Rethinking the Developmental Nexus between Indigenous Languages and Capacity Building in Science and Technology: A Therapeutic Approach to Africa's Perennial Development Problems

By

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ABSTRACT

Before literacy, Africans demonstrated many aspects of technological and scientific knowledge. However, due to linguistic imperialism, African countries have remained fixed on the false premise that indigenous languages are ineffective as vehicles for development in science and technology. Implicit in this study, is how, the failure to realize the interrelationship and interdependence of these factors has sterilized Africa's efforts towards development in science and technology. This paper demystifies and refutes the claim that the colonial master's language is the only viable instrument for mediating the exploitation of science and technology. The development process is psychological and so demands positive self-esteem and the ability to build on one's own resources. When one is constantly looking to another language a negative self perspective develops which resultantly hinders development.

INTRODUCTION

While colonialism determined that Africans were no more makers of history than mere bettles- objects to be looked at under a microscope and examined for unusual features, Europe was busy capturing the minds and souls of the colonized. The Europeans imposed their languages and discarded the indigenous languages as gibberish or gimcrack. Imperialist battles were fought through culture and by continually

denigrating our indigenous languages and embracing other people's languages, we alienated ourselves from what Africa is and what is real. Ngugi wa Thiongo has argued that the choice of the language and the use to which language is put is central to a people's definition of themselves in relation to their natural and social environment and indeed in relation to the entire universe.

Africa is one continent with the world's most linguistically diverse people. A 1998 study by Robinson and Varley, established that the Central African Republic has 18 distinct language groups in a population of just three million, Cameroon 279, the DRC 221, Tanzania 131, Chad 127, Nigeria 400, and Zimbabwe 16. (Tsiko, 2004:7) A UNESCO report has lamented that 500 to 600 of Africa's languages are in decline, with 250 under threat of disappearing forever. Kenya's indigenous languages appear to be fading the worst. With 16 languages on the death list, Kenya by far surpasses neighbouring Uganda where six languages are under threat and Tanzania where 8 are soon to disappear. The perplexing issue one has to grapple with is whether African languages cannot be vehicles for scientific and technological development instead of having them gravitate into oblivion.

The Primacy of the Language

Language and cultural issues may sound abstract and useless, but sooner or later, with the winds of globalisation blowing, a nation without neither a language nor a cultural policy shall find itself immersed in the deluge of cultural and conceptual delusion. Language is a system of words, gestures and symbols used to communicate ideas between individuals. The primary way by which people communicate with one another is through language. It is universal in the sense that all human groups have language, but there is nothing universal about the meanings given to particular sounds. By means of language, one generation can pass significant experience on to the next and allow that next to build on experiences it may not itself undergo. People associate experiences with words and then use words to recall the experience. With language, events can be codified, people agree on times, dates and places, hence allowing them to plan activities.

Language and Intellect

Thinking and perception are not only expressed through language but are also shaped by language. It is also language that affords the learner the opportunity to transpose the results of learning, that is, the knowledge acquired, into its abstract form. Only then does knowledge become really functional and

applicable in a variety of situations. According to Duminy and Sohnge (1994:41), the mother tongue is the only medium which secures a favourable teaching- learning situation in any discipline. L.S.Vygotsky (1978) strongly argues that the formation and exchange of ideas are dependent upon language so that there can be no thought without language. When we learn a language, then, we learn not only words, but also particular ways of thinking and perceiving. Rather than objects and events forcing themselves onto our consciousness, it is our language that determines our consciousness and hence our perception of objects and events. In other words, language is an instrument of thought and it is impossible to engage in any rational thinking without language. It influences judgments of personality, intelligence, social status, educational standards, job aptitude and other areas of identity and socio-economic survival. Undoubtedly, language is the cornerstone of culture. There is a symbiotic relationship between language and culture. Language, hence culture, cannot develop, promote or propel itself. The survival, welfare and growth of a language therefore depend solely on the people who speak or own that language (Duminy and Sohnge,1994:39).

A language, like seeds, needs to be planted, watered and weeded before it fruitfies. For as long as the medium of instruction in African schools remains dominantly foreign language, there can be no remarkable self- propelled development in Africa and dependence on the West and East will remain a perennial experience. History offers many proofs to validate this claim. Prof. A.Mazrui says that there is no country in the world which has attained advanced technology by depending on a foreign language while looking down upon its own indigenous languages. No education can be adequate in a situation where the mother tongue is false, shallow or trivial.

