Education & Science Journal of Policy Review and Curriculum Development | ESJPRCD | *Vol. 7, No. 1*
ISSN Print: 2315-8425 | ISSN Online: 2354-1660 | *September, 2017*

Higher Education Institutions under Pressure in Nigeria for Knowledge-Based Economy

[1]Jonathan E. Oghenekohwo & [2]Irene U Berezi
[1&2]Department of Educational Foundations
Wilberforce Island, Bayelsa State Nigeria

Abstract

All knowledge economies are driven by research, creativity and innovation as outcomes of higher education. How much of such outcomes depend on the contextualization of higher education institutions which, among other things are to drive the core and critical innovations that are basic to the attainment and sustenance of knowledge-based economy. Knowledge is power and in a globalised and competitive world, higher education institutions are seriously under pressure to attract and sustain funding, relevant students, qualified staff among others, so that these institutions can undertake high quality impact research.. The pressure exerted on higher education institutions affect systems processes and structures thereby impacting significantly negatively on governance and institutional management. This paper therefore holds that failure to situate higher education, particularly university education institutions in Nigeria, on a secured financial footing can result in institutional, departmental and subject-unit failures with concomitant redundancies in cutting edge research outputs that compromise the drive for a knowledge-based economy. The paper addresses how the pressure to produce high quality and high impact research outputs can be attained and sustained given the fact that excellence in research depends on competitive remuneration, high-class research facilities and definite but flexible work environment for the growth of a knowledge based economy. Definitely, higher education institutions are under pressure and this is the focus of this paper in the light of the growing challenges of a knowledge-based economy for accelerated but sustained knowledge driven development in Nigeria.

Keywords: *Economy, Higher education, Institutions, Knowledge, Under pressure*

Corresponding Author: **Jonathan E. Oghenekohwo**

http://internationalpolicybrief.org/journals/international-scientific-research-consortium-journals/edu-and-sci-jrnl-of-policy-review-and-curriculum-dev-vol7-no1-september-2017

Background to the Study

As may be recalled, all knowledge economies according to Brinkley (2006) are information and service based as driven by research, innovations and inventions which are the products of higher education institutions. Thus, Bhola (2006), noted that education is development. As such, development that is educationally derived must be premised on research outcomes as characterized by innovations and inventions which define the course of a knowledge-based economy. Knowledge is power and in a globalized competitive world order, higher education institutions are under pressure to attract funding, appropriate students, qualified academics, partnership and exchanges to perform high market oriented research. Consequences of this pressure include but not limited to systems failure, failed programme accreditation, inept institutional governance and management of academic and professional ranking coupled with low international outlook in development performance ratings.

An examination of various components of knowledge economy as put together (Brinkley, 2006) show how critical higher education institutions remain as the core of the context. To the Organization for Economic Cooperation and Development (1996), "the role of knowledge (as compared with natural resources, physical, capital and low skill labour) has taken on greater importance. Although the pace may differ, all OECD economies are moving forward towards a knowledge-based economy." In a report presented by Charles Lead beater 1999, it was noted that, the idea of a knowledge driven economy is not just a description of high tech industries, it describes a set of new sources of competitive advantage which can apply to all sectors, all companies and all regions, from agriculture and retailing to software and biotechnology.. Another view presented in Kok report (2004) as cited in Brinkley (2006) states that, the knowledge society is a large concept than just an increased commitment to research and development. It covers every aspect of the contemporary economies where knowledge is at the heart of value added from intensive services to the overtly creative industries such as media, architecture. and information. In a knowledge economy, the stock of ideas and knowledge are not only generated by higher education activities, but such stock and ideas can be accessed by firms and organizations globally via the internet as a super high way for knowledge dissemination over space and time for services.

