

# Chapter 1

## Indigenous Knowledge and Curriculum in Africa



Highly developed human capital is a product of high-quality education. High-quality education empowers individuals within a society to explore the peculiarities of their environment to obtain a mastery that will lead to innovation and advancement. Education in Africa has fallen far short of fulfilling these aims; Western intervention in Africa brought with it a repudiation of Africa's originality, and a belittling of the continent's authentic experiences, which ipso facto, meant that the Africans' environment, lived experiences, way of life, their cultural values, belief systems, and educational structure and curriculum (among others) were considered backward, unscientific, and barbaric. Following this misconception was concerted effort aimed at a superimposition of the European psyche over that of the African, often strategically orchestrated through the colonially established, or post-colonially controlled education systems. Indigenous knowledge systems, which are a product of the environment and should ideally form the foundation upon which the formal education system of any society is constructed, has been consistently and intentionally relegated to an inferior position.

The key normative agenda of this study is to produce intellectual insights into the nature of Africa's indigenous knowledge systems in order to assess the feasibility of their incorporation into the region's school curricula. This is because, as will soon be explained, one of the reasons for the absence of widespread innovative research and development in Africa is the result of the foreign paradigm upon which the development efforts in the region is premised. The assumption here, based on anecdotes, mass media information, and data from the few publications on indigenous African knowledge, is that the Africans' realities still encompass indigenous knowledge on various levels, although this knowledge receives little, if any, recognition from academic, research and development institutions.

The principal agenda of this work, therefore, is to explore the obvious disconnect between education curriculum in Africa and the continent's indigenous knowledge systems. There is need to focus attention on the relationship between a society's education and knowledge, and the sustainable human development strategies which it may adopt. In that regard, the book explores theoretical underpinnings supporting

the place of authenticity in teaching and learning, takes an extensive look at the historical roots of Africa's imported education curriculum and examines existing realities of education in Africa. The work will then seek to establish the fact that the inability of Africa's postcolonial leaders to transform the education sector is majorly responsible for the continent's continued socio-political and economic challenges.

The central thesis of the study will be built on G. R. Woodman's and B. Morse's 1987 observation that the difficulty of designing viable development strategies in Africa derives from the fact that the region's modern development thinking is not the direct descendant nor an adaptation of the principles of the indigenous communities over which the new nation states have imposed their rule (Woodman and Bradford 1987). This statement directs attention to the persistence of development problems in Africa and questions the region's paradigms of development, which are largely foreign. It has been established that education must not only be relevant to the needs of the people concerned and be appropriate to the social and material environments in which it is pursued (Hanushek and Ludger 2007), it must also be adaptive and cumulative—that is, respond to the exigencies of situations and be meaningful to the members of the society, taking into account their aspirations and concepts of development. In his 1999 volume, *Development as Freedom*, Amartya Sen, opines that real development occurs when a people are free to define their development based on societal dynamics. As will be demonstrated, Sen's thesis raises issues and directs attention to the sociological implications of education, that is, the relationships between education, politics, and power and the wider socio-cultural environment (Dewey 1959; Freire 1972; Brock-Utne 2000).

This research will question whether the incorporation of Africa's indigenous knowledge into the educational research and development process will not offer more viable approaches to its development than the present orthodox economic based approach. Thus, in line with what is now called *post-development* discourse, this study will provide a framework to explore the role of human agency and people's perceptions, their sense of trust, and their attitudes vis-à-vis the role of politics and power in the creation, imposition, and sustenance of knowledge and ideas. Questions this will generate will include

- What is the nature of indigenous African knowledge and what are its implications for the role of education in the region's development?
- In what ways are the principles and philosophies of indigenous African knowledge either in harmony or in conflict with those of the region's modern scientific ones as promoted by the educational system?
- In other words, in what way will the understanding of Africa's indigenous knowledge systems enable us improve upon its paradigms and models of development through the existing education system?

It must be stated that the current study is not primarily concerned with African government's budget allocation to education. Neither is it concerned with school enrollment, gender, and ethnic issues in school attendance, and the length of time

students stay in school, among other things. Its primary objective is to provide conceptual resources and to direct attention to the continuing *disconnect* between Africa's own knowledge systems and those imported and superimposed on the region through the education curricula, which the study considers a major source of the region's continuing development predicament.

