

# Developing Strategies for the Promotion of Indigenous Knowledge Systems in Africa's Development: A Perspective from the South

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## Abstract

*This paper seeks to show the role of a reformed school curriculum in promoting the use of indigenous knowledge systems and thus creating an appropriate technology base. An overview of Marxist theory as the guiding theoretical perspective is also presented. The paper goes on to define indigenous knowledge systems and their utility in medicine, agriculture, and nutrition and ethno veterinary science. The paper takes the position that unless the current education system is reformed so as to incorporate indigenous knowledge systems, investment made in education will not bear much fruit. The significance of using different school subjects as vehicles for the transmission of indigenous knowledge has also been highlighted. The paper then concludes the discussion by showing the challenges facing indigenous knowledge systems where issues such as documentation (to preserve the indigenous knowledge systems from being unnecessarily lost) and patenting (legitimatizing ownership of indigenous knowledge systems) are presented.*

**Keywords:** *indigenous knowledge systems, culture, strategy, appropriate technology, patenting*

## 1. Introduction

Today, Africa stands at the crossroads in terms of development initiatives. This is so because Africa is handicapped by lack of an appropriate technology base despite being endowed with abundant natural resources. Africa has a wealth of diversity in terms of natural resources although the continent is classified as poor. Lack of access to technology, and in most cases, western technology hinders development efforts and makes it difficult for Africa to exploit her natural resources to maximum advantage. Olatokun and Ayanbode (2008) observed that Third World countries have depended on the developed world for aid and assistance for too long after independence and this has made it difficult to achieve viable alternatives to development. Countries of the North enjoy and monopolise a disproportionate share of the world's technology. In the context of the African Renaissance and the New Economic Plan for African Development (NEPAD), the time is ripe for Africa to develop her own appropriate technology base not only to lessen technological dependence on the North, but also to ensure that this technology is utilized for the exploitation of vast African natural resources contributing to sustainable development in the process. This approach is necessary if Africa is to achieve the Millennium Development Goals. Odora - Hoppers (2002) argues that the African Renaissance aims at building a deeper understanding of Africa, its languages and its methods of development. This becomes imperative when one considers that research and experience have made it abundantly clear that Africa cannot fully develop on the basis of borrowed intellectual, technological and financial resources (Chiwome, Mguni and Furusa, 2000).

Many, if not all African governments are signatories to the Dakar Framework of Action of 2000 where one of the goals is to ensure universal completion of primary education by 2015. This goal can be exploited for the purposes of promoting indigenous knowledge systems through their incorporation into the school curriculum. It is important for African governments to engage in the total overhaul of Africa's education system, particularly in the area of curriculum reform so that indigenous knowledge systems are

incorporated into the content of education from primary school to university level. Indigenous knowledge systems have a place in Africa's development. According to Gata (1995), failure to respect African people's knowledge has led to the imposition of alien technologies which undermined local people's self confidence. It is the contention of this paper that unless indigenous knowledge systems are incorporated into the education system, policies such as Education for All (EFA) and mass education will not engender tangible benefits for African countries. This issue is going to be discussed from a sociological point of view.

## **2. Theoretical Framework**

This study is informed by Marxist theory. This theoretical perspective is pertinent to the issues that are going to be discussed in this paper.

### ***Marxist Theory***

Marxist theory has its roots in the work of Karl Marx. Africa was co-opted into the global capitalist economy as a result of imperialism and colonialism. African indigenous production techniques as well as industries, not only posed a threat to the ambitions of capitalist production, but could not meet the demands of capitalist mass production. Due to fear of this competition, there was a deliberate policy to stifle indigenous knowledge (Hountondji, 2002). Therefore, colonialism had a negative impact on indigenous knowledge systems. Bhebhe (2000) is of the view that colonialism not only inhibited the advancement of African science and technology, but Europeans used their control of African economies to widen the technological and industrial gap between Africa and Europe. Kincheloe (2008) concurs and states that one of the central dimensions of western colonial domination has involved the production of 'universally valid' knowledge that worked to invalidate the ways of knowing that had been developed by all peoples around the world. This strategy created relationships of dependency between the North and the South which are problematic to this very day.

