

Journal homepage:http://www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH

RESEARCH ARTICLE

Towards a holistic approach to Health Delivery Services in Zimbabwe: The Missing Link.

Gift Rupande

Senior Lecturer, Department of Student Affairs, Zimbabwe Open University (ZOU) Manuscript Info Abstract Manuscript History: The importance of traditional medicines for humans and animals in Africa Received: 12 August 2014 both now and in the past is enormous. Diseases and illness can be attributed Final Accepted: 26 September 2014 to natural causes or metaphysical elements arising from the anger of Published Online: October 2014 ancestral spirits, evil spirits or the result of witchcraft. The concept of health is grounded in the social and cultural milieu of a society. Approaching health Key words: from a single view point will inevitably lead to inadequacies. Zimbabwe like most African states appears to give priority to conventional health services *Corresponding Author whilst shunning traditional medical practices despite the great potential it holds in enhancing health services. This concept paper will highlight why Gift Rupande traditional medicine continues to play an important role in providing health services in Zimbabwe and in most African states. It will also advocate for the holistic integration of conventional health services and traditional medicine in Zimbabwe in order to improve and strengthen health services in the country. The paper will raise some of the challenges that hinder the integration of conventional health services and traditional medicine as well as offer possible solutions to the challenges.

Copy Right, IJAR, 2014,. All rights reserved

Introduction

Background

Since time immemorial, people the world over have been using traditional medicine to cure various diseases and Zimbabwe is no exception. Ochola (2006) submitted that during the colonial era, traditional knowledge in general was vindicated, illegitimated, illegalized, suppressed and abandoned by some communities, and the countries and peoples practicing it were condemned and branded primitive and uncivilized, a characteristic most people find demeaning. This form of marginalization produced a generation that for the most, does not understand, recognize, appreciate, value or use traditional knowledge. Arguably, this situation has produced an intellectually "colonized" mind-set. Ochola (2006) noted that colonisation could be one of the major negative effects on traditional knowledge, as the native people ended up shunning their purported "backward, uncivilised" knowledge in favour of western knowledge systems, whether willfully or not. Colonization was closely linked with Christianity and unfortunately Christianity teachings generally discourage the consultation of traditional medical practitioners. According to (WHO 2002),TMKs should be taken seriously because there is a critical need to mainstream traditional medicine into public health care to achieve the objective of improved access to healthcare facilities. High per capita distribution of traditional practitioners in developing countries is an important reason for the widespread use of traditional medicine. WHO report cites example of Uganda, Tanzania, Zimbabwe and Zambia where the ratio between populations to traditional medicinal practitioner is 1:200 to 1:400 while the ratio of allopathic practitioners to population is 1:20,000. In India, according to government sources, for the 65% of population, traditional medicine is the only available source of healthcare (WHO 2002: 13). It is also an affordable source of health care in many countries. Another reason is that it is firmly embedded in the belief systems and can be termed culturally

compatible. In developed countries higher income and higher education are guiding factors of patient preference for traditional medicine. Due to difficulties in accessing modern health care, ethnic minorities in developed societies who are disadvantaged both economically and socially, use traditional medicine as a first health care choice, making it non complementary (Bodeker et al. 2007).

Increase of chronic diseases, awareness about limitation of modern medicine, proven efficacy of traditional medicine systems in selected conditions, emerging interest in holistic preventive health, integrated approach to medical education and increasing awareness among physicians are some of the reasons for renewed interest in traditional medicine. Within developing countries one can see a divergence of reasons in rural and urban trends in the health seeking behaviour. While accessibility, availability, cost are important aspects in rural areas, limitations of conventional medicine, concerns about chemical drugs, questionable assumptions of allopathic medicine, greater public access to information, changing values and reduced tolerance for paternalism, some of the reasons for accessing traditional medicine (WHO 2002: 14)

The contribution of TMK has therefore to a greater extent saved the lives of many poor people in rural areas who cannot afford expensive medicine (Marshall 1997).TMK has also been observed to be more effective in treating certain ailments and conditions for example Nhova, (dehydration), cancer and infertility. According to Koro (2005) the African Potato (hypoxis species) known as Nhindiri has been used by traditional communities in Zimbabwe in treating various ailments and is now popular for its ability to relieve complications associated with HIV/AIDS pandemic. Chigoraet.al. (2007) in concurrence with Marshall (1997) pointed out that certain problems, not necessarily of the same nature as those usually addressed by Western medicine are cured by traditional healers, for instance sickness as a result of witchcraft.

