



NIGERIAN JOURNAL OF EDUCATIONAL PHILOSOPHY

**EDUCATION, SECURITY, ECONOMY AND
VIABILITY OF DIGITAL RESPONSE**

VOLUME 33 NO. 1, OCTOBER, 2022

ISSN: 0794-0114

e-ISSN: 2971-5652

Published by

PHILOSOPHY OF EDUCATION ASSOCIATION OF NIGERIA (PEAN)

www.peanpapers.com

Formatted & Printed in Nigeria by



www.timsmek.com | mails@timsmek.com | +234-703-455-989

Knowledge Economy: Implications for Nigeria Education System

Olufowobi, Oludare O.

okikiola2001@gmail.com

08023844317

Quadri, Ayodele Y.

ayodeleq2@gmail.com

08023383489

&

Olu-Obitusin, Grace Damilola

Department of Educational Foundations and Counseling Psychology,

Faculty of Education,

Lagos State University, Ojo, Lagos

080343363309

Abstract

Knowledge economy has become more popular and inclusive in determining the economic prosperity and growth of nations not by supplanting industrial or resource economy but in globalizing knowledge about them and in the process revealing new techno-scientific approaches in their economic processes. This paper examines the nature of knowledge economy, the difference between information and knowledge and the elements of knowledge economy. It also discusses the implications of knowledge economy for education in Nigeria in terms of policy re-orientation, curriculum reorganization, role of higher education and teacher training. Furthermore, it recommends that teacher training, secondary education and higher education should be innovative, technologically driven and problem-solving focused if Nigeria is to benefit from knowledge economy.

Key concepts: Knowledge, Knowledge Economy, Information, Education System

Introduction

Through the ages, there has been an active connection between knowledge, especially its quality and quantity, and the growth and development of economy. Societies have improved from agriculture-based economy to industrial economy as a result of knowledge quality and quantity. Recently, economic growth became driven by high level scientific researches and innovations that have given impetus to global competition as influenced by globalization, improved information flow and its mobility. This has become more relevant because of earth's natural resources depletion which has triggered climate changes. The need to preserve the earth greenness has shifted focus to the application of new knowledge in production lines, better and more efficient usages in agricultural practices, extraction of minerals, manufacturing, services, logistics, management of resources and labour. To this extent, knowledge economy as seen

today represents the active use of technical expertise in problem solving, performance measurement and evaluation, information management and networking, digitalization of global interconnectedness in trans- border and socio-economic engagements.¹ This new direction is driven by new discoveries in Silicon Valley (U.S.A.), in computer technology and adaptive technologies; in Munich (Germany) aerospace and automotive engineering; in Hyderabad (India) bio-tech; in Seoul (South Korea) electronic and digital media and in Brazil petrol chemical and bio-tech energy.² These are the outcomes of the emphasis of education on Science, Technology, Engineering and Mathematics in their core and integrated forms in problem solving which has generated economic gains.

In the present technology driven society, it could be claimed that economic advancement depends on knowledge and the level of its utilization, which is now being referred to as knowledge economy. Knowledge is, therefore, regarded as actively important as capital, land, and other natural resources and labour as a factor of production and source of economic development. Knowledge has become a national asset in competition and advantageous in national economic ratings.

Nature of Knowledge Economy

The World Bank and the Organisation for Economic Cooperation and Development (OECD) present a dual view on the concept of knowledge economy. Both attribute its emergence, first, to globalization in terms of the economic and political project of world economic integration through free trade agreements among nations of unequal economic strength without the constraints of international borders.³ This may be attributed to the development in Information Communications Technology (ICT), digitalized retrieval and analysis of information which reduces physical interaction as it was common in traditional economic transactions. Thus, this form of new knowledge is essential both as input and output in re-arranging and processing of economic activities in an integrative manner as a bouquet rather than in erstwhile linear manner. Second, is the belief that the utilization of knowledge in innovation has become a national determinant of economic prosperity and it is advantageous in comparing national economic strength⁴. Knowledge in its overt application has become instrumental in improving the efficiency of economic activities and processing, marketing and other services both to producers and consumers on a global scale. There is, therefore, the need for improvements in extant skills and the exploration of new skills to produce the required human capital that are steep in the utilization of this new knowledge and its active applications. To this extent, knowledge economy is a meta- cognitive skill that is broad in science and technology and digitalised in terms of unlearning analogue approaches, learning and re-learning digitalization as it relates to problem solving. Knowledge economy requires both formal and informal education facilitated by life-long learning through learning classes and informal groups that could be easily formed and managed within or outside schools. This calls for new incentives

