

CONCEPTUALIZING RESEARCH AND INNOVATION: ISSUES AND IMPLICATIONS FOR HIGHER EDUCATION RESEARCH AND PUBLICATIONS IN AFRICA

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Introduction

The quest for change, improvement and competitiveness characterize individual, institutional and state endeavours in today's world. This is largely because globalization and liberalization of the world economy has presented both opportunities and challenges to political leaders, providers of education and training services, recipients of those services, as well as other individuals and social groups. Among opportunities created by a globalized and liberalized world economy, underpinned by rapid technological developments, are an expanded market for goods, services and skills; a more efficient and cheaper system of transport and communications which promotes the volume and pace of information flow across national and disciplinary boundaries; and an environment that demands continuous adaptation and innovation thereby reinforcing the need for a culture that embraces creativity, cutting-edge research and lifelong learning as its important elements. However, these opportunities translate into numerous challenges and varying degrees of anxiety among various players in both developed and developing countries. Lee (1996) has identified four sources of anxiety over the effects of globalization. First, globalization unleashes new international competition from newly industrialized countries against established economies. This leads to rising unemployment and a fall in relative wages among unskilled workers. Second, it is feared among developing countries (and rightly so) that liberalization has and will progressively continue leading to job losses and rising wage inequality. Third, globalization of labour markets erodes wages and labour standards. Fourth, globalization leads to a loss of national policy autonomy, and renders governments especially in developing economies, impotent.

Globalization, however, as an analytical concept has attracted no common understanding among academics and various other interest groups. Robertson (1992: 8) perceives globalization as a process involving the compression of the world in terms of time and space, as well as the intensification of consciousness of the world as a whole. According to this conception, globalization is seen as a process that makes communication instantaneous and encourages people to think in global terms. But Currie (1998) posits that globalization is a market ideology underpinned by a corresponding set of practices drawn from the world of business. Advocates of globalization, he argues, argue for deregulation or liberalization of economies, privatization of social services, and slimming the power and size of governments. In this way, the supremacy of the market is portrayed and propagated as a natural and value-free factor beyond the reach of critique because of its independent qualities, namely, that the market is neutral, objective, free

and ungovernable. In contradiction to this position, according to Bombois (2000), globalization is the project of the elite to erode the sovereignty of nations in order to consolidate their power and privilege and fill their own pockets regardless of what happens to others, especially the poor. This conception portrays globalization as a project that has been carefully designed to manufacture both poverty and wealth and apportion the same to individuals and nations. Others like Johanson (2004) view globalization as the increasing integration of economies around the world, especially in terms of trade and financial flow as well as labour and knowledge. For the purpose of this paper which seeks not to interrogate the impact of globalization but the contextual setting presented by globalization for the higher education enterprise, globalization is understood as those forces, principles and practices that attempt to direct and shape the economic, social and cultural lives of individuals, higher education institutions, communities and nations into an attenuated globe comprising of either boundless villages or villages with perforated boundaries.

However, whether one conceives globalization theoretically as a neutral and inevitable process, a market ideology, a disguised project of the elite, an integration of world economies, or simply as a set of attenuative forces, principles and practices, it makes little difference to the practical challenges that globalization poses to African nations generally and to the role of higher education in Africa specifically. Indeed, one of the major effects of globalization has been a reinforcement of the quest for change, improvement and competitiveness. It is now recognized and appreciated that in the present knowledge society, which is underpinned by rapid technological changes, a clash and fusion of cultures as well as fierce competition for markets in relation to skills, goods and services, embracing change is a necessary though not sufficient condition for one to remain relevant. But change, whether supply or demand driven, largely depends on the generation, conversion and diffusion of new and relevant knowledge. Moreover, research and innovation are at the core of knowledge generation and its conversion or practical application to the betterment of social life, while higher education institutions (universities in particular) are largely the principal custodians of knowledge production and social re-engineering. Accordingly, research and innovation should be accorded high priority on international, national and institutional development agenda. But what is research and innovation? What are the critical issues relating to higher education research and innovation in Africa? What are the underlying implications for a future agenda for higher education research and publications in Africa, and how should these inform the future thrust for publications of the Kabarak Journal of Research and Innovation? This paper addresses these questions by providing a conceptual analysis of research and innovation, identifying and examining the critical issues relating to higher education research and innovation in Africa – particularly the factors that may enable or constrain research and innovation, and explores implications of these for what could be the future agenda for higher education research and innovation. The paper then concludes by arguing that the Kabarak Journal of Research and Innovation should position and orient its future thrust for publications in a way that significantly influences not only the research agenda but also public policy on research and innovation in Africa.

