

# Education and the Revitalisation of Indigenous Knowledge Systems in Africa: A Paradigm Shift in Curriculum Content

By

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## Abstract

*This article examines the importance of revitalizing Indigenous Knowledge Systems (IKSs) by infusing them into the content of the education curricular of countries in Africa. Considering the Eurocentric nature of most education systems in Africa, there is need for a paradigm shift in curriculum content in which IKSs are also recognized as legitimate knowledge forms. Postmodernism which celebrates and acknowledges diversity is used as a framework through which this discussion finds its rationale. An argument for the relevance of IKSs in Africa today is called for, bearing in mind the numerous challenges the continent is facing. The discussion links IKSs with culture, deliberates IKSs in relation to both colonial and post colonial states. A case is put forward for the revitalization of IKSs through education curricular content bearing in mind their significance today. Instances where IKSs have been used in Africa in the aspects of health, nutrition and agriculture have been highlighted. Through schooling, education has been singled out as the vehicle for translating IKSs into reality. It has been acknowledged that infusing IKSs into the content of education is an important way of making IKSs competitive knowledge forms which must exist alongside western forms of knowledge and technology.*

**Keywords:** indigenous knowledge, curriculum, culture, colonialism, schooling

## 1. Introduction

The issues of the relevance of the education curriculum for Africa have been on the agenda of many if not all African governments since the attainment of independence by the various countries. The vitality of Indigenous Knowledge Systems (IKSs) has not been adequately campaigned for. This lack of seriousness in considering the infusion of IKSs in Africa's education systems is a clear indication of their marginalization. It is time that IKSs be infused in the education curricular of African countries so that citizens can enjoy ownership as well as utilize the knowledge they have had since time immemorial. It is the contention of this paper that time has come for Africa to review her approach to the education system by seriously considering the incorporation of IKSs into the education curricular instead of exclusively relying on knowledge systems from the west.

The issue of IKSs has assumed major importance continentally as initiatives such as the New Economic Plan for Africa Development (NEPAD) have highlighted the importance of infusing IKSs in education. In the context of the much touted African Renaissance, it is compelling that policy makers in Africa revisit and examine the significance of IKSs in education. Ntuli (2002) argues that the African Renaissance as a rebirth requires us to re-examine our knowledge systems anew, with a view to extracting some lessons from our past to distil what can be of use at this current moment and what has to be jettisoned. This paper advances the view that education should be used in the revitalization of IKSs through schools, vocational/technical colleges and universities.

### ***Postmodernism***

This paper is informed by postmodernism which acknowledges and celebrates diversity in society. Beck on <http://www.edu.uiuc.edu/eps/PES-Yearbook/93-docs/Beck.HTM> points out that postmodernism as a general cultural phenomenon has such features as challenging of convention, mixing of styles, tolerance of ambiguity, emphasis on diversity, acceptance (celebration) of innovation and change and stress on the constructedness of reality. Hartman on <http://www.naciente.com.essays15htm> argues that postmodernism implies a nation state challenged by new world views: feminism, multiculturalism and environmentalism. The definition places emphasis on the celebration and accommodation of differences in society. These differences are located in the different spheres of society including knowledge systems. Postmodernists argue that it is difference that lies at the heart of the world and the goal then is the study of differences rather than the search for unity (Ritzer, 2009). Lyotard (in Ritzer, 2009:633) echoes the same view by saying that “let us wage war on totality, let us activate the differences”. The emphasis on differences suggests that society is plural in character and this makes the inclusion of IKSs in the process of education imperative. There is need to consider postmodern views on the nature of knowledge.