Conceptual framework

Standard definition of indigenous knowledge seems not to exist. However, there is a general understanding of what it means. Some people define indigenous knowledge as the local knowledge that is unique to a given culture or society. Some regard it as local knowledge, while others have expressed it as folk knowledge or, ecological knowledge when it applies to the physical environment. Despite different views of the definition, there is a consensus that various communities, cultures and societies have indigenous knowledge systems. What is glaring is that it is knowledge which was acquired over generations by communities as they interact with their environment.

In 1978, a World Health Organization expert committee defined traditional medicine as: the sum of all knowledge and practiceswhether explicable or not, used in diagnosis, prevention and elimination of physical, mentalor social imbalance and relying extensively onexperience and observation handed down fromgeneration to generation, whether verbal or inwriting". Cuna and Muxhlanga (1999) have defined traditional medical knowledge as medicinal knowledge accumulated by local population over the years and that the knowledge encompasses the way in which people deal and manage their immediate environments in terms of health. TMK is knowledge that the people in a given area have developed and is based on experience and adapted to the local culture and environments (Musocha 2002). According to Chavhunduka (1998) this TMK is in the form of skills, beliefs, value systems and concepts that are passed from one generation to the other. According to Ellen and Harris (1996), the following are the highlight features of TMK, which distinguishes it broadly from other knowledge systems:

- TMK is local in that it is rooted in a particular community and situated within broader cultural traditions,
- TMK is a set of experiences generated by people living in those communities.
- TMK is tacit, knowledge and therefore, not easily codifiable.
- TMK is transmitted orally, or through imitation and demonstration. Codifying it may lead to the loss of some of its properties.
- TMK is experiential rather than theoretical knowledge. Experience and trial and error, tested in the rigorous laboratory of survival of local communities constantly reinforce TMK.
- TMK is learned through repetition, a defining characteristic of tradition even when new knowledge is added. Repetition aids in the retention and reinforcement of TMK.
- TMK constantly changes, that is it is produced as well as reproduced, discovered as well as lost, though it is perceived by external observers as being somewhat static.

The philosophy of Traditional medicine

In terms of underlying philosophy, TMK theory, originates from a holistic philosophy that fundamentally differs from the reductionism approach of modern medical systems. The concept of disease in TMK is that disease is a total affliction of mind and body, the disturbance of the whole organism. Individual organs are not the cause of illness. Disturbance at the life force, the vital energy of the body is the cause of illness. Therefore, TMK practitioners do not believe in giving different medicines for different parts of the body, but rather give one single constitutional remedy that will cover the disturbance of the whole person. TMK treats the patient as a whole without targeting the disease symptom itself. Medical philosophy has concluded that the mere treatment of symptoms and organs can only help temporarily and that it is the healing power of the body as a whole that should be enhanced. TMK believes in a holistic and individual approach.

Role of traditional medicine in Zimbabwe and the emerging interest

Traditional medicine plays an important role in public medical and health care in Zimbabwe because most people cannot afford Western medical services. In most urban areas of Zimbabwe traditional medicine vendors are a common scene in the marketplace where they advertise various herbs for treating a multitude of diseases. They are the local population's main medical resource. Traditional healers are known to possess a special connection to plants, and for their knowledge of sacred artifacts used to invoke their healing power. Their knowledge comes from experience, from trial and error with plant remedies, from methods passed down from generation to generation. Indeed, it can be argued that traditional medical knowledge has an advantage over western medical science in the context of poor communities, in that medical information is tested in the context of survival, and hence is not just true or false in some sort of dispassionate way (as western science might conclude), but is either more or less effective in providing the means of survival, a conclusion more meaningful in the context of everyday existence (Davies, 1994; Kalland, 2000). Hence, traditional medical knowledge becomes something very much driven by the pragmatic, utilitarian and everyday demands of life. Of course, this implies a much greater openness on the part of western science to explore, even recognise, the validity of alternative ways of treating diseases.

The binary tension: Western and traditional medical knowledge systems.