## Knowledge and Its Implications

Knowledge is a product of education; it is sets of information, facts, ideas, skills, expertise, and awareness or familiarity acquired by a person through education or experience for the theoretical or practical understanding of a subject (Oxford English Dictionary 2017). Knowledge will also refer to socially accepted understanding of a subject, which offers an individual or a group the ability to use it to attain a specific goal. It is the "result of empirical inquiry that solves the problem at hand" (cited by Rohmann 1999, 102). Lemke (1994, 15) notes that the term, "knowledge is often used to refer to a body of facts and principles accumulated by mankind in the course of time." As mankind is dispersed across the earth, what is knowledge to a particular group might be insignificant to another in a different setting. Environmental factors, language, and biological and cultural dispositions influence what every group classifies and values as knowledge. However, with military conquests and economic domination of one society by another, the knowledge foundation of the domineering power is oftentimes imposed on subjects as valid knowledge. Essentially, therefore, knowledge is a complex body of several socially constructed ideas, validated by the dominant intellectual persuasion at each point in time (Lemke 1994, 1).<sup>1</sup> The implication is that knowledge is "always biased because it is produced from a social perspective of the analyst, thus reflecting his or her inclination towards certain interests, values, groups, parties, classes, nations," among others (Jackson and Sorensen 2003, 248). Therefore, "knowledge is not and cannot be neutral either morally or politically or ideologically, since all "knowledge reflects the interests of the observer" (Foucault 1969).

For Kuhn in his 1962 classic, *The Structure of the Scientific Revolution*, knowledge as is known in the present era is Western scientific knowledge, accepted as the "knowledge" (Kuhn 1962). All other knowledge systems tether on the periphery, seeking significance and recognition. Western epistemology or modernism universalizes the Western experience as the knowledge, but knowledge conceptualization is usually a subjective exercise, rather than the modernist promoted objective exercise (Foucault 1969). To step away from the dominance of Western epistemology and to validate other epistemologies, scholars and researchers focus on meaning; "What

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<sup>1</sup>Take scientific knowledge for instance, "experimental results are suspect until they have been replicated in other labs. Often, experimentalists test hypothesis generated by others, and for new hypotheses to be validated, they must be in consistency with the body of previous, replicated experimental data produced by a community of scientists" (Lemke 1994, 15).

does a text mean? How does a graph or diagram tell us something?” (Lemke 1994, 15). Since the meaning of a text is dependent upon our interpretation of it in correlation to other texts, it implies that neither data nor explanation is “fixed and stable in its own meaning, much less the basis for objective knowledge of an objective world” (Lemke 1994, 15). Therefore, no discourse can lay claim to “objectivity, whether a literary, philosophical, or scientific text” (Derrida cited in Rosenau 1992, 50). Derrida, “deconstructed” the “constructions of “real objects” of study or narration”, in order to expose the “pretensions to objective knowledge” about the social world (Lemke 1994, 15). What this means is that in many instances, what is presented as knowledge is a singular story, text or discourse, which combines “words and images in ways that seem pleasing or useful to a particular culture” (Rosenau 1992, 55). With this in mind, the existence of one single, universal and supposedly objective yardstick for validating all knowledge, comes into question since what is referred to as knowledge is founded upon the linguistic, environmental and “other meaning-making resources of a particular culture, as different cultures view the world in very different ways, all of which “work” in their own terms” (Foucault 1969, 45).

The widely accepted idea that a single culture’s world view holds true for the rest of the world has been described as a politically motivated propaganda for Europe’s imperial ambitions, which has no proven intellectual basis. Oguamanam (2006, 19) describes “the Western culture as a local tradition, which has been spread worldwide through intellectual colonization.” Some scholars assert that in the same way the European worldview has been temporarily superimposed over the ideals of other cultures, the upper social classes, “particularly middle-aged, masculinized males within European cultures, have dominated the natural and social sciences, as well as politics and business; the supposed universal worldview is even more narrowly just the viewpoint of one dominant social cast or subculture” (Lemke 1994, 31). Sandra Harding’s (1993, 17) summation of the result of a social study of the sciences is that “all scientific knowledge is always, in every respect, socially situated.” For Harding, the claim to pure science, severed from social origins, meanings, institutions, and practices, is a misnomer and does not exist. Harding’s view is that the proper understanding of scientific knowledge involves the social and cultural processes surrounding it as well.

## **Science, Technology, Innovation and Indigenous Knowledge**

Innovation, invention and creativity are the major drivers of growth and advancement in nations across the globe. A country that invests in creating an enabling environment for its human capital to operate at optimum usually receives yields by way of highly innovative products and services. At the foundation of innovation and invention is intimate knowledge of the environment within which the end product will be utilized.