Postmodernist perspective acknowledges the plural character of knowledge. Lather in Slattery (1995) contends that society is in the midst of a shift away from the concept of an objective, knowable and factual world ‘out there’ towards a concept of constructed worlds where knowledge is contested and partial. In support, Lyotard in Kirby et al. (1997) maintains that all knowledge is relative; all is as good as any other. Postmodernity is characterized by polyvocality where everything can be said differently, in multiple ways that are not inherently superior or inferior (Bakhtin in Agger, 2006). Hence these observations create room for the inclusion of IKSs in the content of education. In the words of Lyotard, postmodern knowledge is not simply a tool for authorities; it refines our sensitivity to differences and reinforces our ability to tolerate the incommensurable (Lyotard, 1984: xxv in Ritzer, 2009).

### ***Indigenous Knowledge Systems and Culture***

Indigenous Knowledge Systems are embedded in peoples’ culture. The concept culture has been variously defined by most scholars who argue that culture is a complex whole which cannot be reduced to a single definition. Culture is that pattern of knowledge, skills, behaviour and attitude and beliefs as well as material artifacts produced by human society from one generation to another (Pai & Adler 1997). This definition reinforces the view that culture is a way of life of a given people, a strategy for survival that has been developed by people over a long period of time. Culture provides a blueprint that determines the way an individual thinks, feels and behaves in society. As environments differ, so do cultures thus, giving rise to the concept of multiculturalism within the same society. At the same time, the existence of different sub cultures implies that IKSs are plural in character. Culture has two aspects which are material and non material culture. The level of technological development of a society is reflected in its material culture. All cultures have a technological component and they enjoy their own level of scientific exploits which should be appreciated and utilised.

Indigenous Knowledge Systems which include indigenous technology are embedded in the cultural context of the different societies. IKSs should not be regarded as something that was practiced in the past and as such lacks relevance in contemporary society. IKSs are indeed alive and many rural communities in Africa still continue to rely on them. IKSs have not been totally lost, this knowledge is still widespread probably less so than it used to be in colonial times (Hountondji, 2002). This awakens the need to excavate and research on IKSs in an attempt to bring to the fore what is of relevance. In the current discourse on IKSs, the issue that is predominantly at stake is on the extent to which they are currently utilized given the impact of the onslaught of western views of knowledge on these systems.

The concept of IKSs arises out of the term indigenous. This term has been defined in numerous ways. According to Greenie (in Kunnie, 2000), indigenous knowledge refers to unique, traditional local knowledge existing within and developed around the special conditions of women and men indigenous to a particular geographical area. Indigenous systems are localized African systems developed over long

periods and whose patterns are based upon local knowledge systems and expressed in local languages (Matowanyika 1995). Kibuka–Sebitosi (2008) cites the ILO Convention Number 169 of 1991 as defining traditional knowledge as indigenous to a place based on a combination of cultural distinctiveness and territorial occupancy relative to a more recently arrived population that has its own distinctive culture. IKSs should then be taken to be localized knowledge forms that arise out of a certain locality and are unique to that locality. Before the European conquest of Africa, Africans had built a pool of knowledge and technology with which they sustained agriculture, human and animal health, timber seasoning, fermentation of beverages, mulling of dyes, mining and architectural engineering (Bhebhe, 2000). These are knowledge systems that are orally passed from one generation to the next and socialization becomes an important vehicle for their promulgation and sustenance. In traditional or pre-colonial society, traditional education ensured the survival of IKSs. The extent to which this is happening in contemporary society is quite debatable. During their peak before colonization, IKSs provided solutions to most problems faced by people as they interacted with their environment as well as coming to terms with and in harmony with nature.

Culture is not homogenous and as such IKSs are not homogenous either though there is a tendency for some cross cutting themes to occur. These knowledge forms then become a strategy for survival for the concerned community and underpin practice in a wide array of fields. The work of Matowanyika (1995) highlights the nature of IKSs. He argues that these are systems developed over long periods of time; they are influenced by culture as culture is an important repository for the knowledge gained, and the stock of knowledge is acquired, stored, augmented and transmitted orally and through direct participation within the environment.