It has been noted with great sadness that western science and indigenous knowledge are represented as two different, competing knowledge systems, characterized by a binary divide, a divide arguably evolving out of the epistemological foundations of the two knowledge systems. According to Mohan and Stokke, (2000), these two health delivery systems may be treated as discrete entities, separable from each other in space, and precludes dialogue and learning between them. Anand (2005) quoted by Kaya(2007), explains how in most African countries, modern Western systems of thought and life, exist alongside African indigenous knowledge systems. Although a number of observers have suggested that this divide may indeed be false, or, at least, not as marked as might be supposed (Bebbington, 1993); but the binary notion still persists. Western science is seen to be open, systematic and objective, dependent very much on being a detached centre of rationality and intelligence, whereas traditional knowledge is seen to be closed, parochial, unintellectual, primitive and emotional (Agrawal, 1995; Ellen and Harris, 2000). Whereas western knowledge systems are part of the whole notion of modernity, traditional knowledge is part of a residual and backward way of life, a view which may be reinforced by the concentration of work on traditional knowledge on people in low- and middle-income countries. It is not a big step, therefore, to imagine that development can only emerge from the application of western knowledge and that traditional knowledge itself has little to offer. As Escobar (1995, 13) puts it: "development has relied exclusively on one knowledge system, namely, the modern Western one". The dominance of this knowledge system has dictated the marginalization and disqualification of non-Western knowledge systems". Ellen and Harris (2000) take this further, arguing that the term 'traditional' almost invites an oppositional 'us and them' scenario between the two knowledge systems. It may well be that there can be no rapprochement, however, as possible interactions are constrained by the different ways in which participants have been trained to think and by the rather different contexts in which they operate (De Walt, 1994). This binary is perpetuated in some of the empirical literature, perhaps unintentionally.

Traditional knowledge is regarded as subjective, implying a non-rigorous connotation of this type of knowledge. Pretty (1994) notes that participatory methods of data collection are all too often assumed to lack the rigour and accuracy assumed to be present in more formal positivist approaches. Science has retained its resilience in development debates over traditional knowledge because of its perceived 'substance' (Leach and Mearns 1996),

something which traditional knowledge supposedly does not possess. The debate, however, has moved on. There is an increasing recognition of the ways in which the complexities of reality, the multiple perspectives of the people involved and the contextualization of knowledge in time and space must play a role. Indeed, it can be argued that traditional medical knowledge has an advantage over western medical science in the context of poor communities, in that medical information is tested in the context of survival, and hence is not just true or false in some sort of dispassionate way as might be concluded from a western point of view. Traditional medicine is more effective in providing the means of survival, a conclusion more meaningful in the context of everyday existence (Kalland, 2000). It is because of this reason that traditional medical knowledge becomes something very much driven by the pragmatic, utilitarian and everyday demands of life. Of course, this implies a much greater openness on the part of western science to explore, even recognise, the validity of alternative ways of treating diseases.

In the view of Homann and Rischkovsky (2001), for example, the problem for the integration of western medical practices and traditional medical knowledge is that the former searches for knowledge of universal significance which is not context-related, whilst the latter is a social product closely linked to a cultural and environmental context. It is interesting how the view that western medical science is in some way objective, detached and decontextualised from its socio-cultural, political and physical environments is still pervasive in these debates. Western medical science is as much socially constructed as traditional knowledge, and it is ironic that although it is frequently purported that traditional medical knowledge is too place- and culturally-specific to be universal and transferable, and therefore to be of much value in a broader sense, such doubts are rarely expressed about western medical science, even though its results in the last 50 years of development in Africa and elsewhere have hardly been impressive in transforming poor people's lives (Krugly-Smolska, 1994).

Traditional ways of knowing are based on locally, ecologically, and seasonally contextualized truths. In contrast to the aspirations of some Western scientific traditions for universal truths, traditional epistemologies are anchored in rural communities. Those rural communities are characterised by complex kinship systems of relationships among people, animals, the earth, and the cosmos, from which knowing originates (Ermine, 1995). According to Batta (2012), traditional medicine was the only known form of tackling physical, mental and even spiritual infirmities in the olden days. However, with political, economic and scientific developments, many societies seemed to have consigned traditional medicine to irrelevance. In spite of this, even in most advanced and modern societies, residues of traditional, alternative, or complementary medical practice still subsists. Even where scientific medicine is the only medical approach legally permissible and others where folk medical practice is tottering, it is true that orthodox medicine is ingrained in herbal and animal medicine. In the last 10 years, there has been resurgence of interest and attention in use and study of traditional medicine globally (Essential Drugs 2003). Hillenbrand (2006) stated that support for traditional medicine has dramatically increased worldwide and that as far back as 1978 during the Alma Ata Primary Health Care Delivery Declaration, the World Health Organisation (WHO) acknowledged the importance of traditional medicine in providing primary health care and urged nations to develop official policies on it.

