

Locating the Centrality of African Languages and African Indigenous Knowledge in the *Embodiment* Thesis: Implications for Education

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ABSTRACT Engaging with the environment via African Indigenous Knowledge Systems (AIKS) impacts on human consciousness and establishes modes of communication mediated through language. The *Embodiment* thesis is that language and knowledge acquisition are acquired through an intricate process of perception, action of the body and cognition of the mind creating awareness with the self and community. This view offers deeper insights than the traditional Cartesian split of mind/body. Knowledge of this embodiment can enhance understanding of abstract thoughts generated in language communication embedded in sociocultural contexts. This knowledge can lead to improved practice in pedagogy of African languages and AIKS. The study explores examples of bodily interactions and speech as evidenced in metaphor use in African languages. Metaphors are excellent expressions of embodied phenomena. The evidence from the study suggests that knowing about embodiment can facilitate embodied approaches in promoting the development of African languages and AIKS. The implications for education of an embodied approach are explored in learning and teaching of African languages and AIKS.

INTRODUCTION

Indigenous Knowledge and African Indigenous Knowledge

Research scholars have provided several interpretations of the term indigenous knowledge systems (IKS). Often, it is referred to as “a body of knowledge produced and owned by local people in their specific communities and passed on from generation to generation, through practice and, mainly, oral channels” (Govender 2012). Kincheloe et al. (2008) refer to IKS as a “multidimensional body of understandings” or “alternative ways of knowing” and is often viewed by Western culture as inferior and primitive. According to Nakashima (2000), these sets of understandings, interpretations and meanings are part of a cultural complex that encompasses language, naming and classification systems, practices for using resources, ritual, spirituality and world view. It provides the basis for local-level decision-making about many fundamental aspects of day-to-day life; for example hunting, fishing, gathering, agriculture and husbandry; food production; water; health; and adaptation to environmental and social change.

It is educationally valuable to perceive IKS as *embodied* experiences and as the storehouse of human consciousness and understandings

where knowledge acquired through creative thinking and critical reflection by the human mind is inextricably linked to the environment, acquired through centuries of cultural practices, mediated through languages and established by customs.

While IKS is an umbrella concept, African Indigenous Knowledge Systems (AIKS) refers, in particular, to African local knowledge, including a holistic body of knowledge, expertise and practices maintained and developed by African peoples in Africa. They generally inhabit rural areas and have had extended histories of interaction with their natural environment and a systematized collection of their experiences. Ogunniyi (2007), an African IKS scholar sees AIKS as “a conglomeration of knowledge systems encompassing science, technology, religion, language, philosophy, politics, and other socio-economic systems”. AIKS thus comprises a complex and holistic system (Govender 2012). Onwu et al. (2004) insist that claims of knowledge of indigenous practices in Africa “were not just ways of working; they were ways of knowing and thinking”. While indigenous knowledge scholars seek to promote a repository of heritage and history, they are also critical of education, its scholarship in academia and language policies (Kincheloe et al. 2008). They also seek an integration of indigenous knowledge and

scientific endeavours on an equal footing (Govender 2014; Ogunniyi 2004).

In the global knowledge arena, Africa's AIKS contribution is "generally unknown, unrecognised or often regarded as traditional and archaic" (Govender 2012: 114). The historical and contemporary African knowledge contributions to the global education spectrum is largely absent, even though research has documented indigenous technology, astronomy, cosmologies and social systems in Africa (Chirikure 2013; Selin 1993; Snedegar 2007). Emeagwali (2014) adds that this "accumulated knowledge is of relevance to self-esteem, sustained indigenous inventiveness, endogenous technological growth, and employment generation". To enhance and strengthen self-esteem, the ability to know, speak and write about and share one's indigenous experiences requires the use of one's endogenous language developed from a variety of exposure to the real world. To be inventive requires multidisciplinary knowledge accessed from several sources leading to self- and community employment and wealth generation. While certain areas like agriculture and the relationship between IKS and Western knowledge have been explicitly focused on in the literature, there are still many embedded connections that need to be unravelled relating to language that may provide valuable insights to African education and to economics in meeting the Millennium Development Goals (MDGs).