Main features of knowledge economy, in the submission of Brickley (2006), are as follow:
Knowledge economy represents a "soft discontinuity" from the past it is not a "new" economy operating a new set of economic laws.

i. It is present in all sectors of the economy, not just the knowledge intensive industries.
ii. Presence of high and growing intensity of Information Communication Technology (ICT) usage by well-educated knowledge workers.
iii. A growing share of Gross Domestic Products (GDP) devoted to knowledge intangibles compared with physical capital.
iv. The knowledge economy consist of innovating organizations (higher education institutions) using new technologies to introduce process, organizational and presentational innovation.
v. Knowledge economy organizations reorganize work to allow them to handle, store, and share information through knowledge management practices

Concept of Higher Education in the Context of Knowledge Economy's

There are linkages among higher education, globalization and knowledge economy. (Scott, 1998) Higher education is characterized by research output which is central to the formation of

global market environment, being fundamental to knowledge, take-up of technologies, cross-border partnerships and sustenance of complex networks of environments. Though higher education institutions often see themselves as objects of globalization, they are in the view of Scott (1998), the agents of globalization. Hence, while there is a general trend to increased international engagement of higher education, the actual level of engagement for knowledge economy capacity vary markedly between nations and regions (Marginson, 2007).

Today, major research inclined higher education institutions are among the key sites and drivers of globalization all over the world and most often, primary agents in opening up their nations' knowledge space to global academic and research engagement. Castells, (2001), McCarney, (2005) reported that higher education institutions are intensively connected between the global cities that constitute the modes of a networked space. This informs the view of Marginson (2007) that higher education fix into the context of global cities that have a high density of participation in research, and there is a strong positive correlation between higher education enrolment ratio of a nation or a region, and it global competitive performance.

Higher education institutions are consequently greatly immersed in global environments and as such, research in higher education is being transformed on both sides of the economy driven by knowledge. In this respect, Marginson & Rhoades (2002) believed that the increasingly globalized character of research, knowledge and higher education brings with it complex changes at interface between the higher education constitutions, the nation and the global dimension in a competitive order. So, higher education and knowledge economy are simultaneously global, national and local..

These characteristics are associated with and derived from higher education institutions as it is only through a global space of research and development that an economy can be attributable to a knowledge economy. These features also correlate with Frendenburg (2003) reference to Organization for Economic Cooperation and Development (OECD) three groups of indicators that closely relate to innovation measures, namely: the generation of new knowledge; industry-science linkages; and industrial innovation and technology diffusion representing the globalization space of higher education at global, national and local spaces.

i. **Generation of New Knowledge:** Research and development (R&D) performed by higher education institutions consists as a share of GDP; non-business researchers per 10,000 labour force; basic research as a share of GDP; PhD graduation in science, engineering and health; scientific/technical articles per million population.

ii. **Industry-Science Linkages:** Business financed by (R & D) performed by public sectors as % of GDP; scientific papers cited in global issued patents; publications in most industry relevant scientific disciplines per million population

iii. **Industrial Innovation:** Business funded share of GDP; business researchers per 10,000 labourforce: patents in "triadic" patent families per million population; share of firms with new or technologically improved products and processes.

Given the above, it is obvious that higher education institutions are still very distant in space and time from situating Nigeria in a knowledge economy landscape. This stance is evident because, knowledge economies are "those which are directly based on the production, distribution and use of knowledge and information (OECD, 1998). Such economies are

service-based and as Drucker (1998) wrote, other than the agricultural-intensive economies and labour-intensive economies, the global economy is in transition to a knowledge economy as an extension of an information society which facilitates creativity and innovation. Thus, one is of the view that a knowledge economy is a literate economy which enhances the creation, requisition and utilization of knowledge, which is then translated into over all development. As such, be it, less-developed, developing and developed economies, literacy is a critical factor to the changing dynamics in all agriculture, manufacturing and service-based economies. All these are driven by higher education institutions and this is justifies Bhola (2006) stance that education is development.