Eurocentric thought asserts that only Europeans can progress and those in third world countries are frozen in time, guided by knowledge systems that reinforce the past and do not look towards the future (Blaut, 1993). Several strategies have been used to reinforce the myth that regions outside Europe contribute nothing to the development of knowledge, humanities, arts, science and technology. These strategies include the blind reliance on and citation of Greco- Roman references despite the fact that the Greek alphabet is largely of Syrian/Lebanese origin; the manipulation of dates and demotion in importance of non-European knowledge such as Mayan, Hindu, and Arabic numerals (Ascher, 1991). These strategies have caused traditional peoples to be viewed as backward and as passive recipients of European knowledge. Traditional knowledge became invisible to Eurocentric knowledge, to its development theories, and to its global science. Consequently, traditional knowledge was not captured and stored in a systematic way by Eurocentric educational systems.

Traditional knowledge has been critiqued, though, for being too empiricist and too reliant on practice, and for not paying enough attention to a more rigorous theorisation (Kapoor, 2002). Leach and Mearns (1996) go further when they suggest that traditional knowledge is frequently charged with being "methodologically weak or unproven... populist or politically naïve; and that it generates findings that are too complicated to be of practical use to policy makers". These are very pressing problems throwing up major challenges for the proponents of the use of traditional knowledge in development. Consequently, whereas western medical knowledge systems are part of the whole

notion of modernity, traditional medical knowledge is part of a residual and backward way of life, a view which may be reinforced by the concentration of work on traditional knowledge on people in low- and middle-income countries. It is because of this notion that some scholars believe that development can only emerge from the application of western knowledge and that traditional knowledge itself has little to offer. It may well be that there can be no rapprochement, however, as possible interactions are constrained by the different ways in which participants have been trained to think and by the rather different contexts in which they operate (De Walt, 1994).

TMK (Traditional Medical Knowledge) is focused on occupancy and practice, and is more concerned with tacit and procedural knowledge. Some authors argue that TMK can be acquired through observation in a natural environment. In a sense, TMK is associated with cultural, social and economic aspects of the local way of life. Many authorities of traditional knowledge are of the opinion that TMK is difficult to encode and acquire through conventional methods and formal education. As a result, TMK requires particular processes of transfer and acquisition which are concerned with the context and culture of particular communities.

The interface between traditional and modern health services

It is critical to realize that both the modern and traditional medical health systems have their strengths and weaknesses and what is crucial is to harness the advantages of both systems and allow the two systems to complement each other. The starting point is to appreciate and recognize the existence of the other health system and to forge ways in which the two health systems can work together for the benefit of the clients. This may also pave way for collaborative effort by both the conventional and traditional medical practitioners in fighting against various diseases. Both the conventional and traditional medical practices may benefit by setting up an effective referral system and may also work together by charting the best practices in curbing diseases such as HIV/AIDS. In Zimbabwe, this type of collaboration was witnessed when the ministry of Health and Child welfare embarked on the training of traditional midwives so that they could carry out their duties in hygienic conditions. The Traditional Medical Practitioners Act of 1981 is the legal framework for the coordination and regulation of traditional medicine. The Traditional Medical Practitioners Council (TMPC) oversees all matters related to Traditional Medicine. The government subscribes to the various World Health Assembly (WHA) resolutions including WHA Resolution 56.31 and the SADC resolutions on Traditional Medicine. Government has taken some steps to implement some of these resolutions. At the regional level, Zimbabwe is the convener of the Traditional Medicines Coordinating Committee of the SADC. Despite the early official recognition, Zimbabwe still lags behind, with regards to promoting the integration of the two health systems. Among the key issues highlighted in The National Health Strategy for Zimbabwe 2009 – 2013 document are the limited recognition of the role of traditional medicine as an important component of primary health care, limited documentation of traditional medicine and practice and lack of role clarity among bodies which have an interest in traditional medicines, councills the professionals and the traditional medical department. More partnerships and collaboration need to be forged by the two health systems if the people in Zimbabweans are to fully benefit from the medical services. It is also important to note the conspicuous absence of formal training in traditional medicine is a major blow to the recognition of this health system.