Innovation generally entails the idea of doing new things. It is the whole process of renewing, changing, transforming or indeed creating more efficient and effective means, products, processes or ways of doing things. There is widespread convergence

around the fact that innovation is a major source of organizational or national wealth. It has been said that innovation rules the world; nations that are constantly innovative have been shown to develop at a much higher rate than nations that are rich in mineral, human or any other resources (OECD 2000). A good example is the United States, where it was assumed for over 200 years that economic growth came about as a result of input of capital and labor in the production process resulting in a greater output. However, Robert Solow, who would later win a Nobel Prize in Economics for his work, was one of few economists who discovered that only 15% of economic growth in the United States between 1870 and 1950 occurred as a result of increased input of labor and capital (Rosenberg 2004). That is, between 1870 and 1950, increased input of capital and labor “could only account for about 15% of the actual growth in the output of the economy. In a statistical sense, then, there was an unexplained residual of no less than 85%” (Rosenberg 2004). It was the unexplained residual of 85% that “persuaded most economists that technological innovation must have been a major force in the growth of output in highly industrialized economies” (Rosenberg 2004).

Today, innovation in science and technology remain a major force in determining the rate of economic growth recorded by nations. Nesta, the United Kingdom’s innovation foundation, conducted a study, which established that between 2000–2008, 63% of the growth rate recorded in the United Kingdom could be attributed to innovation, while only about 37% could be linked to higher inputs of capital and labor (Nesta Foundation 2013). According to the Foundation, “research, that “ability to turn ideas into useful new products, services and ways of doing things is the wellspring of prosperity for any developed country” (Nesta Foundation 2013).

Technological innovation is the bedrock of the quest for improved economic growth in most nations across the globe. Innovation in several developed economies is a result of intentional, consistent and sustained investments in industrial and technological research by governments and the private sector (Grossman and Helpman 1993). Technology implies the application of scientific knowledge, and often entails invention, innovation or the creation of a new product or method (Conway and Waage 2010).

If investment in appropriate technology is key to innovation, it is important to understand the concept of appropriate technology. For technology to be considered appropriate it must be founded on certain fundamental principles, which include:

- Accessibility and affordability
- Ease of utilization and maintenance
- Meeting real needs of end users
- Effectiveness

Innovation in technology, therefore, should have the aforementioned attributes in mind. The implication is that there is a need for deep knowledge of the environment in which the product being developed is to be utilized. Researchers, inventors, and innovators who have an intimate understanding of their environment are often the ones who succeed in developing technology or other products, tangible and intangible, which impact the environment in deep and meaningful ways, oftentimes bringing about transformation and noticeable progress.

In a groundbreaking theory, Basu and Weil (1998) proposed that localized innovation is a strong and driving force in economic growth. According to the theory, new knowledge, although relevant for increased technological production, can only be applicable or appropriate when used in those “countries that produce according to technologies similar to the innovator’s technology” (Los and Timmer 2003). The implication is that when a product is developed in a particular environment, the innovation needed to improve on that product or develop offshoots from that product is more likely to be generated in environments similar to where the original product was created. In essence, the idea of transferring technology is not sustainable since it is highly unlikely that imported technology will easily take root in a foreign environment and form a basis for more innovation in that territory. It is in this regard that appropriate technology needs to be situated in the preexisting technological knowledge or environmental reality of the innovator. This is where indigenous knowledge comes to the fore.

## Indigenous Knowledge

Indigenous knowledge as a concept is as diverse as there are voices that utter the term. At the foundation of its several interpretations is an agreement that indigenous knowledge is an alternative to mainstream, Western styled, or “modern” understanding of knowledge. Indigenous knowledge explores the unique and shared knowledge of a population of people or community, which informs their collective worldview (Ellen and Harris 2000, 2–6). Indigenous knowledge is based on communal understanding and is embedded and conditioned by the culture of the locality in question. The development of indigenous knowledge is a byproduct of efforts to master the environment and has been a matter of survival to the communities. Indigenous knowledge has been further defined as

Culturally informed understanding inculcated into individuals from birth onwards, structuring how they interface with their environments. It is also informed continually by outside intelligence. Its distribution is fragmentary. Although widely shared locally on the whole than specialized knowledge, no one person, authority or social group knows it all... It exists nowhere in totality, there is no grand repository (Sillitoe 2002, 9).

Greiner (1998, 1) asserts that indigenous knowledge is “the unique, traditional, local knowledge existing within and developed around specific conditions of women and men indigenous to a particular geographic area.” Warren defines indigenous knowledge as “the local knowledge that is unique to a given culture or society; it contrasts with the international knowledge system which is generated through the global network of universities and research institutes” (Warren et al. 1995: xv). Kiggundu (2007, 42) defines the term indigenous knowledge as local knowledge that exists as a result of interactions with the environment by members of a community within a geographical area. Indigenous knowledge covers all fields of human endeavor including, but not limited to, agriculture, environment, pharmacology, health, trade and economics, political systems.