Issues of Research Concerns

At the heart of the twenty-first century exit growing development challenges, which placed higher education institutions under pressure, particularly in Nigeria. These challenges include, but not limited to, deficit in software and hardware learning infrastructure of high impact research activities, degraded instructional and learning facilities, low quality assurance, poor work environment, inadequate funding, poor remuneration, corruption, among others, which have excluded most higher education institutions from global competitiveness and comparative advantage in teaching, research, knowledge transfer and international outlook. These challenges undermine the creation, growth and development of transferable knowledge which is needed for development and this becomes a justification for the quest for a knowledge economy which Nigeria must embrace. Unfortunately, higher education institutions which are expected by design in their vision and mission to drive these goals are incapacitated by deficit in learning infrastructure which placed higher education institutions under pressure for knowledge driven research and development.

Based on the dynamics and context of knowledge-based economies and higher education provided above, it is plausible to situate higher education institutions in Nigeria as being under pressure or otherwise. For example, in the World University Rankings 2016-2017 published on the 5th of September, 2016, there are 13 carefully calibrated performance indicators to provide the most comprehensive and balanced measures trusted by students, academics, university leaders, industry and governments to determine the status of higher education institutions in response to the sustenance of knowledge economy. The performance indicators used are grouped into five domains, namely:

(i) Teaching (the learning environment)
(ii) Research (volume, income and reputation)
(iii) Citations (research influence)
(iv) International outlook (staff, students and research)
(v) Industry income (Knowledge transfer).

In definitive terms, if the above indicators define the standards for measuring a knowledge driven economy through higher education institutions, it is basic to assert that higher education institutions in Nigeria are under pressure of teaching, research, citation, internationalism, industrial relevance, and funding, among others. Besides, most higher education institutions lack comprehensive funding by public ownership to sustain their vision and mission statements.

The funding deficit for over forty decades has compromised the generation of new knowledge, reduced industry-science linkages; and truncated industrial innovation and technology

diffusion. It is therefore certain that higher education institutions are under pressure for a knowledge-drive economy in Nigeria and these constitute issues of research concerns in this presentation.

Research Objectives

Specifically, this paper establishes: (i) the nature of pressure that higher education institutions are faced;(ii) provides indicators expected of higher education institutions to situate in global knowledge economy;(iii) status of higher education performance ranking; and (iv) the justifications for the placement of only one university in Nigeria on the 978$^{t\ p}$osition in the 2016-2017 global higher education institutions ranking within the context of a drive for a global competitive knowledge economy.

Methodology

This study adopted the qualitative research method that relied on secondary sources of data, such as: documentaries and reports of institutionalized researches. These were subjected to critical review and analysis before inferences and implications were drawn to establish the perspectives on pressure that higher education institutions are faced in the light of the global demand for a knowledge economy in Nigeria.

Findings

Higher Education Institutions Under pressure: Nature and Perspectives

The first issue of concern in this presentation is the nature of pressure that higher education institutions are faced with for knowledge economy in Nigeria. This issue is considered from the perspective of the environment in which higher education institutions operate. Environment implies the enabling laws, policies, and framework under which an institution operates.. As evident, the major public interventionist agency of higher education institutions in Nigeria is the Tertiary Education Trust Fund (TETFUND). As provided for in section 7 (i) a-e of the TETFUND Act of 2011, the agency is to administer and disburse the amount in the fund to federal and state tertiary educational institutions, specifically for the provision and maintenance of:

(i) Essential/physical infrastructure for teaching and learning;
(ii) Instructional materials and equipment,
(iii) Research and publication;
(iv) Academic staff training and development; and
(v) Any other need, in the opinion of the Board of Trustee (BOT), critical and essential for the improvement of quality and maintenance of standard in the higher educational institutions.