The environment in Africa and knowledge generated via African Indigenous Knowledge Systems (AIKS) impact on human consciousness and establish modes of communication, thinking, learning and reflection mediated through language. The *Embodiment* thesis offers newer and deeper insights than Cartesian dualism about understanding how the body and mind engage in learning, and is supported by recent studies in human neurobiology and cognitive neuroscience. Knowledge of this process can strengthen language communication, socio-cultural relations, and learning in education, leading to improved practices and preservation of African languages and AIKS. The study explores the role of African languages, AIKS and its relation to the embodiment thesis.

African language erosion is directly linked to the history of colonization throughout Africa. Colonialists in Africa propagated a worldview of the superiority of the colonial language

es, often through the guise of missionary work and preached the inferiority of indigenous languages (Worger 2001). Sustained colonization over generations has resulted in the suppression of indigenous thoughts and voices and has dominated African society by its Western cultural symbols, primarily through permeation of its languages (Semali et al. 1999). The Western Cartesian worldview was propagated as superior to African cosmology and culture. McKinley (2005) states that the recovery and restoration of indigenous identities, knowledge, and experiences are strongly linked to the revitalization of indigenous languages. Language is not just a tool for communication, but central to any human society both as a means of communication and as a purveyor of culture. The issue of language is complex when exploring development in African countries as economic development, multilingualism; power politics and philosophy are all intertwined. Colonialism is still present both in the dominant form of Western knowledge and in its colonial languages like English and French that have become the *lingua franca* in many African countries. Romaine (2013) adds that "As long as education is delivered mainly in international languages at the expense of local vernaculars, education will reproduce rather than reduce inequality of access. Only by putting language at the centre of development, can we close the gaps". Contestations of indigenous languages be they in South Africa with its nine African languages or Kenya with Kiswahili and local languages, still stir debates with the *lingua franca* competing for status with regard to international economics, national social cohesion and/or implementation in local regional African classrooms. 'Triangualism' with an African language, English, and/or French as official languages and a local language seems to be a popular policy but not without some dissenting views from minority communities (Mule 1999). For example, some of the San and Khoe (Nama) minority communities, as original indigenous inhabitants of Southern Africa, want their children to be taught their languages at school as their AIK has not been passed on to the younger generations who have adopted status languages of their local communities.

Local languages are embedded in indigenous knowledge and their separation from IKS will result in misinterpretation and confusion of deep-ly nuanced knowledge. In a time of scientific

and technological globalization and increasing cross-cultural migrations, indigenous languages and knowledge are often dismissed as irrelevant as the lingua franca and knowledge of colonizers seem to be the acceptable global norm. While most children acquire their mother tongue and cultural norms through knowledge embedded in their daily contact with parents and their immediate society, when they attend schools, the curricula to which they are exposed are largely Western, transmitted in a colonized language. Thus, their everyday classroom experiences are fixated on mostly abstract knowledge, far removed from their indigenous and cultural experiences. The colonized language policies result in an identity crisis, loss in cultural values and a disdain for local indigenous knowledge, often relegated to concepts of 'outmoded', 'superstition' and 'inferior' (Ogunniyi 2011). While philosophers and educationists such as Lev Vygotsky, Paulo Freire, Julius Nyerere, Kwame Nkrumah, Joseph Kincheloe, George Sefa Dei and Frantz Fanon, amongst others, advocated for a sociocultural literacy that closely identifies with the immediate and natural environment of the learner, the mother tongue in its local context and its development are crucial to this endeavour. Kunnie (1995) in Semali et al. (1999) refers to this as "educational decolonization" a process of re-creating an educational system in Africa that is rooted in AIK and African history where African languages constitute a critical component.

Jared Diamond cites in his book *Collapse* how loss of languages and IKS will reduce diversity, narrow our ways of knowing and make the world poorer unless we take drastic action (Diamond 2005). He narrates how different societies choose to fail or succeed and cites how some southern Native Americans survived using their IKS in dry areas using knowledge from hunter-gatherer skills, a few domesticated animals and agriculture. Could Africa survive in a similar way? The late Nobel Peace Prize Laureate in 2004, Mathai Wangari (Maathai 2010) and founder of the Green Belt Movement in Kenya derides Western colonial powers by noting that being African "is bound up in our languages, rich in aphorisms from the natural world and our fragile and almost forgotten past. We are fighting for the future of our children... and the future generation of other species."

How should we approach both the study of indigenous languages and African Indigenous Knowledge (AIK), and on what philosophical, scientific and educational research bases can these decisions be made, given the impact of recent studies on body-mind interactions? There are few studies examining the role of African languages in AIKS linked to the embodiment thesis and what this connection implies for education, hence the study.