Traditional medical knowledge system might be usefully seen as a complement, adding to existing formal medical knowledge, and not as a competitor (De Walt, 1994). Perhaps the theoretical and conceptual debates about a binary (or other) divide between the two knowledge systems constitute little more than a diversion from the actual realities of how knowledge is constructed by people on the ground

Today, many indigenous knowledge systems are at risk of becoming extinct because of rapidly changing natural environments and fast pacing economic, political, and cultural changes on a global scale. Practices vanish, as they become inappropriate for new challenges or because they adapt too slowly. However, many practices disappear only because of the intrusion of foreign technologies or development concepts that promise short-term gains or solutions to problems without being capable of sustaining them. The tragedy of the impending disappearance of traditional medicinal knowledge is most obvious to those who have developed it and make a living through it. But the implication for others can be detrimental as well, when skills, technologies, artifacts, problem solving strategies and expertise are lost, (Mundy, and Compton 1991).

According to Devanesen (2000) in Canada, the United States and New Zealand, governmental attitudes have shifted over time with regard to the incorporation of traditional healing practices within the mainstream healthcare delivery system. Rural health centres continue to recognise and cooperate with traditional healers in the management of sick people. The Northern Territory Department of Health's first policy on Aboriginal health stated that "traditional medicine is a complementary and vital part of Aboriginal health care, and its value is recognised and supported". (Devanesen 2000).

Increasingly the medical profession has recognised that 'health care belief systems are critical to the patient's healing process' and overseas studies have shown that the practice and advice of traditional healers is often valued more highly than the advice from western medical practitioners. This situation holds true in most countries, as traditional medical practitioners advice is more in harmony with the cultural belief system of the traditional people of any particular country

According to Kaya (2007), the knowledge of and uses of specific plants and animals for medicinal purposes often referred to as indigenous or traditional medicine is an important component of African indigenous knowledge systems Saray (2001) shows that in most African countries, traditional medicine is used by roughly 70-80 percent of local populations to deal with their basic health care needs. Zimbabwe is rich in flora and fauna which can be used in the treatment of diseases. The African potato (Hypoxishemerocallidea) grows in KwaZulu-Natal and has traditionally been used for its many medicinal properties. Traditional healers use it to treat cancer, for example. Recognizing its medicinal value, the University of Stellenbosch has done research and developed a medicine that enhances the body's natural defense system. This case study shows how traditional and conventional medicine can complement each other in the fight against diseases. Traditional medicines that originate from TMK are usually crude products that include raw plant material such as leaves, flowers, fruits, seeds, stems and roots, processed into powder, liquid and other forms. Local plant, animal and minerals are used directly as raw material for medication. Prescription of traditional medicine is either administered as a single-herb prescription or multiple-herb prescriptions. The rationale is that diseases are caused by a loss of homeostasis that involves more than a single function of the body or a particular organ. Thus, the treatment needs to be multi factorial (Yuan and Lin, 2002). Two major reasons for using multiple factorials instead of single-herb medicines are to enhance the action of the main drug(s) and to mitigate the toxic side effects of principal component drugs

Concluding remarks

It is critical to realize that both the traditional and the conventional medical systems has a lot to offer to the holistic care of the people in both rural and urban areas and because of this, both should be utilized. These two systems should exist side by side and accorded same respect by the government. Funding of both systems should be done by the government.

In Zimbabwe, both systems can be found in sectors of society that includes agriculture, public health, culture, and education. It is in the area of public health that needs cooperation between modern health practice and traditional medical care. The interface between African indigenous medical system and modern western medical knowledge systems can best be illustrated by pharmaceutical companies which visit traditional medical practitioners and consult them on the use of various herbs, but what is crucial is to follow the correct intellectual property rights procedures.

Recommendations

- The traditional and conventional medical systems should cooperate and compliment each other.
- Traditional medical practitioners' council should be more visible and assist the traditional medical practitioners to be more visible
- Funding of both systems should be done by the government.
- An effective patient referral system should be established between the two health delivery systems

• The education system in Zimbabwe should take an active part in assisting disseminate traditional medical knowledge such as traditional medical herbs.

References

Ajete, G. (1994). Look to the mountains: An Ecology of indigenous Education. Kyland, NC Kivaki Press.

Alcon, B. J. (1984). Huastec Ethnohotany University of Texas Press, Austin, USA.