These are well thought-out specific objectives that should place higher education institutions in Nigeria on a global competitive or comparative edge in development. It is also reported that in order to deepen academic content, quality and excellence, there is the institutionalization of research and development (R & D) in all tertiary institutions to interface between research findings and industries which are to use the appropriate research outputs to be developed as products and technology relevant to local and national needs,(and not global) as specified. This is a deficit in national development expectations

Therefore, it could be inferred that right from the onset, the agenda and template set by the funding or interventionist agency for higher education institutions have been programmed for

local and national needs without recourse to global market demands, even though Nigeria is situated in a global space and time of development. As such, with the influence of globalization and all the indices of knowledge economy, the content of local and national needs become stiffened without deliberate efforts to navigate through the local and national needs for a global landscape of competition in higher education institution activities.

There is no doubt that many international donors have acknowledge the importance and contributions of higher education to economic development (Koehn, 2012) Yusuf, Saint and Nabeshima, 2009) and global knowledge economy (Brinkley, 2006; OECD, 1996). However, recent reports and documentations on the state of higher education, particularly university-industry linkages in Africa showed that higher education institutions are still very distant from knowledge based economy. (Koehn, 2012)

From the reports presented by the Association of African Universities (AAU, 2012, cited in Bogoro,2015), it is obvious that:

(i) University research output is limited by the low percentage of academic staff with Ph.D training and qualifications and brain drain of qualified scientists;
(ii) Many African universities have attempted to foster linkages with firms through the creation of offices and staff positions in charge of such affair;.
(iii) There is a low number of science parks and technology incubators in academic institutions. Only a small percentage of African universities surveyed reported being involved in managing science parks and engaging in technology transfer; and
(iv) The report suggest that support for establishing and managing business incubators and science parks would respond to the needs and priorities of African universities.

These deficits deviate higher education institutions from global knowledge environment because, first, there are institutional limitations to essential physical infrastructure for teaching and learning as evident mostly in poor funding and maintenance culture respectively; secondly, there are deficits in the provision and supply of instructional materials and equipment; third, research and publication are ineffectively generated through poor funding; and four, academic staff training and development are unevenly distributed. The consequences of these are that, higher education institutions, become extremely localized as attended with attendant low confidence rating, weak institutional capacity, lacking in strong leadership for global outlook, among other structural causes of performance limitations which place higher education institutions under pressure for a knowledge based economy.

Higher Education as Influencer of Globalization and Knowledge Based Economy

Higher education, in the view of Marginson (2007) is closely implicated in globalization activities. Education and research are key elements in the formation of the global environment being foundational for knowledge the take-up of technologies, cross-border association and to sustaining complex communities. Since higher education institutions are deeply immersed in global transformations, higher education and research in higher education are being transformed on both sides of the economy and culture reciprocity. Thus, higher education is not only a second level player in the circuits of capital and direct creation of economic wealth; it is also a pivotal to research and knowledge, constitutive in language, information and cross-cultural encounters, which haves many connections with media and communications. In this respect OECD (2005) reported that, information and knowledge are highly mobile, reading slipping across borders, so that the cultural sphere of higher education, in which research and

information are produced, is actually more globalized than the economic sphere. Arising from this context, it is real that the increasingly globalized character of research and knowledge brings with it complex dynamics at the interface between higher education institutions, nation and the global environment which place higher education institutions under pressure for knowledge economy.

Excellence in Higher Education and Knowledge Society

A central theme on how higher education influences globalization and knowledge economy is through excellence. Educating large numbers of people to a high standard and disseminating knowledge can be considered as the main objectives of today's higher education institutions. Since the stakeholders (students, administrators, faculties and various public entities) are from diverse sectors of society, it makes higher education institutions very complex, demanding and competitive. (Altback, 2004; European Foundation for Quality Management, 2013).

To influence a knowledge-based economy, there must be excellence in higher education provision. This is defined fundamentally as exhibiting characteristics that are exceptional, enshrined in quality and result oriented. For higher education institutions to drive a knowledge economy, Freudenberg, (2003) stated that the EFQM (2013) refers to the attainment of excellence is crucial in terms of outstanding or as a quality that surpasses a defined threshold in academic variables of quality and standards when compared with others.