Theoretical Framework

Embodiment Thesis

The importance of embodiment in cognition is now widely appreciated in the cognitive sciences, yet there remains considerable debate as to what the term "embodiment" actually means (Ziemke 2003). Many questions are still to be explored, for example, is the body a socially and culturally constructed artefact? A summarized version of Embodied cognition (Johnson et al. 2007) is the "result of the evolutionary processes of variation, change, and selection"; "situated within a dynamic ongoing organism-environment relationship"; and is "often social and carried out cooperatively by more than one individual organism". The embodiment thesis is central to cognitive semantics, both as a general philosophical and psychological perspective, and as a source of specific hypotheses about linguistic meaning, metaphor, imagination, and cognitive mappings (Lakoff et al. 1999). Sinha et al. (2000) argue that the embodiment thesis contests the Cartesian dualism which influenced research on philosophy of mind, modern linguistics and traditional cognitive science thinking. They add that whereas the Cartesian dualism posits a universal rationality of mind-body split, the embodiment thesis stresses the "continuity and motivating character of the relationship between pre- or non-linguistic bodily experience, and cognition" and seeks deep explanatory principles in human neurobiology. This thesis is consistent with current thinking in cognitive neuroscience (Damasio 2000). The embodiment thesis is thus very much in harmony with the current growing cognitive science research and "indeed can be seen as one of the main philosophical contributions which cognitive linguists have made" to this new cognitive science (Sinha et al. 2000). Research findings in embodied

cognition have been generalized to language comprehension and has shown that “understanding and making meaning of the linguistic stimulus is greatly dependent on one’s perception of the external world” (Fahim et al. 2015: 75).

Although the embodiment thesis is distinctive, it nevertheless has associations with earlier accounts in cognitive psychology of image schema and force dynamics, and Piaget’s account of the sensorimotor foundations of cognition in infancy and in his considerations of the importance of social interaction in cognitive development. He has been criticized for his neglect of his cognitive elaborations of language, and of its possible formative role in cognitive development. The Embodiment thesis also shares similarities with Gestalt psychology. Importantly, the sociocultural aspects to language connections were developed by Lev Vygotsky who emphasized a more socioculturally oriented approach to the development of language and cognition (Vygotsky 1978). His work in terms of the Embodiment thesis was limited as he was inclined to see “cognitive mappings in terms of a one-way street from individual (embodied domains) to society (abstract and social domains) (Sinha et al. 2000). The embodiment thesis can be stated as a general proposition: [The] “properties of certain categories are a consequence of the nature of human biological capacities and of the experience of functioning in a physical and social environment” (Lakoff 1987). Another general formulation of the Embodiment thesis: The human body (and nervous system) interacting with the physical (and social) world is the universal source of image schemas (and event schemas, force dynamic and motion schemas) (Sinha et al. 2000).

Both propositions of the Embodiment thesis acknowledge the interactive nature of the experience, which gives rise to cognitive categories, and the fact that the environment in which humans function and grow, is a social and a physical one. It is limited in its specificity of how such varying experiences may be relevant to the categories that are formed because of such experience. A significant claim that the Embodiment thesis makes is the embodied experience “structures through metaphoric extension many other non-physical (for instance, psychological and social-interpersonal) domains” (Sinha et al. 2000). This is a central tenet of cognitive semantics and cognitive metaphor theory, and can be

illustrated by many well-known examples including African languages embedded in AIKS that are explored in this study.

In young children, both spontaneous speech information, and experimental evidence regarding pre-linguistic cognitive schematizations of rudimentary spatial relations, point to the conclusion that early spatial schemas involve “non-self” events and objects, including their developing bodies. From comparative linguistic evidence, ‘bodily’ interpretation is manifested in the languages of the world, where body parts are used figuratively in reference to non-animate objects or phenomena, for example ‘the foot of a mountain’, ‘head over heels in love’, amongst others. The use of body-parts to express spatial orientation is widespread, for example, ‘front’ and ‘back’, and in some African languages, spatial relational meaning is linguistically conceptualized regularly. Heine (1997) concluded that “the ability to use the human body as a structural template to understand and describe other objects can be assumed to be universal”. Sinha et al. (2000) argue that if the embodiment thesis is to remain a central notion in cognitive semantics, it requires a reformulation of terms which are psychologically realistic, and which link them more explicitly to systems of cultural schematization and interpretation. Significantly, different conceptualizations of the spatial notion of ‘containment’ are found to exist in different cultures and in different contexts with different purposes. For example, in African cultures, the ‘calabash’ serves as a container used in beer-drinking which may not be a familiar ‘container’ used in other cultures. In some cultures, the ‘calabash’ is used solely as a food item and hence ‘containment’ is differently involved. The example illustrates that language-acquiring children are “predisposed”, through their experiences of “interaction with the material world as this is culturally presented, and through the mediation of cultural practices, to employ comprehension strategies that are consistent with the specific semantics of the languages they are acquiring” (Sinha et al. 2000).