Berkes F., George P. J., Preston R. J., Hughes A., Turner J., Cummings B. D. (1994). Wildlife harvesting and sustainable regional native economy in the Hudson and James Bay Lowland, Ontario. Arctic 47, 350–360

Bourdillon, M. F. C. (2001). Where are the ancestors? Changing culture in Zimbabwe; Harare: UZ Publications. Brown, J.S., &Duguid, P. 2001. Knowledge and organization: A social-practice perspective. *Organization Science*, 12(2): 198-213

Chavhunduka, G. (1994). TraditionalMedicine in modern Zimbabwe.Harare: UZ Publications.

Davenport, T. H. and Laurence, Prusak, (2000). "Working Knowledge: How Organisations Manage what they know." Boston, Harvard Business School Press.

Davenport, T.H., &Prusak, L. 1998. What do we talk about when we talk about knowledge? Boston:Harvard Business School Press.

Davenport, Thomas H.; and Prusak, Laurence (2000). Working Knowledge: How Organizations Manage What They Know, Boston Massachusetts, Havard Business School Press Durban South Africa

Easterby-Smith & M.A. Lyles, eds., *The Blackwell handbook of organizational learning andknowledge management*. Malden, MA: Blackwell, 161-184.

Easterby-Smith, M., & Araujo, L.J.1999. Organizational learning: Current debates and opportunities. In M. Easterby-Smith, J. Burgoyne, L. Araujo, eds., *Organizational learning and the learningorganization*. London: Sage, 1-22.

Elkjaer, B. 2003. Social learning theory: Learning as participation in social process. In M. Easterby-

Fox, S. 2000. Communities of practice, Foucault and actor-network theory. *Journal of ManagementStudies*, 37(6): 853-867.

Harris, M. (1968). The Rise of Anthropological Theory Thomas Y Crowet, New York.

Hewlett B., Cavalli-Sforza L. (1986). Cultural transmissionamong Aka pygmies. Am. Anthropol. 88, 922–934. doi: 10.1525/aa.1986.88.4.02a00100.

Hill K., Hurtado M. (1996). Life History: The Ecology and Demography of a Foraging People. Hawthorne, NY: Aldine de Gruyter.

Koro, E. (2005). Medicinal Value of Indigenous Plants Ensures Livelihood in South African Communities, World Bank Development Outreach.

Mamwenda(1994) Educational Psychology. Interpak natal Pietermaritzburg .Republic of South Africa Marshal, N. T. (1997). Searching for a Cure: Conservation of Medicinal Wildlife Resources in East and Southern Africa, London: Longman Private Limited.

Marshall L. (1976). "Sharing, talking, and giving: relief of social tension among the Kung," in Kalahari Hunter-Gatherers, eds Lee R. B., DeVore I., editors. (Cambridge, MA: Harvard University Press;), 349–371

Masocha, M. et al,(2002). Identification of Medicinal Plants Used in the Treatment of Abdominal Diseases, Harare:Prince Press.

Nonaka, I.and Takeuchi, H. (1995). The knowledge – creating company, How Japanese create the dynamics of innovation, Oxford University Press.

Ocholla, D. N. and Onyanchia, O. B. (2006). The Marginalized Knowledge. An informatric analysis of indigenous knowledge publications 1990 – 2004. South Africa Journal of Libraries and Information Science. Vol 71 No 3, 247 – 248.

Ohmagari K., Berkes F. (1997). Transmission of indigenous knowledge and bush skills among the western James Bay Cree women of subactic Canada. Hum. Ecol. 25, 197–222. doi: 10.1023/A:1021922105740.

Plaskoff, J. 2003. Intersubjectivity and community building: Learning to learn organizationally. In M.Easterby-Smith & M.A. Lyles, eds., *The Blackwell handbook of organizational learning and knowledge management*. Malden, MA: Blackwell, 161-184.

Ruddle K., Chesterfield R. (1977). Education for Traditional Food Procurement in the Orinoco Delta. Ibero-Americana 53. Berkeley: University of California Press.

Schultz, M. 2003. Pathways of relevance: Exploring inflows of knowledge into subunits ofmultinational corporations. *Organization Science*, 14(4): 440-459.

Warren D. M. (1990) Indigenous Knowledge Systems for Sustainable Agriculture in Africa. Keynote Address, International Conference on Ohio: The Ohio State University, Centre for African Studies