Indigenous knowledge is often said to be region specific and is more often than not orally transmitted through experience and long time intentional practice aimed at expertise and excellence and often transcends several generations. Indigenous knowledge is a byproduct of the very lives of its adherents and does not subscribe to rigid interpretations due to the changing nature of man's interaction with his environment. Indigenous knowledge is mostly held among a select group of people and often shunned by institutions of higher learning that cover the jurisdiction of the local communities which hold the knowledge, which usually prefer Euro-centered knowledge system.

Historically, indigenous knowledge has been arrogated derogatory descriptions such as "primitive," "backward," "savage," "rural," "unscientific," and so on. Non-western knowledge is often repudiated for its lack of "universality," a concept ascribed only to Western science (Kiggundu 2007, 49). Brush and Stabinsky (1996), describes indigenous knowledge as being culture-specific, whereas formal (Western scientific) knowledge is "de-cultured." In the academe and research, indigenous knowledge systems have been dismissed as archaic, old and symptomatic of backwardness. Indigenous people's way of life have in the academia and other research oriented and scholarly circles been tendered as simplistic, naïve and even primitive, "reflective of an earlier, and therefore, inferior stage in human cultural progress" and consequently of no relevance to the highly advanced and technologically oriented needs of modern society (Knudston and Suzuki 1992, 1). The result is that the academia emphasizes Western knowledge, and denigrates local knowledge.

Oftentimes, a comparison is made between indigenous knowledge and international scientific knowledge in a manner that favors the latter and ascribes to it the attribute of universality. The dichotomy that exists between indigenous knowledge in modern times and Western scientific knowledge does not suggest that the West is bereft of indigenous knowledge of its own. According to Oguamanam (2006, 14), scientific knowledge was constituted during the eighteenth and nineteenth centuries and absorbed certain European folk knowledge and practices. Owing to Westernization of knowledge, the term "scientific knowledge" has come to be synonymous with knowledge itself, but in the true sense of the word, science is only a variation of knowledge (Oguamanam 2006, 20). When trying to understand indigenous knowledge, scholars tend to compare it to Western knowledge. Evaluating indigenous knowledge in comparison to Western science, according to Oguamanam (2006, 17), presupposes an "overarching comparator in the form of universal reason or science, which is ontologically privileged." Such comparison places Western science in a higher pedestal as a superior form of knowledge, which other knowledge forms must seek to measure up to. The comparison between Western and indigenous knowledge is not necessary, as the baseline of universal reason exist in all traditions, enforced by shared human economic need and cognitive processes, although "activated and expressed in different cultural contexts" (Oguamanam 2006, 15).

What exists between the Western form of knowledge and indigenous knowledge is a difference in approach, which gives each a distinct identity of its kind, but does not justify the exclusive appropriation of validity to the Western knowledge system. The differences are philosophical in nature, arising from the discrepancies in socio-

cultural processes and worldviews. Oguamanam (2006) provides insight into some of the differences, which are

1. The transmission of indigenous knowledge is mostly orally based, that is, through folklores and legend, or through imitation and demonstrations. Western science transmits knowledge through writing.
2. Indigenous knowledge is gained by observing and participating in simulations, real-life experiences and trial and error. Western knowledge is taught and imbibed in abstraction.
3. Indigenous knowledge is founded on the spiritual; the notion that the world and its components have life force and are infused with spirit, and this includes both the animate and inanimate objects such as fire and trees. Western knowledge severs the animate from the inanimate and treats all as physical entities.
4. Indigenous knowledge views the world as interrelated; it does not necessarily subordinate all other life forms to mankind as they are all interrelated and interdependent parts of one ecosystem. Western science views mankind as superior to nature and “authorized” to exploit it maximally.
5. Indigenous knowledge is integrative and holistic in nature, rooted in a culture of kinship between the natural and supernatural. Western science is “reductionist and fragmentary, reducing and delineating boundaries to the extent that every relationship is treated as a distinct whole.”
6. Indigenous knowledge values intuition, emphasizes emotional involvement and subjective certainty in perception. Western science thrives on logic and analysis, abstracted from the observer, and the replication of measurement to determine results.
7. Indigenous knowledge is based on a long period of close interactions with the natural environment and phenomena. Western knowledge thrives on the mathematical and quantitative (Oguamanam 2006, 15–16).

The existing dichotomy between scientific and indigenous knowledge has been argued in certain scholarly circles as a seemingly inevitable one due to the apparent differences in the culture of research and intellectual inquiry that separates both systems. However, there have been calls for a more positive comparison that seeks to highlight the strengths of both systems towards a complementary, rather than contradictory usage.

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