Social institutions in the superstructure in a capitalist state disseminate bourgeoisie ideology. It can be argued that, during the colonial era such institutions and education in particular, tended to portray the superiority of western knowledge forms. Indigenous knowledge systems were viewed as backward, uncivilized and motivated by superstition. Shizha (2013) argues that in Sub-Saharan Africa, the advent of colonization brought in foreign knowledge, the so called 'scientific knowledge' that denigrated Indigenous Knowledge as unscientific, untried and untested for education and social development. The end result was that indigenous knowledge systems suffered neglect. Marx in Haralambos and Holborn (2004) argues that, in every historical epoch, dominant ideas are ruling class ideas. This is so because the ruling class enjoys economic and political power and is also the intellectual force within society. McGovern (1999) has observed that power and knowledge relations appear where the exertion of power is able to create space for certain statements to emerge and to be socially legitimated as knowledge. It can thus be argued that the advent of capitalism through colonialism not only in Africa, but also elsewhere in Third World countries, resulted in a situation where Western bourgeoisie ideas became dominant ideas and forms of knowing in the concerned countries. The modern knowledge system is merely the globalised version of a very local and parochial tradition arising with commercial capitalism and a set of values based on power (McGovern, 1999). Leach (1994) points out that, theories of neo-colonialism and cultural imperialism point to the continuing dominance of western educational norms and values which project the superiority of western metropolitan forms of knowledge over indigenous knowledge forms and skills of the periphery.

Writing from a Marxist persuasion, Ake (1978) has categorized countries of the world into bourgeoisie and proletariat countries. Countries of the North are the bourgeoisie countries while countries of the South are proletariat countries. The latter are impoverished in terms of access to Western technology and find it increasingly difficult to exploit their natural resources in a manner they see fit. They depend on the North for technology and as a result they experience blocked development. Colonialism contributed in

a significant way to this state of affairs as Indigenous knowledge systems were not incorporated into the production process. This state of affairs sums up Marx's observation that imperialism has led to a new internationalization of the division of labour where one part of the globe provided the raw materials which were processed in another part of the globe. The contribution of Indigenous Knowledge Systems in capitalist production was neither critically appraised nor provided the base for the new mode of production.

In a capitalist society, social institutions and in particular education, play a dominant part in legitimating capitalism. Althusser in Haralambos and Holborn (2004) argues that, in a capitalist society, education has two roles, that of processing knowledge and that of processing people. Knowledge is closely related to issues of technology. During the colonial era in Africa, the knowledge disseminated in schools did not incorporate indigenous knowledge systems leading to a negative attitude towards these systems. Shiva (1993) in McGovern (1999) argues that local knowledge systems have been described as primitive, unscientific and backward while western system is assumed to be uniquely scientific, universal and superior. In a similar vein Chambers (1983) posits that, association of outsiders' modern scientific knowledge with wealth, power and prestige generates and sustains beliefs in its universal superiority, indeed beliefs that it is the knowledge of any significance. There is therefore need for the education system to play a new role in promoting indigenous knowledge systems. The content of a reformed school curriculum has to decolonize, deglobalise the misconception of the superiority of Euro-American knowledge in order to debunk the belief that western oriented knowledge is the only viable one (Shizha, 2013).

### ***Definition of Indigenous Knowledge Systems***

In order to appreciate the concept of indigenous knowledge systems, it is important to discuss the concept of culture. At a very basic level culture can be defined as a way of life for a given people. Sizoo in Ooijens (1995) defines culture as the total set of solutions that people in a society discover with respect to the challenges that natural as well as social environments pose and to which they attach meaning. Levine in Gollnick and Chinn (1994) defines culture as a shared organisation of ideas that includes intellectual, moral and aesthetic standards prevalent in a community and the meaning of communicative actions.

Culture represents people's attempts to conquer nature and come to terms with it. In the process of doing so various technologies and knowledge systems are developed to make this possible. Therefore, indigenous knowledge systems are located within a certain cultural context just as all knowledge systems are also embedded within particular cultural contexts. It needs to be appreciated that culture is not homogenous even for people of the same society and this brings diversity to the fore. Thus, indigenous knowledge systems exist in plural forms in a number of societies. These different knowledge forms need to be discovered and incorporated in curricula content in the education system.