¹ Ojanpera, S., Graham, M., Sraumann, R., Sabbata, S., Zook, M. (2017) "Engagement in the Knowledge Economy: Regional Patterns of Content with a Focus on Sub-Saharan Africa" *Information Technologies and Continental Development*, 13: 19

² Koukoufikis, G. (2016) "Building a Knowledge-driven city: The case of the Gran Sasso Science Institute in L'Aquila, Italy"

³ Peters, M.A. and Humes, W. (2003) "Education in the Knowledge Economy" *Policy Futures*, vol. 1, no. 1, p1

⁴ Peters, M.A and Humes, W. (2003) "Education in the knowledge Economy" p. 1-2

in infrastructural provisions of ICT hardware and inputs, training in software applications and development by the education system, government and other stakeholders such as commercial enterprises and non-governmental agencies.

Knowledge processed as information through ICT could be treated as objective commodities and viewed as a flow of concept and knowledge in terms of 'stock' in economic parlance.⁵ When localized knowledge is put in the mainstream of both theoretical and scientific knowledge it evolves into an economic activity in terms of time saving and generation of financial benefits through more efficient distribution and utilization. This engenders growth in private enterprises and micro communal groups and their inputs to benefit and contribute to the growing global stock of knowledge in order to adapt to local needs and create new knowledge for economic advancements. The efficiency at which knowledge exchange hands from local to global and vice-versa determines the generation of other relevant adaptive utilizations and ideas that drive both local and global economic growth through production processes of better inputs for improved economic gains. Thus, knowledge inefficiency and poor digitalization may retard advancements in nations which greatly affect both short and long terms growth rates. Knowledge economy has been enabled greatly by the virtual collapse of distance, non-territorialisation of the state of investment in human innovations to generate abundance of knowledge which is one of the outcomes of the major reorientations of the traditional connections of education, learning and economy be it in manufacturing or service provision. The OECD emphasized that growing codification of knowledge and its instant transmission through ICT has necessitated the need for employees to acquire skills and continue to adapt to new skills which generate a learning economy. Therefore, one needs to accept the growth and importance of knowledge and technology in networking for innovations for development in all facets of society.⁶

Networking involves knowledge, product distribution and investments through formal and informal connections driven by the internet and ICT to enable digitalized multi-dimensional interactions between producers and consumers of knowledge as reflected in today's content creators, service providers, smart device manufacturers, software and applications providers which have replaced the traditional linear model characterized by one-way slow motion linkages. Digitalised networking has generated quicker responses and instant larger coverage that has larger financial returns for parties involved in transactions. Thus, societies and economic activities are more dependent on not only knowledge production but more on its distribution which has made knowledge intensive sectors such as education, financial institutions, marketing and advertising agencies, telecommunication providers, telephone and related device manufacturers, logistics and software providers the fastest growing sectors of the economy.⁷ It may, therefore, be argued that in educating for knowledge there is the need to shift education processes closer to the economy for the required better understanding of the inner workings of production and manufacturing processes for more innovative applications

⁵ Boettke, P. (2001) http://www.gmu.edu/departments/economics/working/Papers/02_21.pdf

⁶ Organisation for Economic Cooperation and Development (OECD), (1996) *The Knowledge-based Economy*, Paris: OECD

⁷ Peters, M.A and Humes, W. *ibid.*, p.6

both in theory and practice as to encourage more investments in education for higher returns to society and education itself.