Research and Innovation: Meaning and Purpose

Research and innovation are two different but interrelated concepts. Both concepts may be viewed as the response to and driver of desired change. This is because research and innovation may be necessitated by the pressure for change (and therefore be responses to change) or may

induce/introduce change (and therefore be drivers of change). Research is the systematic generation of knowledge or other types of evidence either for its own sake or for various purposes such as satisfying curiosity, correcting misconceptions, enhancing understanding of the social, natural or physical phenomena, and improvements in environment and human life. In this respect, research is often categorised either as pure research, where the main focus is generation of knowledge for its own sake without specific regard to the uses and applications, or applied research where the ultimate concern is the practical application of the knowledge generated or gained. However, innovation refers to the introduction of new ideas, goods, services and practices, with the primary purpose being improvement. According to Cabral (1998), innovation with regard to a particular network would refer to a new element introduced in the network which changes the costs of transactions between at least two actors, elements or nodes in the network, whether that change is momentary or lasting, provided it is a positive change. Innovation may be geared towards increasing productivity, competitiveness and productivity or simply addressing a changing external environment in terms of supply and demand conditions (UNCTAD, 2007). According to UNCTAD, the pillar for innovation is technological learning and this entails the development of capabilities to use and improve technologies.

Although UNCTAD takes a more scientific and technological view of research and innovation, it does provide useful (though potentially contestable) insight on what may affect innovation and technological learning as well as where technological learning occurs. Specifically, it rightly argues that the enterprise (firm or farms) is the locus of innovation and technological learning, but equally recognizes the fact that firms and farms are embedded within domestic knowledge systems which may enable or constrain the creation, accumulation, use and sharing of knowledge (UNCTAD, 2007:8). This observation, in the context of this paper, has implications on the research focus for higher education, in particular, the need to investigate organizational processes related to the organization of work, management, control and coordination as well as domestic knowledge systems that may impede or promote technological learning and innovation.

From the foregoing brief discussion, it is evident that research and innovation are or should be intertwined. Accordingly, we concur with Kearney (2009:10) who has pointed out that knowledge generated by research is the basis of sustainable development, and that in order to attain such development attention must be paid to three key dimensions, namely: placing knowledge, including high level scientific knowledge, at the service of development; converting knowledge, in all its forms, into value via applications and impact assessment; and sharing good practice to ensure widespread benefits. As already pointed out therefore, research and innovation should be prioritized by individual researchers, institutions and African states as one of the key strategies for enhancing Africa's competitiveness in the global knowledge society. But what are the critical issues relating to higher education research and innovation in Africa – particularly the factors that may enable or constrain research and innovation – which the various actors must be aware of and content with? These are examined in the next section below.

Higher Education Research and Innovation: Underlying Issues and their implications

Virtually all universities in Africa have, as part of their core mission, embraced teaching research and community service. Traditionally, higher education institutions, in particular universities, were perceived by the public as icons of research and innovation. However, this perception has rapidly shifted as universities face mounting challenges that partly flow from

pressures of globalization as well as changing priorities of governments and industry. For instance, available evidence suggests that most companies no longer perceive universities as their most important source of technology acquisition. As it has been pointed out:

Evidence from investment climate surveys indicates that in recent years only 0.4% of the companies considered universities or public institutes the most important channel for technology acquisition, and only 3.4% of the firms reported that universities and public institutes were their first-most, second-most or third-most important source of technology acquisition. (UNCTAD, 2007:57).

This decline in perception of the role of universities in driving and/or influencing technological innovation exists and persists concurrently alongside the increasing recognition and affirmation of the role of research and innovation in accelerating economic development and enhancing a nation's global competitiveness. What therefore are the critical issues underlying higher education research and innovation that researchers, institutions and states must take cognisance of in order to promote the much espoused research and innovation in Africa? As one may rightly infer, such issues could be numerous. However, for purposes of this paper, we highlight five critical issues which relate to: systems, structures and policies for research and innovation; recognition and promotion of excellence in research and innovation; focus and beneficiaries of research and innovation; research capacity and access to research findings; and role and contribution of Africa's higher education institutions to the global knowledge society. Our analysis is largely informed by and borrows from the work of Mary-Louise Kearney (2009). Each of these issues is examined below.

Appropriateness of systems, structures and policies for higher education research and innovation

Research and innovation rests on and may be enabled or constrained by existing systems, structures, and policies. But the issue is which type of systems, structures and policies best promote higher education research and innovation? What should be the nature and scope of such policies? For Africa particularly, should such systems, structures and policies be premised on the assumption that technological innovation should primarily occur through the acquisition, diffusion and upgrading of technologies that already exist in more technologically advanced countries and not by pushing the global knowledge frontiers further, and that therefore the key to Africa's technological progress lies in playing the technological catch up game? Which systems, structures and policies should African countries develop and implement that could re-orient key sectors such as Kenya's Jua Kali enterprises (Barasa and Kaabwe, 2000) and most higher education institutions from being catch-up players to being undertakers of research and development with a focus not only on innovation but also on inventing products and processes that would be totally new to the world?