In the view of vertically differentiated systems of higher education, excellence according to EFQM is equated with characteristics of leading international universities such as:

(i) Excellence in research
(ii) Excellence of top quality professors
(iii) Favourable working conditions
(iv) Job security good salaries and benefits
(v) Adequate facilities
(vi) Adequate funding, including predictability year to year
(vii) Academic freedom and an atmosphere of intellectual excellence
(viii) Faculty self-governance.

It is obvious that higher education institutions in Nigeria are bereft of most of these elements of excellence which place these institutions under pressure for a knowledge driven economy. In a related excellence model, the European Foundation for Quality Management (EFQM, 2013) establishes broad criteria, which any organization (including higher education institutions) can adopt to assess the progress towards excellence. These are:

(I) **Leadership:** excellent leaders of institutions develop and facilitate the achievement of the mission and vision. Institutional values and systems are developed as required for sustainable success through actions and behaviours.

(ii) **Policy and strategy:** excellent institutions implement their vision and mission by developing a stakeholders-focused strategy that takes account of the immediate and global environment. Policies, plans, objectives and processes are developed and deployed to deliver the strategic options.

(iii) **People management:** excellent institutions manage, develop and release the full potential of their agents at an individual, team-based and organizational level. They

promote fairness, equality and engage and empower their people. Such institutions care for, communicate, reward and recognize in a way that motivates staff and builds commitment to using their skills and knowledge for the benefit of the institutions.

(iv) **Partnership and resources:** excellent institutions plan and manage external partnerships, suppliers and internal resources in order to support policy and strategy and the effective operation of processes.

(v) **Process management** : excellent institutions design, manage and improve processes in order to fully satisfy and generate increasing value for stakeholders.

These indicators of excellence are very doubtful in exhibition by higher education institutions in Nigeria. Yet these factors of excellence predict higher education institution's inclination to knowledge based economy. The emphasis now is on excellence in research, teaching, student performance, and practice. Globally, criteria for excellence in higher education institutions as reported by Higher Education Statistic Agency (2014), must be accepted as a baseline for situating higher education institutions in terms of readiness for a knowledge based economy. According to the HESA (2014) report, an institution that make claim to be excellent would be expected (as a predictor) to provide evidence that meets the following conditions:

(i) **Rebust and progressive strategic governance and management:** such institution may be expected to demonstrate a strong commitment to excellence in institutional mission and purpose.

(ii) **High standards of academic achievement:** a key measure of the excellence in higher education institution is the academic performance of students and staff in degree studies and research respectively. An institution's excellent reputation is determined by the achievements of the students and staff.

(iii) **A strong track record in student destination:** another way of assessing the performance of higher education institution in terms of knowledge economy is to consider the success of students in securing employment and pursuing career opportunities or further studies.

(iv) **An exceptional student experience:** excellence can be attained for high quality teaching and learning, and student support, including learning resources.

(v) **Positive stakeholder satisfaction:** the concept of excellence is linked to the perceived performance of institutions as evaluated through feedback from stakeholders.

(vi) **High levels of student satisfaction:** a significant group of stakeholders are the students themselves. Excellence are measured in terms of the services provided to students and their satisfaction with the quality of their learning experience.

(vii) **Commitment to research and academic development:** an excellent institution would be expected to demonstrate evidence of a well-funded, vibrant academic community involving academic staff, researchers and students. Academic staff development must be evident and the quantity and quality of research activities or inactivity.

(viii) **Support for social, economic and cultural development:** one function of higher education institution is to promote and sustain social, economic and cultural development, meeting the needs of the local and regional community and fulfilling their missions through curriculum development, applied research, knowledge transfer and social welfare. Higher education institutions are recognized as a "social good" fostering intellectual development, technical skills and promoting the values of equity, inclusion, and citizenship.