Knowledge economy is further differentiated from the traditional industrial economy in that knowledge economy by its nature defies scarcity because it consists in ideas; for once discovered and becomes acceptable, it becomes expanded into different ideations in terms of applications for a variety of associated solutions. In its conceptual form, which is non-material, it mainly does not attract more cost as its use expands even when covered by trade mark protection.⁸ This advantage may not be compared to natural raw materials or commodities that could encounter natural disasters, increase in marginal cost and very short shelf life. However, both are susceptible to orchestrated human interferences such as political and economic competitions, and cyber bullying and attacks in the case of knowledge economy. It should be mentioned that it is not all knowledge economy that contribute to public good. So, some are excluded from certain users or are guided by intricate legal protections of the producers.

Elements of Knowledge Economy

Quah identifies four main elements of knowledge economy.⁹ First, are Information and Communications Technology (ICT) and applications. Second, intellectual property such as patents, copyrights, brand names and trademarks, advertising and promotional concepts and products, financial products and services, medical and paramedical products and services, and education in terms of contents, teaching applications and virtual classroom teaching experience. Third, are e-libraries and databases such as audio visual and broadcast equipment and contents in digital formats and four, traditional and analogue libraries and their databases. These four areas could be argued as the fastest areas of economic growth in knowledge economy as reflected in terms of provision of employment, growth rate and creativity. It could be added that they represent eclectic dimensions and applications that cut across gender, educational levels, location and immensurable adaptations of the same original ideation without depleting it. For example, the quality of a computer programme is not reduced by its multiple uses as it requires no physical material.

In knowledge economy, information is often misconstrued as knowledge. Information could be referred to as opinions, ideas or beliefs about issues or materials which may be true or false. Most times it could be subjective. Information may also be processed data, structured or organized which may help in decision making. Consequently, its quality of processing may be a foundation of what may eventually become knowledge. Knowledge consists in facts, truth, certainty, veracity, testability and objectivity. Its source is very essential in determining the level of its truth value. Thus, one of the major drawbacks of knowledge economy is the tendency to confuse information as knowledge. For its adaptive and theoretical purposes, traditional knowledge, in its dimension, can be categorized as knowledge ‘that’ and knowledge ‘how’. Knowledge ‘that’ consist in theory; both scientific and liberal, and knowledge ‘how’ consist in practical demonstration of theoretical knowledge and, by extension, its application. However, in knowledge economy, other dimensions of knowledge such as know ‘who’ and

⁸ Ibid., p.7

⁹ Quah, D. (1998) Weight Economy, UNESCO Courier, December, p.18-21

know ‘why’ are identifiable¹⁰ which constitute a form of ‘tacit’ knowledge that are not easily codified or measured.¹¹ To know ‘who’ indicates the identification of persons or sources of knowledge and those that need it while knowledge ‘why’ is the level of knowledge application in its adaptability to multiple needs and solutions. As such, tacit knowledge tends to be fluid which depends on dexterity and quality skills that compliment know ‘how’ and know ‘that’. Poor ‘tacit’ knowledge could lead to inability to distinguish between information and knowledge which is one of the banes of knowledge economy as unprocessed information are presented as facts and knowledge on the internet which is the main medium of knowledge economy. In most cases, demands are always for the latest information, not the latest knowledge which tends to lead to the preponderance of fake knowledge. Therefore, there is the need for critical self-awareness, discerning abilities and good awareness of tacit knowledge. The critical need for tacit knowledge is reinforced by awareness that knowledge economy is dominated by powerful nations who push their advantages to objectify the rest of the world in their own value systems through subtle or overt acts of pushing stereotypes and labeling of others as knowledge. This is extended to economic activities that could lead to fraud and uneven advantages as nations and societies with poor knowledge economy are cyber bullied due to poor response power. This is significant in that there has been noticeable increase in ‘desk service’ jobs that relate to finance, and advisory services, advertising, marketing and other business activities where outputs are not physical products that rely on sources from knowledge economy. This may then turn into a web of falsehoods and distortions that could hurt people and economy. To this extent, knowledge economy is fraught with falsehood and only the skillful and well educated could benefit from it. How does this relate to education in Nigeria?