The hypothesis that the occurrence of everyday artefacts are not ‘culturally neutral’, and they embody different conceptualizations or cultural schemas. This extended embodiment is constituted by being immersed in authentic cultural linguistic or non-linguistic practices. Furthermore, cultural schemas find a further mani-

festation in the lexico-grammatical structures of natural languages, and it is no surprise that children are adept at acquiring the specific conceptualizations and expression mappings of their mother tongue. In this regard, Bowerman (2000) confirms that an important and agreeable claim is that “children link linguistic forms directly to concepts and categories that they have already established in the course of their non-linguistic cognitive development.”

Evidence of embodiment in languages is the presence of metaphors (amongst others) which is linked to abstract thought processes via conceptual mapping processes. Metaphor in language has been analysed successfully via Conceptual Metaphor Theory propounded and developed by recent studies (Fauconnier et al. 2008) provide newer evidence to the Embodiment thesis. Briefly, mental constructions like making sense of metaphors involving many mental spaces and many mappings in elaborate integration networks. Such integration networks underlying thought and action are always a mix. Cultures build networks over long periods that are transmitted over generations and specialized techniques for building particular networks are conveyed. As people are capable of innovating in any particular context, new networks are formed facilitating conceptual blending, explaining the way we think (Fauconnier et al. 2003). African languages are rich in abstract linguistic cognitive structures such as metaphors and these are socio-culturally acquired through AIKS. Some examples of metaphors from African languages and AIKS are further used to illustrate evidence in support of the centrality of language and AIKS in the embodiment thesis in body/mind interactions.

OBSERVATIONS AND DISCUSSION

Language and IKS Policies in South Africa

South Africa (SA) is now a democratic, multicultural and multilingual country with a recognition of 11 official and other secondary official languages and alternative ways of knowing including AIKS (DST 2004). The major task is to develop the policies into realizable and sustainable goals, given the dynamic nature of world order and the rapid extinction of cultural and language practices through universalism and globalisation. In 1994, the government formulat-

ed language policies to protect linguistic diversity, to promote language equity and multilingualism, and develop the marginalised African languages. The Language in Education Policy (LiEP) in SA (Education 1997) enshrines the right to education in the language of choice in which the home language (L1) is maintained while providing access to and the effective acquisition of additional languages. Despite these policies, there is poor implementation, while English and Afrikaans continue to be the dominant colonizer’s languages in South Africa (Balfour 2007). Reasons may be due to the international status of English in the trade, economic and academic worlds, employment and career opportunities, and negative attitudes to the African languages (Beukes 2009), which are considered largely as regional languages. Nowadays, there is a growing call for African languages to be developed as instructional media in schools and universities to raise their practical value and their epistemic academic status (Ndimande-Hlongwa et al. 2010).

A revised language policy, 16 years later (DBE 2013), is now in place focusing on the strengthening of African language teaching to improve learning outcomes. The Incremental Introduction of African Languages (IIAL) (DBE 2013) policy aims to promote and strengthen the use of African languages by all learners in the school system. This is to occur by introducing learners incrementally to learning an African language from Grade 1 to 12 to ensure that all non-African home language speakers learn an African Language; by strengthening the use of African languages at Home Language level; and by promoting “social cohesion by expanding opportunities for the development of African languages as a significant way of preserving heritage and cultures.” The latter statement points to the preservation of AIK as well.

South Africa’s government AIKS policy proposes the integration of AIKS into several disciplinary areas such as language, education, commerce, agriculture, and sciences, among others, and the policy implies several challenges to the idea of knowledge at post-colonial universities in South Africa, but this has serious and practical implications for educational development (DST 2004). The policy explicitly highlights the affirmation of African cultural values, the recognition of ‘experience and wisdom’, and the

integration of services provided by indigenous knowledge practitioners into disciplinary areas.