(ix) **Recognition of the social benefits of education:** a key function of higher education is to foster the values of a civilized society and to promote social mobility and social justice. An excellent institution showcases commitment to social and cultural inclusion and to widening participation to all who have the ability and motivation to benefit from the experience.

(xi) **Commitment to internationalization:** excellent institutions promote a global perspective as part of their mission and purpose to recognize the importance of competing on a world stage and engaging in the development of an international knowledge economy.

(xii) **Commitment to the value of objective enquiry:** and to the pursuit of knowledge, without the restraint of political determination or other form of intervention.

These criteria reflect the features of excellent higher education institutions. Again, we are concerned that most of these conditions are in deficit with reference to higher-education institutions in Nigeria and therefore submit that higher education institutions are seriously under pressure for a knowledge economy. Until excellence is achieved in contents and contexts, higher education institutions in Nigeria remain under pressure for a knowledge driven economy, as this is principally a subject of excellence in activities.

Challenges of Higher Education Institutions towards Knowledge- based Economy

In a paper presented at the convocation activity of the Federal University of Technology, Owerri, Bogoro (2015) itemize series of contending challenges faced by higher education institutions, particularly, universities with reference to university industry linkages. These challenges as earlier noted by Bamiro (2004) constitute obstacles to the drive for a knowledge based economy. Among other things, institutional barriers, nature and size of national economies and research infrastructure, cultural gaps between higher education and the private sector, absence of confidence in universities as models of higher education, fragile institutional capacity to leverage on existing knowledge and development opportunities and absence of strong leadership for university- knowledge economy linkages, account for the decay in higher education excellence in Nigeria.

To this extent, higher education institutions are just important parts of the modern innovation process, but not as its drivers. Secondly, higher education's concern is "useful knowledge of the present and future" But as it is today, the future is predictive and known in terms of its economic knowledge demand. This is the reason among others why higher education institutions now set up excellent quality assurance and performance standards, benchmarking its progress in space and time for a knowledge economy.

Recently, the Times Higher Education World University Rankings 2016-2017 gave the list of 980 top universities in the world, making it the biggest international league table till date. As the only global university performance table that judges world class universities, based on their core missions of teaching, research, knowledge transfer and international outlook, it is worrisome to note that, only the University of Ibadan, Ibadan was listed on the 978th position. Our reference to this ranking is to justify the extent of higher education institutions deficit readiness to drive a knowledge economy in Nigeria. In the 2016 Academic Reputation Survey (ARS) five indicators were used as variables of standardization. These indicators are:

(I) Teaching (the learning environment) with scores attributed to reputation, staff-to-student ratio, doctorate-to-bachelor's ratio, doctorates-awarded-to-academic-staff ratio and institutional income.
(ii) Research (volume, income and reputation), research productivity.
(iii) Citations (research influence), universities' role in spreading new knowledge and ideas.
(iv) International outlook (staff, students, research) with emphasis on international-to-domestic-student ratio, international-to-domestic-staff ratio, and international collaboration.
(v) Industry income (Knowledge transfer) with focus on university's ability to help industry with innovations, inventions and consultancy as a core mission of the contemporary global academy. These variables seek to capture such knowledge-transfers activity by establishing research income that an institution earns from industry as scaled against the number of academic staff it employs.

Given these variables that project higher education institutions on a global pedestal of comparative efficiency, it is obvious that the challenges facing higher education institutions in Nigeria already scaled down the comparative efficiency of these institutions. The implication is that, higher education in Nigeria is under pressure for a knowledge economy.

