- Ugwusanyi, C.C. and Ezeh, S.I. (2013). Utilizing the value in mathematics education for attainment of Nigeria's vision 20:2020. *Abacus. Journal of mathematical association of Nigeria* 38(1), 47-55.