IKSs have influenced and continue to influence practices in a number of diversified fields. The works of Matowanyika (1995), Gata (1995), Greenier (in Kunnie, 2000), Mahlanga (in Odora- Hoppers, 2002) show that the following fields have been influenced by IKSs :folk lore, music, jewellery, pottery, agriculture, health, botany, sports, zoology, metallurgy, nutrition, education, governance and land reform among many others. There is an error inherent in examining the nature of IKSs by contemporary scholars where the tendency has been to limit their relevance and application mainly to health, agriculture and nutrition. These are systems that have an overarching influence over a variety of fields. They arose out of interaction with the environment and it can be concluded that these are systems which are in harmony with the environment.

The relevance of IKSs remains important up to this day. Odora- Hoppers (2002) notes that while no claim exists that all problems can be solved better by local communities, some of the problems that they solve in a creative manner and through their own genius, indicate that there are niches that mainstream science and technology institutions have either failed to fill or have not even noticed. The critical issue at stake is that there is need for IKSs to complement western forms of knowledge if development is to be efficient. This view arises from the fact that failure to respect African people's knowledge has led to the imposition of alien technologies which undermined local peoples' confidence (Gata, 1995).

### ***Colonialism and Indigenous Knowledge Systems***

The status of IKSs was negatively affected by the advent of imperialism and colonialism on the African continent and elsewhere. Imperialism through colonialism was driven by the profit motive. According to Hountondji (2002:24)

because (IKSs) was endogenous and locally produced; because it could virtually threaten the expansion of new knowledge brought about by colonization; because the products of local industry based on this endogenous knowledge could successfully compete on the local market with the products of metropolitan industry, based on the so called modern science, the two forms of knowledge were very quickly viewed as antagonistic and steps were taken to stifle the former.

Bhebhe (2000) concurs and further argues that colonization deliberately slowed down the scientification of Africans by teaching them to forget their past achievements, so that even Egyptians were taught to forget their role as inventors of civilization thus impacting negatively on the development of IKSs. In this regard IKSs can be regarded as subjugated knowledge (Foucault, 2001). The profit motive required the extraction and production of goods on a large scale. At the same time, the new socio-economic order thrived on the existence of a large reliable market for manufactured goods. Indigenous technology as embedded in IKSs stood as a threat to occidental interests represented by colonialism. Through a deliberate policy of cultural imperialism, African culture and IKSs were denigrated and looked down upon with scorn such that African communities turned on to embrace western knowledge forms and their technological output which were regarded as more superior and efficient. At the same time people were forced to work on capitalist enterprises in which they cultivated some crops, collected wild rubber thus affecting the development of IKSs.

### ***Post Colonialism and Indigenous Systems***

In the post colonial state, the situation is no better either as there has been contemporary neglect of IKSs (Matowanyika 1995). The ideal situation would have been one where the new African elite would have given prominence and more emphasis on IKSs in an attempt to right the wrongs of decades of colonialism. This partly stems from the attitudes of policy makers and the general populace to these knowledge forms. Western forms of knowledge are associated with wealth, prestige and offers of employment in urban areas resulting in a situation where little attention has been paid to IKSs. It is also sad to note that IKSs are under threat from an unexpected quarter today in the form of Western countries researching on IKSs and claiming Intellectual Property Rights (IPR) over them (Mazonde & Thomas, 2007). If this phenomenal development goes unchecked, it means that African countries will continue to be exploited by the West in terms of access to its own IKSs. Dependency will continue as African countries continue to depend on the West for that which rightfully belongs to them in the first place. The patenting of IKSs in the West will give further impetus to an exploitative centre-periphery relationship.

### ***Role of Education in Revitalising Indigenous Knowledge Systems***

Education through the school and other tertiary institutions has a profound role to play in the revitalization of IKSs. In this regard, the content of the school curriculum should undergo massive overhaul in order to meet the challenges of IKSs. To illustrate the role of education in the new paradigm shift, it is imperative to discuss traditional indigenous education in Africa.