Connecting AIKS to Language Development

African languages and AIKS are inextricable linked and often, both are at risk when colonized languages and Western knowledge are dominant. While policies exist to strengthen African identities, minimal details are given on how language education will be approached philosophically and methodologically and used to preserve heritage and cultures in concrete and practical ways.

The interaction and development of the self in our sociocultural environment facilitate modes of thinking, language use and behaviour in a dynamic cultural milieu. Language is thus developed from our bodily actions creating thoughts and memory. These are not mutually exclusive processes. The process of education begins well before the birth of the child as neural networks interact with bodily movement-action and create active memory sites in the brain. The accumulated findings from researchers in diverse linguistic and cognitive fields over four decades (Lakoff 2012; Lakoff et al. 1999; Sinha et al. 2000) synthesize towards a viewpoint that language and knowledge acquisition are acquired through intricate processes of perception, action of the body and cognition of mind (thought, thinking and reflection) – the *thesis of embodiment*. The Embodiment thesis is supported by theory and current experimental research in cognitive science and human neurobiology. The three major findings of cognitive science are ‘the mind is inherently embodied’, ‘thought is mostly unconscious’ and ‘abstract concepts are largely metaphorical’. Lakoff and Johnson (1999) explain reasoning in terms of embodiment as Reason is not a transcendent feature of the universe of or disembodied mind. Instead, it is shaped crucially by the peculiarities of our human bodies, by the remarkable details of the neural structure of our brains, and by the specifics of our everyday functioning in the world. Reason is evolutionary. Reason is not completely conscious, but mostly unconscious. Reason is not purely literal, but largely metaphorical and imaginative. Reason is not dispassionate, but emotionally engaged.

As African languages developed in interaction with the land, people, and natural phenomena for self and communal survival, creative explanations of the happenings were sought connecting language to the local socio-cultural-environment. Wangoola (2000) in considering African culture and a philosophy of the Africa spirit states that for millennia, African communities were “guided and driven by a world and value system at the centre of which was a closely intertwined trinity of forces, values, and considerations”. The forces refer to African spirituality with a belief that humans are a link in the vast chain of nature, encompassed by animals, plants, inanimate objects like land, values of respect for all things and considerations of reverence and harmony in nature. In the case of survival threats to communities, for example, a drought, the body’s well-being (both individual and social) and continued successful functioning are in peril. Action must be undertaken to ensure the immediate survival of the living, physical, individual body. To flourish, the body must make modifications, both within its current peril and in its relations with other bodies. In this extreme situation, a case cognition arises that is social, composed of multiple bodies co-operating to alleviate the crisis posed by problems in the environment – the environment is not merely physical but also includes the social ‘body’, including the family, the people in the community or the animal population whose survival and sustainability are at risk.

Cognition, as a bodily-mental, partly genetically-based action ensures that the harmony in nature includes a perspective of collective identities and collective self-reliance in the world. This evolutionary embeddedness of the body within its changing environments, and the development of thought in response to such changes, link the mind inextricably to the body and the environment. Johnson et al. (2007) elaborate that the “mind is never separate from body, for it is always a series of bodily activities immersed in the on-going flow of organism-environment interactions that constitutes experience”. In the African context, this experience could be interpreted as ‘indigeneity’ or ‘indigeneness’. Dei (2008) uses the notion of ‘Indigeneness’ to argue for the “African cultural resource knowledge as a means of epistemological recuperation for local peoples”. He adds that in indigenizing the education curriculum, we

should start from what African people know and re-read the curriculum to consider the history, culture (including languages), tradition, past, and identity in decolonizing the Westernised curricula (2014). This paper magnifies the concept of African 'Indigenusness' by arguing that locating the centrality of African languages in AIK through the *embodiment* thesis will contribute further towards achieving the goals of IIAL and African language and AIK preservation. The embodiment thesis has practical implications for education and survival especially in the current dynamic contexts.