Implications for Education in Nigeria

One of the national goals of Nigeria is the building of a great and dynamic economy for which one of the goals of the education system is the development of appropriate skills and competencies to empower the individual in contributing positively to the society and the national economy.¹² In order to meet these goals, there is need for a paradigm shift in policy orientation, curriculum contents, disposition towards higher education in its linkages to the economy.

There is need for a policy shift by recognizing that in the present world economy, there has been a noticeable swing toward knowledge instead of resources and that knowledge has become a huge factor in both individual and national standard of living. As a part of national economic goals, government should encourage competition, economic enterprise and innovations by being flexible in the creation of markets and partnership with industries in formulating educational policies and contents both on the short and long terms basis. These are expected to be in tandem with the current best global practices with due consideration for the environment which could engender an active connection between education and the economy especially in knowledge creation and sharing. In knowledge economy, know ‘how’ and know

¹⁰ OECD, *ibid.*, p.13

¹¹ Peters, M.A and Humes, W. *op cit*, p.7

¹² Federal Republic of Nigeria (2013) *The National Policy on Education*, NERDC Press, Lagos, p.2-3

‘who’ are becoming more important than know ‘what’ because knowledge acquired through experience actively compliments formal education and lays the basis and base of long-life education which is foundational to knowledge economy.¹³ This kind of practical connection between industry and education facilitates innovations and creativity especially with the revitalization of technical education at all levels. Government policy should aim at correcting the imbalances between know ‘how’ and know ‘what’ by streamlining technical education progression into the university system and a better reward system.

To key into knowledge economy requires the readiness to key into life-long and continuous education and training of learners in order for them to be employable and self-reliant. This entails broadening of the curriculum and expansion of traditional learning programmes into a new synthesis of ICT, core disciplines and developing combination or hybrid specializations to cater for emerging trends in the economy across all educational levels. Secondary school curriculum tends to be traditionally controlled by examination bodies and higher institutions; this explains the rush for university certification instead of encouraging diversities that meet secondary school graduates’ interests and innate abilities through which innovations and creativity could be encouraged. Although, it may be argued that the Junior secondary curriculum catered for entrepreneurship and some diverse technical skill acquisition but these schools are poorly equipped in terms of infrastructure, manpower and management. To this end, secondary school education should be adequately revamped towards skill acquisition driven by e-learning and ICT. This could reduce the rate of drop out and prepare learners for active integration into the workforce.

Higher education may be regarded as central to knowledge economy in terms of its expected roles as research centres, creators of new knowledge and virile intellectual engagements. Nigerian universities should be regarded as producers of knowledge and human capitals for knowledge economy in highly motivated, multi-skilled, innovative tertiary workforce. This infers a closer and strengthened link between higher education curriculum and practice, the economic and industrial sectors. Traditional curriculum characterized by mono disciplines may have to give way to multi-discipline combinations that emphasize knowledge application for problem solving techniques that are useful for self, communal, industrial and governance challenges. Higher education must embrace e-learning and ICT in core and applied knowledge areas to enrich specializations in artificial intelligence, robotics, coding, networking, adaptive new technologies and scientific researches. This new direction is expected to be active, continuous and life-long in practical deployment in association with the economic and other relevant sectors. Higher institutions should diversify funding sources for research by introducing corporate managerial styles, consultancy with industrial concerns both for financial and intellectual gains and gradual privatization of their specialized knowledge.