Conclusion and Recommendations

This paper has addressed higher education institutions in Nigeria within the context of a drive for knowledge economy. Given the fact that higher education institutions in Nigeria do not seem to possess the variables of comparative efficiency in teaching, research, citations, international outlook and industry income, due to structural, institutional, leadership and infrastructural deficiencies, it is obvious that higher education institutions in Nigeria are under pressure for knowledge based economy. It is therefore recommended that excellence be the core of higher education functioning. The limitations of higher education institutions in Nigeria can be mitigated by instituting constitutional restructuring decentralization and leadership. The economic, political and social structure of Nigeria must be constitutionally re-defined in terms of justice, equality, fairness, and excellence. This will translate to drastic redefinition of the vision and mission of higher education in Nigeria. Such measures are the appropriate strategies for liberating higher education institutions from the current systemic deficits in teaching, research, citations, international outlook and knowledge transfer. Certainly, higher education institutions are under pressure in Nigeria for a knowledge economy.

References

Altbach, P.G. (2004). The costs and benefits of world-class universities. *Academe, 90* (1), 20-23

Bamiro, O.A. (2004). University-industry partnership in the innovation process: cases from Nigeria and Ghana. *Proceedings of the Regional Conference on Innovation Systems and Innovation Clusters in Africa.* Darr-es-Salaam, Tanzania.18-20 Feb. Pp. 341-366

Bogoro, S.E. (2015*). Enhancing the relevance of research and industry partnership in Nigeria: A case for new strategies*. Convocation Lecture delivered at the 2015 convocation ceremony of the Federal University of Technology, Owerri. 3rd December.

Bhola H. S, (2006). Access to education: A global perspective. In A.S Oduaran and H.S. Bhola (eds.). *Widening access to education as social justice*. Essays in honour of Michael Omolewa. The Netherlands. Springer

Brinkley, T. (2006). *Defining the knowledge economy.* Knowledge economy programme report. London: The Work Foundation

Castells, M. (2001). *The Internet galaxy: Reflections on the Internet, business and society*. Oxford: Oxford University Press.

Drucker, P. (1998). From capitalism to knowledge society. In, D. Neef (ed). *The Knowledge Economy.* Wobum M.A. Butterworth.

European Foundation for Quality Management (2013). *Modelo EFQM de excelencio.* Bussels: European Foundation for Quality Management.

Freudenberg, M. (2003). *Composite indicators of country performance: A critical assessment*. OECD STI working papers 2002/16.

Higher Education Statistics Agency (HESA) (2014). https/www.hesa.ac.uk

Koehn, P.H. (2012). Donors and higher education partners: a critical assessment of US and Canadian support for transnational research and sustainable development. *Compare*, *42* (3), 485-507.

Kruss, G, Adeoti, J. & Nabudere, D. (2012). Universities and Knowledge-based development in Sub-Saharan Africa: comparing university- firm interaction in Nigeria; Uganda and South Africa. *The Journal of Development Studies, 48*(4), 516-530.

Marginson, S. (2007). Higher education in the global knowledge economy. *Procedia Social and Behavioural Science, 2* (2010), 6962-1980.

Marginson, S. & Rhoades, G. (2002). Beyond national states, markets and systems of *higher* education: A gonadal agency heuristic. *Higher Education*, 43, 231-309.

McCarney, P. (2005). Global cities, local knowledge creation: Mapping a new policy terrain on the relationship between universities and cities. In G. Jones; P.McCarney & M. Skolnik (eds.), *Creating Knowledge: strengthening nations: The changing role of higher education.* Toronto: University of Toronto Press. Pp. 205-224

Organization for Economic Cooperation and Development, OECD (1996). *Employment and growth in the knowledge based economy*. Paris: OECD

Organization for Economic Cooperation and Development, OECD (2005). *E-Learning in tertiary education: Where do we stand?* Paris: OECD.

Scott, P. (1998). Massification, internationalization and globalization. In P. Scott (ed.). *The globalization of higher education.* Buckingham: The Society for Research into Higher Education/Open University Press. Pp. 108-129.

Yusuf, S. Saint, W. & Nabeshima, K. (2009). *Accelerating catch-up: tertiary education for growth in Sub-Saharan Africa.* Washington D.C: The World Bank. https://www.times highereducation.com/sites/default/files/the-world-university-rankings,2016-2017, methodology.large.jp8