Examples of Embodiment in the use of Metaphors in African Languages

Orality, Poetry, Riddles and Literature in African languages

The richness of African oral and written languages is contained in its metaphorical expressions connected to materiality and spirituality. Poetry and African literature are rich in thought and language as narrative writing provides the grammar in language, enriching syntactical and extending lexical use in the language. The rich descriptions of literary devices and figures of speech such as idioms, analogies, metaphors, metonymies and melodic features are found in African literature. Scriptures are also rich in such literary devices. African experiences of the environment, history, politics and ethics are embedded in both oral and written literature. For example, the praise-poetry *izibongo zamakhosi* (in isiZulu) is complex, highly polished praise for royalties, clans, animals, history in Southern Africa, is scripted by bards known as *izimbongi* and are found in several African languages. These poems are rich in imagery, and when expressed with feelings, bring about the emotive, historical and relational aspects of embodiment and connect us to the world as experienced by the poets in their respect (*Ubuntu/Botho*) for their leaders. They are also oral records of historical and cultural events (Turner 1994). In praise poetry, heroes and chiefs were often associated with the Sun's light and heat. The Sun was viewed as physically and symbolically the most potent celestial body and viewed 'in the relation to the moon and stars as a Zulu chief to his subordinates'. This simile expressed hierarchy and leadership qualities in the African political systems.

An early example in the 1830s that refers to the use of metaphors the Bantu languages, Worger (2001) adds that working out meanings in these languages, especially for the early missionaries was a difficult business, especially since these languages were not nearly so simple as some claimed. Worger cites John W. Appleyard, a missionary and dictionary writer who studied Xhosa and argues that African languages, were not at all "irregular in their formation, nor barbarous in their construction." These languages were "highly systematic, and truly philosophical", "superior to many in ingenuity of form, and inferior to few in the expression of thought". Another example of the complexity of SeSotho, is the existence of two words to distinguish between the earth as a whole and as matter, and five to express the word 'day', considered as a period of twelve hours, or as an interval of light (Casalis 1861: 320). Such examples were narrated by Casalis (1861), who had proselytized among the BaSotho since the 1830s. He also considered the language already well supplied with all "the metaphysical and religious expressions" required in the literal translation of the scriptures. However, the metaphor really distinguished southern African languages. Casalis (1861: 307) argued that so abundant was the use of this form of speech in SeSotho that "one could hardly speak it without unconsciously acquiring the habit of expressing one's thoughts in a figurative manner". Similarly, Appleyard remarked that the Bantu languages were characterized, above all, by their 'free use of tropes and figures'. Indeed, Worger (2001) suggests that the difference between African and European languages did not lie in issues of "inferiority and superiority, nor of barbarity and civilization, but in the significance of figures of speech."

Oral traditions are part of Africa's cultural wealth and are found in various forms and expressions. Folklores are a rich source of oral traditional literature. Vusamazulu et al. (1964) in his book 'Indaba my Children', a compilation of stories of African tribal history, legends, customs and religious beliefs, uses personification and metaphors liberally as rich and emotive imagery. For example, he writes of the grand epic of Lumukanda, a slave who changed the destiny of an empire, and says it is still sung and chanted by many tribes today. He notes, though they had the tyrant feet securely planted - but they could not control or rule the River Time, which

swallows the proudest empires and over rapids now cascades the Canoe of Eternal Death, carrying with it the empire of the Strange Ones to the Seas of Oblivion.

Animal metaphors are also widespread in isi-Zulu because of the Zulu nation's traditional closeness to wildlife. Scholars have demonstrated the dynamic and enduring legacy of animal metaphors where images of small and big animals are used to create rich imagery. Examples drawn from various literary genres show the metaphor 'People are Animals' to be a particularly good example of a basic conceptual metaphor from which there is an extensive and systematic knowledge of the animal kingdom (Hermanson et al. 1997). In Govender's (2011) study of Zulu ethnoastronomy, students describe, in metonymical terms, the shape of the Moon in a particular phase using horns of animals. For example, "When the horns of the new Moon points down they say it's going to rain and when it points up there is going to be drought". The concavity between the 'horns' of an animal is used to describe the crescent shape of a new Moon vividly and this is linked to observations of rainfall in the environment - their AIK. In the same study, the seasonal change of the Sun's position on the horizon for a few days is described by the metaphors as the winter house (*ubusika ikhaya*) and the summer house (*ihlobo ikhaya*) as the Sun is 'stationary' for a few days. These metaphors, based on years of observation, represent highly compressed integration networks of conceptual mappings passed over generations and were still narrated by students in the study.