### ***Traditional Education***

Every society has had its own form of education whose purpose has been to ensure the survival of that society. Nyerere (in Hinzen & Hunsdorfer, 1982:2) observes that:

the purpose of education is to transmit from one generation to the next accumulated wisdom and the knowledge of the society and to prepare young people for their future membership of their society and their active participation in its maintenance and development.

This view reinforces the need for relevance as the young are prepared to function effectively in their societies. It should be noted that Europeans did not introduce education to Africa; rather they supplemented certain aspects of traditional indigenous education. Traditional education, like IKSs, is not dormant nor is it something that was only practiced in the past. Rather, the critical issue is the extent to which it is being practiced in contemporary society with most parents having relinquished this important role to the school.

The aim of traditional education was to equip the young with skills with which to exploit the environment to maximum advantage. The content of education arose out of the needs of their environment and covered a wide range of areas from folk lore, botany, geography, zoology and metallurgy among many others. Traditional education was therefore the embodiment of IKSs which produced youngsters who were skilled in the ways of the society into which they were born. Youngsters acquired skills arising out of the needs of society and which had immediate application in the environment.

The advent of western formal education did not build on the foundations laid down by traditional education. Western education imposed a Eurocentric and alien curriculum that glorified everything European at the expense of the contributions made by IKSs. Such an education system had a negative impact on IKSs. With the attainment of independence not much has changed. For example in Zimbabwe, the education system has been described as Eurocentric in its cultural content and orientation (Presidential Commission of Inquiry into Education and Training, 1999). This state of affairs does not provide a conducive environment for the development of IKSs. The challenge is for the education system to transmit IKSs from one generation to the next. Such a scenario is engendered by people's perception of western knowledge forms. The association of western scientific knowledge with wealth, power and prestige generates and sustains beliefs in its universal superiority, indeed a belief that it is the only knowledge of any significance (Chambers, 1983). This is a situation that has generally led to a contemporary neglect of IKSs.

### ***School Curriculum and Indigenous Knowledge Systems***

Most African governments are committed to Education For All as expressed in the Dakar Framework of Action of 2000. In terms of this framework, the goal is to achieve Universal Primary Education (UPE) by 2015. In this regard, schools among other institutions have a vital role to play in the revitalization of IKSs. The content of the school curriculum should brace up for a new role which reflects the plural character of knowledge. It is not possible to turn back the clock of history to go back to the state of affairs prevailing prior to colonialism. The whole idea behind the revitalization of IKSs is to ensure that they exist side by side with western forms of knowledge. As Odora-Hoppers (2002) argues:

Western knowledge forms and IKSs should be regarded as a universal heritage which should be utilized for the benefit of all. The acquisition of western knowledge has been and still is invaluable to all but on its own it has been incapable of responding adequately in the face of massive intensifying disparities, untrammled exploitation of pharmacological and other genetic resources and rapid depletion of earth's natural resources.

These two systems should neither be polarized nor be viewed as antagonistic approaches. Rather they should exist side by side in a process of mutual enrichment engendering alternative knowledge forms. They need to complement each other thus forging their interconnectedness. The content of the curriculum at primary, secondary and tertiary levels needs to reflect this.

## **2. Science and Technology**

Teaching of science at all levels of the education system deserves special mention. In the colonial era and to a large extent in the post colonial era, the teaching of science and the content of the science curriculum has not done enough justice to IKSs. There have been a number of efforts directed towards effective science teaching in a number of African countries. For example in Zimbabwe, the primary school science curriculum was revised in a project known as Better Environmental Science Teaching (BEST) in the late 1990s. This project was carried out in collaboration with a German non governmental organization. Whilst a number of changes were made to make science relevant to the environment, IKSs are conspicuous by their absence in this revised curriculum. Hountondji (2002) laments that this is the situation that characterizes the present state of IKSs today where such systems are marginalized, they lie in the margin of science and they appear as the informal sector of knowledge. This situation has to change as science teaching assumes a new role to promote IKSs. The UNESCO Declaration on Science and Science Agenda Framework of 1999 cited by Odora –Hoppers (2002) presents a challenge for the sciences. In terms of this declaration, science must be put to work for sustainable development and must thus transform itself. Therefore, in the science discourse there is need to show the interconnectedness and complementarity between IKSs and other western knowledge forms.