The concept of indigenous knowledge systems has been defined in numerous ways. Masoga (2001) is of the view that indigenous knowledge systems refers to knowledge and technologies around communities indigenous to a particular space and context. In the light of this definition, indigenous knowledge systems refer to localized forms of knowledge that are peculiar to a given society or community. Kibuka-Sebitosi (2008) states that the ILO Convention Number 169 (1991) defines indigenous knowledge as that knowledge that is held by a people who identify themselves as indigenous to a place based on a combination of cultural distinctiveness, and prior territorial occupancy relative to a more recently arrived population that has its own distinctive culture. These knowledge systems are located within the context of a given cultural milieu. Indigenous knowledge systems represent society's accumulated knowledge and are passed on orally from generation to generation through socialisation. In many instances, they are not documented which makes them highly vulnerable to loss. They have provided and continue to provide a useful guide in the way people have interacted with the environment. Some scholars have pointed out that indigenous knowledge systems are environmentally friendly and as such they can be harnessed to promote sustainable development. It should be emphasized that Indigenous knowledge

systems do not remain static; rather they are adapted and transformed on an incremental basis to suit the changing social and economic needs of a local community (Emmanuel, Mangetane and Melakun, 2000). Indigenous knowledge systems should be viewed as a cultural heritage and a natural resource and should be combined with western knowledge forms. There is great potential and value in applying indigenous knowledge in combination with modern techniques to enhance the sustainable management of natural resources (Ndey-Isatou and Muir-Leresene; 2000). In this way knowledge becomes plural.

### ***Utility of Indigenous Knowledge Systems***

Indigenous knowledge systems have been found to inform practice in a number of areas that range from anatomy to zoology. There is a tendency by people in some quarters to regard Indigenous knowledge systems as something that belongs to the past and is extinct today. In fact, the opposite is true, indigenous knowledge systems are quite alive, they are being utilized by people world over. They have not been mainstreamed into the process of development in a number of countries due to a number of factors that have already been discussed. Warren, Slikkerveer and Bronkesha (1999) are of the view that in the dominant model of development, useful knowledge was only generated in central places-in universities on research stations, in laboratories, then to be transferred to ignorant peasants and other poor people. Such an approach results in the neglect of Indigenous knowledge systems.

This paper takes the view that indigenous knowledge systems should provide the starting point in development programmes. Western technology should incorporate and build upon these indigenous knowledge systems to produce hybrid technologies that will be appropriate in a number of areas. Those indigenous knowledge systems that are harmful to the environment should be set aside. This approach is not a suggestion to turn back the clock of history and attempt a fresh start. Indigenous knowledge systems like western knowledge systems are dynamic; they have undergone a lot of change. They need to be considered in their present format and form. Bhebhe (2000) argues that before the European conquest of Africa, Africans had built up a pool of knowledge and technology which they used to sustain agriculture, human and animal health, timber seasoning, and fermentation of beverages, mulling of dyes, mining and architectural engineering. These technologies need to be revisited, resuscitated and utilized in conjunction with western knowledge forms.

The education system both formal and non-formal at all levels should incorporate indigenous knowledge systems in its content. This is a way of ensuring that students acquire essential skills that have immediate application to their diverse environments.

### ***Medicine***

Indigenous knowledge systems have been found to have a profound influence on medicine and medical practice today. Although in traditional society, medical practice appeared to have been a specialized function, people in general knew a number of curative herbs which were used for treating various ailments. In many Third World countries today, people are resorting to the use traditional medicine due to the expensive nature of western pharmaceutical products. According to Emmanuel, Mangetane and Melaku (2000), under prevailing conditions and circumstances, it is imperative that an affordable and readily available health care service evolves from the traditional system while simultaneously expanding modern medical care system. Since most western pharmaceutical products are derived from herbs, there is need for an approach that recognizes traditional medical practice. The study of science in the education system and medicine in tertiary institutions should recognize the important role of ethno medical practice. There is however a worrisome development in the area of ethno medical practice. Some countries of the North continue to carry out research into these traditional herbs and patenting them in their countries. This presents problems for Africa and other third World countries as they may find it increasingly difficult to access their own indigenous resources, further developing under development and dependency.

### ***Nutrition***

Nutrition is an important issue on the development agenda of many countries. Gillespie, McLachlan Shrimpton in Heaver (2005) observed that over a billion people suffer from micronutrient, malnutrition, and 180 million preschool children, nearly a third of all preschoolers in developing countries are stunted by under nutrition. World leaders made a fourth formal commitment to improving nutrition by agreeing on the Millennium Development Goals where one of the goals is to halve nutritional problems by 2015 (Heaver, 2005). If this goal is to be realized, and if countries of Africa and the Third World are to fight malnutrition, they need to revisit Indigenous knowledge systems. In terms of nutrition, there is need to encourage the consumption of indigenous dishes which are not refined foods and tend to be more healthy. During the colonial era, and also to a large extent in the post colonial era undue emphasis has been placed on western manufactured food stuffs as part of an agenda to promote capitalist mass production and consumption. In the Zimbabwean context, Home Economics is a subject that is offered in all grades at the primary school level and at the secondary school level, Food and Nutrition is an optional practical subject. Efforts directed at the incorporation of Indigenous knowledge systems in this area should be encouraged.