Researchers also examined the relations between metaphor and emotions and it is a well-established feature of emotive language that it is highly figurative and dominated by metaphorical and metonymic expressions (Kövecses 2003). Emotions in African social-cultural relations, embedded in language, are also composed of a number of parts: metaphors, metonymies, and hidden cultural models. Although there is a great deal of "commonality in emotion concepts and metaphors across languages, cultures and through time", there is a great deal of variation as well (Kövecses 2003). In examples, comparing emotion metaphors in English (Lakoff 1987) and with those of Chagga people in Kenya, the example of lust or sexual desire, which is com-

monly conceptualized as heat (of fire) or the 'Lust is Heat' metaphor in English and the 'Sex is Heat' metaphor in Chagga, provided a differential perspective and emphasis on sexuality in comparison to the English metaphor. The target domain to which it applies is slightly changed (it involves male sexuality only) and the source domain is employed differently in Chagga than in English. In other words, the domain of sexuality is framed differentially in the two languages despite the same source domain that is employed. This metaphoric example illustrates that embodiment may consist of a variety of aspects and any of these may become the preferred one in a given culture and at a given time. Certain aspect (s) may receive more attention from speakers of a language and will largely depend on the broader cultural context. Hence, metaphoric understanding has implications for interpretation and understanding in multilingual societies. Teachers in Africa need to be aware of these subtle distinctions when using and assessing comprehension in the transfer use of different languages.

Riddles make an important contribution to children's participation in African communities, especially by fostering critical thinking and transmitting indigenous knowledge. Riddles in Africa are used to test knowledge and as a mental game and a form of art. A collection of riddles are explained, describing the metaphors employed and the Zulu way of life by Roux, Burnett, and Hollander (2008). Riddles play an important role in the traditions of African speech and conversation, and while they are simple, they convey much meaning in a few words. Like proverbs, African riddles are brief and generally based on observations of nature. Riddles (*iziphicaphicwano*) involve highly referential word play, for example, I quiz you about the white cattle herded by a red bull (*Ngiyakuphica ngezinkomo ezimhlophe ezaluswa yinkunzi ebomvu*). The answer is 'the teeth and the tongue' (*Amazinyo nolimi*) (Turner 1994). The answer to this riddle consists of 'teeth' replaced by 'cattle' and 'bull' replaced by 'tongue'. The embodiment aspect inscribes bodily parts that are easily identified by children but the abstract term 'red bull' is not easily connected and confuses the children as there is none observed and requires a mental search to two different but related things or objects.

Art, Sculpture, Artefacts and Music

Metaphors are not only evident in the African languages but in artefacts as well. More than oral and written works, two- and three-dimensional images of artefacts can evoke the concrete sense experience of life. Original artworks and sculptures are not easily accessible but images of these in print form, are starting points that can stimulate the observer into Africa's identities and wealth of knowledge inscribed in their form (Bargna 2008). Literary and aesthetic interpretation of these artworks can be incorporated in education on a wide scale. In Zulu culture, metaphors are also embedded in artefacts such as coloured beads. For example, the bead colour metaphors, that facilitated the traditional Zulu society's precepts, originated from the 'oral culture'. Interfaced with Ong's theory of 'oral culture' is the conceptual metaphor because the language of beads is also metaphorical (Biyela 2013; Winters et al. 2008). Beads have a long history in Africa, associated with royalty and monetary value. Bryant (1967) records that Zulu girls strung different beads in a special order, as necklaces or pins, to make a 'Zulu love letter' or a book (*iNcwadi*) narrating messages and moods such as "My heart today is white (happy); my heart is black (depressed)" and were colour coded, for example, "red for soldiers", "green for corn", amongst others. The beadwork tradition is still continued by women who "safeguard a material culture rich in symbolic motifs" (Winters et al. 2008).

Mutwa (1964) also describes, in his African grand epics, the story of the 'The Spawn of the Dragon' and the experiences of Princess Marimba, a chieftainess of the Wakambi tribe surviving in a forest. He describes how she makes the Marimba drum and describes in detail the making of the marimba-xylophone and how music metaphorically "speaks to the heart and the soul" of Africans. He adds that since the wood comes from a hardwood tree, the tree should not be destroyed during war or famine. Embedded in his stories is knowledge of language, artefacts, ethnoastronomy, song was on Marimba's first song sung with her instrument, environmental awareness and sustainability.