### ***Multicultural Education and Indigenous Knowledge Systems***

The content of the school curriculum at both primary and secondary as well as the content of education at tertiary level needs to reflect the plural character of society. What is needed is implementation as well as a revisit to multicultural education. Baptiste (in Squelch, 1993) defines multicultural education as the transference of the recognition of a plural society into a system of education. The content of education has to cater for a diverse heterogeneous group. The status of IKSs can be given prominence by highlighting the experiences, practices as well as contributions of different ethnic groups in a multicultural society. For example, in a country like Zimbabwe the experience of different ethnic groups such as the Shona, Ndebele, Tonga, Venda, and others should be reflected in the curriculum materials that pupils interact with. In this way, pupils will be exposed to different forms of IKSs which they can adopt and use in the different environments. What constitutes knowledge in schools is dominated by a Eurocentric viewpoint which ignores the contemporary and historical contributions of most of the world's people especially those who live in Africa, Asia and Latin America (Ghosh, 1998). As children become aware of the practices of different groups in society, this enables them to approach issues from a multicultural perspective thus generating effective solutions to problems in the process.

### ***Vocational/Technical Education***

Vocational education is another area that should highlight the importance of IKSs. In most secondary schools, pupils study technical vocational subjects such as building, wood technology, metal work and others. Other countries in Africa, Zimbabwe included, have set up vocational training centres to cater for school leavers most whom would not have obtained five 'O' level passes. In Zimbabwe, such centres have been established in each district. It is sad to note that there have been several instances where both school leavers and graduates from such vocational centres are unable to put the skills acquired to practical use due to lack of equipment. This state of affairs demonstrates the importance of incorporating IKSs in the different subject areas so that skills obtained by students are immediately used in their environments. Students in vocational training centres, polytechnics and even universities should be required to research on IKSs and techniques of production in the different trades so that they incorporate and complement these with western forms of knowledge in which process technology hybridization can occur.

## **3. Significance of Indigenous Knowledge Systems Today**

It is imperative that communities revisit their stores of IKSs to see what is of relevance today. At the moment it seems that in the area of IKSs a lot of attention is given to areas such as health, pottery, basketry, agriculture and nutrition leaving the majority of areas untouched. The works of Matowanyika (1995); Gata(1995); Odora-Hoppers (2002) and Nwonwu (2006) show that IKSs cover a broad field which includes knowledge of plants, climate and meteorological features, wildlife, soil classification, traditional soil improvement, agriculture, fishing, governance system just to mention a few. The education system at all levels can also promote the use of IKSs by researching into various areas where their use provides less expensive solutions to problems encountered on a day to day basis. This section briefly looks at health, agriculture and nutrition.

### ***Health***

In Kenya, cassia leaves are dried and ground into powder which is used as a purgative in constipation (Singida, Nyaigotti-Chach & Kanunali, 1995). Besides stomach ailments, the cassia leaves powder is used for other ailments including fever, malaria, gonorrhoea and syphilis. In the wake of HIV and AIDS pandemic, there has been renewed interest in the use of herbs to deal with certain opportunistic infections. Economic hardships in most African countries have witnessed resurgence in the number of patients seeking traditional medicine. For example in Zimbabwe, the government acknowledges the role of traditional medicine and has allowed the establishment of the Zimbabwe National Traditional Healers Association (ZINATHA). This association has established a Herbal College. Although this is a noble development, the government should have gone further in establishing parallel services at government

hospitals so that patients can obtain the services of both systems and even borrowing from other countries' IKSs thus celebrating diversity as enshrined in postmodernism (Bakhtin in Agger,2006).