Teacher education is fundamental to knowledge economy by engaging in new trends in the quality and quantity of teaching, learning and shifting from teacher-centred and traditional methods characterized by narrow range strategies to learner-centred approaches with emphasis

¹³ <http://www.knowledge.gen.nz/>

on teaching for learning with a wide range of teaching strategies.¹⁴ There is the need for the implementation of innovative ICT driven and inclusive learning approaches instead of the standard generalized one method for all teaching approach that is common in the education system, especially the public sector. The required teaching methods should be heterogeneous and eclectic; problem solving in active relevance to the community based cognitive and affective dictates in order to energise creativity. In this approach, teachers should be able to build skill elements that encourage knowledge creation, utilization and diffusion in an interactive manner through networking in the learning environment to encourage life-long learning and knowledge sharing. Teacher education needs extensive professional re-working in tune with the efficient use of ICT, new technologies and new knowledge contents in their training both in core and applied knowledge and practice if teachers are to be the necessary and required change agents for knowledge economy. The necessity and possibilities of this was exemplified in the use of ICT and other digital devices in creating virtual classrooms, teaching and learning during the COVID-19 pandemic. The positive outcomes of these are the further awareness by other sectors of the society of the numerous possibilities of the applications of ICT knowledge in enhancing economic activities.

Conclusion

Knowledge economy may not completely supplant industrial and resource economies but it has become an essential contributor to these economies in terms of adaptive technologies, services and innovativeness especially in artificial intelligence and high mobility of information and knowledge sharing by providing new edge in global competition, development and growth. It has pushed for more concentration of education, especially in higher education, for better technologies and approaches in resource management, manpower production, new curriculum contents and modes of teaching and learning. This could engender the application of this knowledge in creating start up economic businesses locally and internationally across digital divides.

The increase in knowledge economy could raise new ethical challenges concerning the erosion of local culture, norms and value issues due to virtual collapse of boundaries in a globalised world, cyber-attacks and bullying; some of which are becoming manifest among youths and young adults within and outside the school system. The meaning and distinction between information and knowledge are becoming fluid which has made knowledge economy open to abuse and some degree of misuse. However, the need for innovation and creativity is constant, as such; knowledge economy's pace will continue to increase.

It is recommended that teacher education be improved in terms of quality driven by ICT and revamped curriculum content with deep professionalism. In this wise, the minimum teacher training should be increased to a five-year course that consists in three years of deep professional training in colleges of education and a completion of two years training in university for deeper intellectual training, if teachers are to be game changers for knowledge economy. Policy reorientation of the goals of education should be in active connection with economic activities especially in areas of comparative advantage, that is, closer utilization of

¹⁴ Lynch David (2003) 'Education in a knowledge Economy' Articles for Edited Collection EdCA, CQU (2013) <http://www.researchgate.net/publications/25802367> p. 15

education for industrial development through new technologies and digitalization. Higher education should be reorganized as centres for researches, new knowledge in active collaboration with industries and other economic, artistic and cultural sectors of the society.

References

- Boettke, P. (2001) http://www.gmu.edu/departments/economics/working/Papers/02_21.pdf
- Federal Government of Nigeria. National Policy on Education, NERDC Press, Lagos 2013.
<http://www.knowledge.gen.nz/s>
- Koukoulfikis, G. Building in a Knowledge –driven city: The case of the Gran Sasso Science Institute in L’Aquila, Italy 2016.
- Lynch David Education in a Knowledge Economy: Articles for Edited Collection EdCA, CQU (2013) <https://www.researchgate.net/publications/25802367>
- Ojanpera, S., Graham, M., Straumann, R., Sabbata, S., Zook, M. Engagement in the Knowledge Economy: Regional Patterns of Content Creation with a Focus on Sub-Saharan Africa Information Technologies and International Development, 13: 19 2017.
- Organisation for Economic Cooperation and Development (OECD). The knowledge –based Economy, Paris: OECD, 1996
- Peters, M. A and Humes, W. Education in the Knowledge Economy. Policy Futures, vol. 1, no 1 2003.
- Quah, D. A. Weightless Economy, UNESCO Courier, December, 1998.