Japan, Indonesia, Malaysia and Singapore have revolutionized their education systems and policies on indigenous languages and are now among the world's most developed countries in terms of wealth creation through science and technology. In Malaysia, dictionaries and other reference literature for medicine, science, commerce, etc, were compiled by creating and adapting words and terms from English and other languages, translating into their nationally agreed Bahasa Melayu. In Singapore, there are at least two indigenous languages which are equally recognized as English.

In Africa, the role and function assigned to European languages during the colonial era have remained the same. In Zimbabwe, although English is the first language for only one percent of the population, it has a higher status over Shona spoken by 75% and Ndebele by 16.5% of the total population. Bendor-Samuel and Hartell (1989) specify that while there are 1600 languages spoken in Africa, it is only a handful of colonial languages (English, French, and Portuguese) that are used for purposes of learning. Nigeria and Tanzania have 400 and 120 languages respectively and yet English remains the medium of instruction.

Bokamba (1984) argues that language policies in Africa have been hampered by the pervasive multilingualism but still, *lingua francas* could be developed to realize unity in diversity.Any language can be a *lingua franca* as long as it can be used by people from various nationalities for specific purposes. English, for example, has been called the *lingua franca* of the world, French at one time earned itself the enviable status of being the *lingua franca* of diplomacy in world affairs and politics while Italian and Greek became *lingua francas* of Christianity in the West and East respectively for a whole millennium. The development of *lingua francas* is not a European prerogative. Africa has had its landmarks, Kiswahili in East Africa, Hausa in West Africa, while in Southern Rhodesia (Zimbabwe), Northern Rhodesia (Zambia), and Nyasaland (Malawi) Silapalapa or Chiraparapa used to function as a *lingua franca.* In Zimbabwe, Silapalapa was confined to mines, Indian shops and farming areas which normally employed the less educated Africans. The language has fallen into a deep abyss of neglect and has gravitated into oblivion. Unless we develop our own languages, we will continue to be only consumers of technologies made by other countries which use their own indigenous languages. Language is central in self identity, self actualization and self realization which are important intangibles in building a confident and innovative people who can be agents of national development.

The connection between Africa and Europe from the 15TH century onwards served to block the spirit of the technological innovations among Africans. Apart from inventiveness, when a society for whatever reason finds itself technologically trailing behind others, it catches up largely by borrowing. One would obviously question why European technology failed to make significant and lasting inroads into Africa during the many years of contact between the two continents. The basic reason is how Europe used the language to jealously guard and shield her technological developments and again to mystify and cripple

indigenous knowledge systems among whose skills, creativity and artistry went into the construction of the pyramids of Egypt and the Great Zimbabwe stone walls. The Europeans have used and continue to use their languages to selectively omit non-European achievements, inventions and technologies. African manufactures before the time of the white men, for example, cottons from the Guinea Coast which were stronger than the Manchester cottons, the velvet-like fabric from the old kingdom of Congo and a superior brand of red leather from West and North Africa have been contemptuously treated or overlooked by European writers (Rodney, 1986:50). Africa has to wake up from the deep slumper and curb the wanton stealing of local technical and medicinal discoveries to Europe where they are given European labels.

Any given culture or society has its own unique local knowledge which is manifested in the interactions, technologies and practices of the indigenous local people in their daily activities. Criticism against the use of indigenous languages, hinges upon the purported lexical and conceptual inadequacy. Research findings throughout the world have however demonstrated that it is possible to teach all subjects in the curriculum through the medium of indigenous languages and that for a country to develop technologically; it should use its indigenous languages. Concepts like the Pythagoras Theorem, Faraday's Law, Archimedes' Principle, have been named after certain individuals's contributions to bodies of scientific knowledge. A Zimbabwean Professor Hebert Chimhundu has written a series of books that have many topics in science clearly illustrated in Shona. He has also published a Shona Medical Dictionary to prove that Shona can be commercialized, introduced into all the media and be developed to cover sciences and technology.