Although it has been argued that "there exists no single answer as to what constitutes the most appropriate systems, structures or policies for higher education, research and innovation" (Kearney, 2009:10), such argument does not negate the need for continuous and intensified search for answers to questions such as what policies promote technological learning, research and innovation, and what is the role of policy in promoting technological learning, research and innovation? Instead, Kearney's argument reinforces the need for researchers to interrogate the systems, structures and policies that would best promote higher education research and

innovation, with specific reference to different regional, national and cultural contexts. Findings flowing from such research should then be widely shared and debated at both continental and global level. The *Kabarak Journal for Research and Innovation* would then be an ideal instrument for promoting such research and global debates through formulation and enforcement of appropriate publications and editorial policies.

Recognizing and promoting Excellence in Research and Innovation

It is a well recognized principle in business that one should invest more where optimum return is guaranteed, and that greater strategic investment guarantees optimum returns. In many African countries however, the rhetorical affirmation of the importance of research and innovation in accelerating a country's economic development and global competitiveness is rarely matched by commensurate financial investments into the promotion of research and development. The issue then is how best could positive rewarding of key actors in research and innovation be managed in order to spur and sustain a culture of commitment to research and innovation in African higher education institutions and related sectors? What are the international best practices in recognition and promotion of excellence in research and innovation? What should the role of government, industry, higher education institutions and the publishers be in the promotion and recognition of excellence in research and innovation? Should such recognition and promotion be discipline biased or all-embracing?

Tragically, because of poor and unresponsive incentive structures in most African countries, there has been a flight of research and innovation talent from higher education and research institutions to other sectors where attractive financial incentives are concentrated, even if such sectors contribute little to research and innovation. In Kenya for instance, a member of parliament (politician) with just secondary school leaving certificate as highest qualification is paid about 10,000 US Dollars per month while a university Professor or Scientist is paid a mere 2,500 US Dollars per month. Such are the policies that have led to both intra-national and cross-national flight of talent and therefore compromised the much needed gains in research and innovation. But should recognition be merely in terms of monetary terms or are there other incentive structures that could be developed and deployed? These are issues that should constitute priority research agenda. Indeed, research and innovation should be actively promoted in all disciplines, whether in the field of science, engineering, technology, health, agriculture, economics or education among others.

Focus and beneficiaries of Higher Education Research and Innovation

Even as research and innovation is reified, a key issue that is often raised is what should be the focus of research and innovation, and who should be the target beneficiaries of research and innovation? Focus is assessed in terms of purpose as well as discipline. With regard to discipline, as we have already pointed out, the debate is whether the disciplinary focus of research and innovation should be scientific and technological or all-embracing including education and social sciences. The view of many, including ours, is that it must be all-embracing. We, for instance, should seek innovation in "innovative approaches to teaching and learning as well as governance and management" as much as we do in health, engineering and technology. With regard to focus in terms of purpose, it is argued that social development should be the key purpose of research and innovation. Social development, as Kearney (2009:11) has rightly argued, refers to all its multi-faceted dimensions including "political governance, economic growth, employment trends,

income distribution, education levels, access to healthcare, rural urban population patterns, energy and use of natural resources as well as access to ICTs". This implies that the focus of research and innovation should be on all factors that affect the quality of life.

However, when it comes to beneficiaries of research and innovation, the issue is whether benefits of knowledge outputs of research and innovation should be the privilege of a minority or equitably accessible to the majority. In other words, should the benefits accruing from research and innovation be a public or private good? The related questions are: in what ways do the existing systems, structures and policies for higher education research and innovation promote or inhibit the deployment of outputs of research and innovation as a public good? Alternatively, what are the best practices in appropriate deployments? Accordingly, the focus of research should not only be geared to innovative outputs, but also the social impact in terms of differential access to such outputs and how these may be mitigated. Further, the publishers as important actors, including the editorial team of the *Kabarak Journal of Research and Innovation*, should encourage investigation and assessment on the focus and beneficiaries of research and innovation.