### ***Agriculture***

It has been found out that in the field of agriculture, indigenous knowledge systems have a wide range of applications. Most African societies and those of the Third World are basically rural agrarian communities. Problems of agricultural production can be attributed to lack of access to western agricultural inputs which are sometimes in short supply if not expensive such that they are out of reach for the majority of the impoverished peasantry. The utility of indigenous knowledge systems has not been thoroughly appreciated in boosting agricultural production. Emmanuel, Mangetane and Melaku (2000) observed that traditional agricultural systems, the product of centuries of accumulated experience of peasant farmers have been considered incapable of boosting production to feed Africa's growing population. This is despite the fact that indigenous knowledge systems are vital in areas such as: knowledge of plants, climate and meteorological features, wildlife, ecological information, local production systems (Matowanyika, 1995), traditional soil classification and land use systems, traditional soil improvement and mixed cropping techniques among others (Gata, 1995). Researches in this area have revealed a lot of information on the utility of these knowledge systems. Such production techniques which are based upon indigenous knowledge systems tend to ensure food security at the household level. This enables countries and communities to fight malnutrition and under nutrition and in the process the Millennium Development Goals are attained.

In Zimbabwe, Agriculture is a subject that is offered in primary and secondary schools, vocational training centres and tertiary institutions. A reformed education curriculum should emphasise the inclusion of indigenous knowledge systems with regard to agricultural production. This ensures that local solutions to local problems are generated.

### ***Ethno veterinary Science***

Most African societies are pastoral. These societies have managed large herds of cattle, sheep, goats as well as camels for a long time. In fact, in most African societies, livestock is a source of wealth and their ownership is a source of status and prestige. African societies have derived invaluable knowledge and experience from the management of herds. As a result, they have developed indigenous vaccines and medicines for their large herds giving rise to different ethno-veterinary practices. Ethno veterinary medicine deals with indigenous knowledge, beliefs, skills, methods and practices relating to the health care of animals (Mathias-Mundy and McCorkle, 1995). In a number of countries, large herds of cattle and other livestock are lost when they succumb to diseases. In Somalia for example, the introduction of a World Bank sponsored structural adjustment programme (SAP) resulted in the skyrocketing cost of veterinary services and products (Choussodovsky, 1997). This had a negative impact on the Somalian economy and this situation could have been avoided if ethno-veterinary medicine was widely used. The major problem that most pastoral communities face is that western veterinary products are expensive and

out of reach for most rural communities. Trained personnel in the area of western veterinary science are not readily available on the ground particularly in remote communities. It is imperative that the key elements of ethno-veterinary science be included in the content of the science and agriculture curricula at all levels of the education system. Extension workers in agriculture and development workers, who work with rural communities, need to highlight the importance of Indigenous knowledge systems in different areas of activities.

### ***Need for Curriculum Reform in Education***

This paper so far has shown the great potential that indigenous knowledge systems have in addressing Africa's development needs. They go a long way towards the creation of an appropriate technology base which is vital in the exploitation of Africa's abundant natural resources. Education has an important role to play in highlighting the importance of indigenous knowledge systems. Dubbelddam in Ooijens (1995) argues that education is the transfer of knowledge, skills and ideas as well as the stimulation and development of social capability and attitudes that enable people to lead a life worthy of human beings and to improve the quality of life. Nyerere (1982) holds a similar opinion as he argues that the purpose of education in any society is to transmit from one generation to the next the accumulated wisdom and knowledge of the society and to prepare the young people for their future membership of the society and their active participation in its maintenance or development. A question can be posed at this juncture. 'To what extent does the content of the school curriculum as presently constituted meet the criteria outlined by Nyerere? It is the contention of this paper that the content of education in a number of African countries is unable to meet these criteria and also fails to meet and accommodate the challenges raised in this paper so far. In a number of countries, indigenous knowledge systems have not been incorporated in the education system and where this has been done, the approach has been superficial and casual. Shizha (2013) argues that, in Sub Saharan Africa postcolonial school knowledge continues to mirror colonial residues and these continue to imprison the actions, feelings, attitudes, beliefs and the conceptual capabilities of indigenous people. In order to meet these challenges, particularly the challenges presented by the African Renaissance, the school curriculum needs to be reformed so that Indigenous knowledge systems feature prominently across the curriculum in schools and tertiary institutions. African political elites should unequivocally demonstrate the will power to reform the content of education at all levels so that education becomes a relevant and meaningful enterprise. The incorporation of Indigenous knowledge systems is one way of achieving this objective.