According to Bogonko (1992:262), Kiswahili has shown its propensity to coin technical words or give existing common words technical orientations. The language has proved versatile and responsive, scoring remarkable success in giving common words mathematical connotations. It should be noted that in both Mathematics and natural sciences, there is the cultural context of the scientific language used by the teachers and the textbooks. Hence, some words may have cultural roots and connotations obvious to the English child but completely strange to the African child. The existence of such cultural contexts provides credence to the advocacy for the recognition, appreciation and possible incorporation of indigenous mathematics and scientific ideas located in these socio-cultural contexts in school instruction. It cannot be disputed that African pottery is in the form of mathematical shapes such as

spheres and cylinders, huts and their roofs are rich in geometrical concepts such as circles, locus and triangular prisms. Indigenous games in Zimbabwe like *pada*, *nhodo* and *tsoro*, embrace some mathematical ideas such as counting, subtraction and addition. A sport known as *mpira*, *gozi* or *ndinga* in Kiswahili has technical connotations associated with patterns and moves in playing it. (Bogonko, 1992:262)

According to Emeagwali (2003:260), incorporating African indigenous knowledge systems may serve to diminish the structures of intellectual dominance and dependence associated with colonial education and may remove the distortion, trivialization and neglect of otherwise valuable traditions and cultural activities of the indigenous people. What Africa has to do then is to eradicate the perception of mathematics and science as Eurocentric. Language like culture is dynamic. Zimbabweans for example, would accept that indigenous languages have not only been adulterated by English, but also borrowed extensively from the language. Shona words like, *muchini* (machine), *chikoro* (school), *bhasikoro* (bicycle), *semende* (cement) and *bhuku (*book) have been coined from English. Similarly, Kiswahili has also derived words from Turkish, Persian and English languages. It is therefore clear that inventions and discoveries are not prerogatives of any race, but are adapted and developed by translating into other languages. Coinage of indigenous words for items that are part of our material culture of our countries is unavoidable. There is nothing sinister about such a move because even European languages have continued to be enriched through borrowing from each other. In any case, 60% of English is Latin.

Mother Africa faces the challenge of rethinking developmental relationships between indigenous languages and capacity building in science and technology if optimum levels of technological and economic development have to be realized. The most vibrant sectors of African economies at present are the informal sectors. Arguably, over 50% of the total economic growth takes place in this area of small–scale producers and manufacturers who tap into the accumulated skills and expertise and indigenous knowledge systems from traditional Africa. African countries need clear language and cultural policy frameworks that do not only recognize indigenous languages but that also empower those languages to be the engine of national development. Some African leaders and governments lack the political will to raise indigenous languages to prominence in spearheading developmental efforts. Over 80% of Zimbabwe's population speaks Shona and Ndebele and yet the elected Members of Parliament speak English when passing important legislation. Such a scenario is tantamount to under-representation and

misrepresentation and of treasonous felony of linguistically relegating Zimbabwe into a province of the English system. If we want to turn Africa into a new Europe, then, let's leave the destiny of our countries to Europeans who will know how to do it better than the most gifted among us. Currently, six African languages namely Afrikaans, Swahili, Xhosa, Yoruba, Zulu, and Shona can be used to access information through the international search engine Google. Interestingly, the Briton behind the Shona podcast, Mr Si Brindley wanted to learn Shona because his wife Cecilia is a Zimbabwean and so he wanted to learn more about her culture (*The Sunday News*, 2006:1).

The vitality and equality of African languages must be recognized as a basis for the future political and economic empowerment of African people. Although the young German, Japanese or English is taught through the medium of the mother tongue, one also devotes an important part of one's time in primary and secondary school to an intensive linguistic study of the mother tongue. At University level, the linguistic efficiency and skill from secondary education is now heightened and extended. In Africa, the practice is different. In Zimbabwe for example, at secondary school and University levels, Shona grammar, poetry and literature are taught in English. One would expect that at University level students specializing in African languages develop the indigenous language in collaboration with technologists in order to employ the technological terms appropriately. Developments taking place in the information technology sector are facilitating the engagement of Information Communication Technologies (ICT) in African languages, paving way for the future development of online language dictionary, lexicographical database to support and enhance the theoretical, descriptive and historical importance of African languages but, it is disheartening that institutions of higher learning are not complementing the efforts. The technology of speakers of a language is dependent upon the level of development of that language and so, economic, political and technological will is critical for language development.

Conclusion
While some governments, institutions and educationists are saluted for promoting the use of indigenous languages in development efforts, Africa still has to rise and usher an African renaissance. The effective and rapid development in science and technology in Africa depends on the use of African languages. Africa is its own enemy but as well its own liberator from the chains of technological underdevelopment. The African Publishers Network's efforts to bring together national publishers' associations and publishing communities to strengthen indigenous publishing throughout the continent

should be supported. However, to support a language simply because it is African is hardly the point. In the same vein, it is unjustifiable to indiscriminately label African languages as inferior and non-functional as the media of instruction in technical and vocational institutions. Knowledge and skills in science and technology are indispensable for wealth creation and economic independence. Research has shown that any language is capable of being developed to the highest levels of science and technology provided its owners have a patriotic will to do so.

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