Research capacity and access to research findings

Appropriate research capacity and access to research findings are necessary conditions for effective promotion of research and innovation, worldwide. However, both building research capacity and facilitating access to research findings require financial resources and are therefore often competing priorities. The issue at play then is, should government and institutional policy on higher education research and innovation focus on developing, building and enhancing research capacity or promoting access to research findings? This is an important issue to resolve. Focus on the latter (promoting access to research findings) makes African countries consumers of research while focus on the former (developing, building and enhancing research capacity) promotes the space for Africa to be active contributors to global research and innovation. However, the reverse could also be true, as in the absence of meaningful access to research findings emanating from elsewhere in the globe, one can be engaging in the re-invention a the wheel that has already been invented and therefore wasting resources that could have been better deployed to other areas. So what is the implication of this for international cooperation and inter-institutional collaboration? What is and should be the policy thrust with regard to national and institutional research capacity and access to research findings? What are the international norms and best practices? What is and should be the role of government, industry, universities and publishers with respect to mitigating the issues raised herein? These are questions that should not only guide policy making but also find there way onto the research and publishing agendas.

Role and contribution of higher education institutions in the knowledge societies

What should be the contribution of African higher education institutions in the knowledge societies? How should government and universities themselves ensure and assure competitiveness in the global knowledge society? What are the indicators of competitiveness in the knowledge societies and to what extent do African universities measure against those indicators? Given that the knowledge cycle comprises production, diffusion, management and application or commercialization (of knowledge), and that the innovation wheel, according to

me, entails capacities, resources, opportunities, incentives and management, What should be the focus and thrust of government and higher education institutions in the pursuit of competitiveness in the knowledge societies? Should the focus be on the creation and development of the so called research universities which, according to Bienenstock (2006), are characterised by top graduates, cutting-edge research and vigorous technology transfer, and whose critical dimensions that assure excellence of graduate education and research output also include concentration of talent, abundance of resources and favourable governance, or should it be on development of comprehensive universities and specialist institutes?

Clearly, significant contribution of African higher education institutions to the knowledge societies and therefore attainment of the much desired competitiveness will remain a pipe dream if predicated on outdated and unresponsive policy thrusts. Like Kearney (2009:14) we posit that the recipe for dwindling and eventual disappearance or collapse of a nation's or institution's competitiveness in the global knowledge society is the "lose of base for academic excellence – through outdated policies, neglected institutions, exodus of their best graduates or woefully inadequate investment in research". Accordingly, the role of government and higher education institution managers should be to focus attention on reversing those aspects that will constrain capacity to contribute to global knowledge societies and encouraging those attributes that enable and enhance competitiveness.

Implications for Higher Education Research and Publications

From the foregoing analysis of the concepts research and innovation, as well discussions on the critical issues underlying research and innovation in Africa, five key implications for higher education research and publications may be drawn.

First is the scope and nature of policies that spur research and innovation. This paper has illuminated the need for innovative and responsive policies, both at national and institutional level, that will built research capacity, facilitates access to research findings, recognize and reward excellence in research and innovation, and promote research and innovation in all fields ranging from science, engineering, technology, health, agriculture, economics, education, and social sciences.

Second is the agenda and purpose of higher education research. As clearly illustrated, the agenda for higher education research should be wide as to scope but focused as to purpose. In particular, deliberate steps should be taken to ensure that both research *for* innovation and research *on* innovation are undertaken in equal measure. While research for innovation will enhance and improve the quantity and quality of outputs of innovation, research on innovation will not only help us "understand why and how certain enabling environments encourage innovation and help optimize its various benefits", but also 'identify how knowledge translates into innovative action and how diversity can drive positive change" (Kearney (2009:15). Further, higher education research should contribute to ensuring that the benefits of research and innovation do not remain the preserve of a privileged minority but a public good, by interrogating modes of diffusion and patterns of accessibility to such outputs in society.

Third is financing of higher education research and innovation. Critically important is ensuring not only an increase in levels of investment in higher education research but also promoting training, retraining and attracting highly qualified and skilled human capital as well as targeting a

reversal of intra-national and cross-national flight of talent. This should be collaborative endeavour between African governments, industry and research institutions themselves.

Fourth relates to the documentation, publication and dissemination of research and innovation outputs. Publishers, including the Kabarak Journal of Research and Innovation, ought to re-orient their publication and editorial policies in such a way that they encourage candid research and innovation that resonates with the observations made in implication one and three above. In this respect, they should identify, document, publish and widely disseminate success stories on how higher education institutions locally and elsewhere are contributing and can contribute to economic, social and political development of and in Africa.

Fifth relates to conference and research themes. In order that research and innovation may be institutionalized and supported by different actors, there will be need for rebranding and re-orienting national and international conferences as well as call for research grants. Of necessity will be to promote “Research and Innovation Conferences” rather than simply “Research Conferences” as is largely the case today. This will not only direct greater thinking beyond research, but also raise the place and status of innovation within higher education institutions. It will also influence the nature, scope and purpose of research proposals that would be submitted for targeted funding.

Ultimately, Africa will shine or dim further depending on the weight we put on research and innovation in higher education institutions.

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