### ***Nutrition***

The field of nutrition has also seen interest directed at IKSs. Olatukun & Ayanbode (2008) say that in Burkina Faso, for example, rural women carefully collect the fruit, leaves and roots of native plants like baobab tree, red sorrel leaves and Tigernut tubers for use in the diet of their families. This is meant to supplement the agricultural grains (millet, sorghum) that provide only one part of the nutritional spectrum and may fail in any given year. In the management of HIV and AIDS infections, patients are encouraged to seriously consider what they eat. Refined foods are not encouraged. In Zimbabwe the catch phrase is, 'If your grandmother did not eat it, it is not good for you'. This directs people towards traditional diets and dishes that have a high nutritional value. There has been a tendency by people to prefer western dishes at the expense of local ones. This has seen a situation where some of the indigenous recipes become lost and forgotten. The plurality of knowledge forms can be made use of in solving nutritional challenges the African continent is facing.

### ***Agriculture***

A lot has been written about the role of IKSs in the field of agriculture. This is of relevance considering that the bulk of Africa's population is rural and therefore agrarian. Agricultural production is negatively affected by lack of inputs and even in cases where these are available, they are costly. An increase in agricultural production in the different areas not only ensures food security at national level but also contributes to improved livelihoods. The problem is that people are used to western methods of agriculture which are sometimes inappropriate. Little attention is given to the potential of IKSs. Chambers (1983) argues that from rich country professionals in Third World countries right down to the lowest extension workers, it is a common assumption that modern scientific knowledge is sophisticated, advanced, valid and conversely, that whatever rural people may know is unsystematic, imprecise, superficial and plain wrong. It is important to have this mindset changed. Indigenous methods of moisture preservation, enhancing soil fertility and selection of seed among many others must be encouraged and emphasized.

Nwonwu's (2006) works show how IKSs have benefited agricultural practice in a number of countries. In South Africa's Kwa Zulu Natal's Valley of a Thousand Hills Project, multiple cropping was used for the production of mangoes, rooibos tea and the cultivation of medicinal plants. In the same area, farmyard manure was used in maize production. In Niger, a project sponsored by the University of Monnesota / AFGRO project found that the neem seed solution could be used as a pesticide to fight locusts (Radcliffe, Ouedraogo, Patten, Ragsdale & Stzrok 1995). Pastoralists such as the Masai, Dinka and Fulani have developed their own ways of treating human and animal diseases and snake bites using herbs from the local environment (Nwonwu, 2006). In Tanzania, Nwonwo (2006) found that IKSs have been integrated with modern scientific knowledge for sustainable development. All these observations emphasize the need to integrate IKSs in agricultural activities so that solutions to problems are generated locally. People will not waste time by awaiting the arrival of the 'expert' who usually resides in an urban centre. It is therefore imperative for IKSs to be part of the curriculum in colleges of agriculture as well as universities. In this way, practical solutions to the problems faced by people are generated. Shortages of organic fertilizers and hybrid seed varieties will be a thing of past.

## **4. Conclusion**

This paper has discussed the importance of revitalization of IKSs in Africa. IKSs have applications over wide areas which include agriculture, health and nutrition. Through the postmodernist perspective, it has been highlighted that all societies have their own local forms of knowledge that have provided solutions to the problems of living encountered on a day to day basis. Colonialism impacted negatively on the

evolution of IKSs as their role in education and the development process remained marginalized. With the attainment of independence by most African countries, the need to revisit IKSs with the aim of revitalizing their role in the process of development has been articulated. This is not to suggest that western forms of knowledge should be jettisoned, but rather to see the two knowledge forms existing alongside each other for the benefit of humanity. In many African countries, heavy investment has been made in the field of education. In this regard, it has been advocated that the education system at all levels should be utilized as a vehicle to research and promotion of the use of IKSs. Such an approach would go a long way in the establishment of an appropriate technology base that will enable Africa to enjoy the liberty to exploit her abundant natural resources enabling her to uplift the material conditions of her inhabitants. However, there is need to select those IKSs that are relevant today and utilize these with western forms of knowledge if development is to be efficient and sustainable.

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