### ***Vocational and Technical Education***

Most African countries have made efforts to offer vocational technical education in schools and tertiary institutions. These subjects are offered alongside the academic curriculum. For example in Zimbabwe, one of the goals is to expand the technical vocational curriculum with a view to providing learners with skills for survival (Secretary's Minute Circular Number 3 of 2002). In primary schools, the following subjects are offered: Agriculture, Building Studies, Metalwork and Woodwork whilst in secondary schools some of the technical vocational subjects include: Agriculture, Fashion and Fabrics, Food and Nutrition, Art and Craft, Music and Dance. (Secretary's Circular Minute Number 3 of 2002) If these subjects are to make an impact they should incorporate indigenous knowledge systems right from the primary school level up to tertiary level. This should be seen as a way of equipping learners with meaningful and relevant skills that have immediate application in diverse learner environments.

Such an approach should enable students to readily put to use some of the skills that may have been acquired in these subjects. There is a worrisome trend that has been observed in the area. While the aim of the vocational technical curriculum is to provide self reliance and employment creation, many students upon completion of their studies are unable to put to use some of the skills acquired. This in part could be due to the fact that the skills acquired are deeply steeped in a Western skills orientation repertoire. Students should be encouraged to carry out research on the incorporation of indigenous knowledge systems in the different subject areas in their communities. .

In Zimbabwe, vocational training centres have been set up in each district under the auspices of Integrated Skills Outreach Programme (ISOP). This is a welcome development indeed which sets up an enabling environment for the incorporation of Indigenous knowledge systems which should enable students to function effectively in their different situations. Technical colleges and universities should be mandated with the task of researching and documenting Indigenous knowledge systems for dissemination to the wider populace as a way of preserving these knowledge systems.

### ***Challenges Facing Indigenous Knowledge Systems***

This paper has highlighted the advantage of the incorporation of indigenous knowledge systems into the content of the school curriculum. Indigenous knowledge systems face a number of challenges. The first of these is contemporary neglect by governments (Matowanyika, 1994). Most governments in Africa feel that development lies in the extensive use of Western forms of knowledge. In this context, Indigenous knowledge systems continue to suffer the same fate as in the colonial period. There is need for governments in Africa and other Third World countries to promote their use. Education is one such arena that could be used to facilitate use of Indigenous knowledge systems.

The second challenge concerns documentation and patenting. Documentation of indigenous knowledge systems enables them to be readily accessible to a wider section of the society and hence facilitate their transmission from generation to generation. Warren, Slikkerveer and Brokensha (1999) have observed that the documentation of vast amounts of unrecorded, often rapidly disappearing indigenous knowledge could provide the basis for many effective development interventions if this knowledge could be shared. Documentation of these systems, need to be made available, at say ward, district, provincial and national levels in the Zimbabwean context. Tertiary institutions such as teachers colleges, technical colleges, polytechnics and universities should set the pace in the documentation of Indigenous knowledge systems. The other challenge concerns the patenting of these knowledge systems. Mazonde and Thomas (2007) argue that the West exploits Africa and the rest of the developing world by expropriating indigenous knowledge systems and patenting them in the West. This challenge needs to be addressed as this development will mean that African countries will continue to depend on the west for access to resources that belonged to them in the first place. It follows that in these circumstances dependency and underdevelopment will be perpetuated. The project to document indigenous knowledge systems should be followed by a process of patenting these so that they remain the intellectual property of the different indigenous communities.

### **3. Conclusion**

This paper has shown that indigenous knowledge systems have a significant contribution to offer to the development process not only in Africa, but also in the Third World. Only indigenous knowledge systems will enable indigenous Zimbabweans, and indeed all Africans throughout the continent to survive productively in the future primarily because the systems are spiritually grounded and collectively defined (Kunnie, 2000). The incorporation of these knowledge systems should provide the starting point in development initiatives. Education can play a very important role by incorporating these in the different subject areas and disciplines. However other social institutions have a role to play in the promotion of indigenous knowledge systems. What is required presently is a courageous approach that targets curriculum reform in education so that all levels of the education system incorporate indigenous knowledge system into their curricula.

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