Implications of Embodiment for Education

The demand for English-medium education has increased dramatically in Africa, as elsewhere, due to globalization. Even though local

languages are used as mediums of instruction (MOI) in most primary school in African countries, the former colonial languages are still valued at the local and national level as MOI, in the case of Lesotho, Zimbabwe, and South Africa, amongst others. This signifies that the role of competent teachers of African languages is crucial in implementing new language policy, but teachers need resources and sustainable training to ensure adequate and sophisticated acquisition of language pedagogy for classroom implementation (Hamid et al. 2014).

The integrated use of African Indigenous languages and AIKS in communities and in formal education is also of paramount significance to restore historical injustices and to promote sustainable development in resolving problems. The use of African indigenous languages as a means of instruction is essential to develop the culture and language to go beyond "conversational and technocratic levels of language to an academic capability". In this regard, some South African universities have taken strides to implement a bilingual policy in their teaching at different levels, for example, the University of KwaZulu-Natal (UKZN) in South Africa, instituted a bilingual language policy in 2006 based on the framework of the National Language Policy for Higher Education of 2002 (Ndimande-Hlongwa et al. 2010). It now offers English and isiZulu as the language of instruction in some of its programmes. AIKS is also included as a full degree in some institutions, or some degrees include modules that address a host of AIKS issues from health, agriculture, and cultural astronomy, amongst others. In some South African tertiary institutions, an African language module is compulsory for all students, and, at UKZN, students qualifying for their degree now need to complete a module in isiZulu. Kamwendo et al. (2014) analysed the use of isiZulu through the four theoretical perspectives, namely, African scholarship, Africanization of higher education, the African Renaissance, and transformation, and conclude that whilst there are challenges in using isiZulu as a medium of instruction, indigenous African languages can contribute to the development of knowledge in higher education and African scholarship.

When indigenous languages are incorporated into the curriculum, they help students understand principles and link Western science to indigenous ways of knowing, thus sustaining

indigenous languages and heritage (McKinley 2005). Studies in various countries with indigenous students have shown the positive value of incorporating indigenous languages into teaching (Shizha 2007). Indigenous languages are important in facilitating border crossing among students. When students move from their everyday culture into the culture of school science, the move is called *cultural border crossing* (Aikenhead et al. 1999). The language of instruction in African schools and lack of AIK or reluctance by teachers to recognize AIK as an alternate and viable means of knowing are major obstacles in students' cognitive development and learning outcomes.

The introduction of African indigenous languages and culture into schools is thus a laudable attempt to sustain indigenous knowledge and heritage. However, how this is done, and the extent to which it is done, are important. Curriculum development documents and textbooks that make use of contexts and words provide authentic experiences that are fully embedded in the learners' indigenous culture. The South African Department of Basic Education (DBE) had planned a rollout of the national Introduction of African languages (IIAL) in 2013 as part of a compulsory three-language plan that included at least one African language. On a positive note, a recent newspaper report (Anthony 2015) indicated that young learners were able to perform rhymes and songs related to African culture and languages, were able to read simple texts in the new language in a period of eight to ten weeks, and there was widespread support from all stakeholders. The introduction of African languages as conversational languages and as MOI in education and content discipline subjects in Higher Education is also promising to raise the academic recognition of these languages. The major implication contributed by the study is that since the embodiment thesis implicates bodily experiences in a cultural environment tied to language development, education must be stimulated in authentic African experiences from birth onwards in the re-awakening of the African self and community in decolonizing the mind. Educators need to be aware of the value of the *embodiment thesis* in learning and teaching. They need to move away from viewing language as a tool of communication only, taught in isolation from the indigenous experiences of their learners and begin to view

language as connected to the environment and encompassing our very existence as connected to all things in the universe.

CONCLUSION

The value and need for the restoration of African languages and AIK through learning authentic experiences and histories as integral in moulding an African identity are explained by the embodiment thesis. The persistent exposure of experiences pertaining to all African cultural activities, both in informal and formal environments, contributes to the body-mind development as concrete and abstract conceptual categories are mentally formed, providing the basis for thought and language. An important characteristic of embodiment in languages, as highlighted in this study, is the presence of metaphors, which is linked to abstract thought processes via conceptual mapping processes. The study confirms that African languages are rich in abstract linguistic cognitive structures such as metaphors and these are socio-culturally acquired through African Indigenous Knowledge systems. AIKS provides rich experiences for language and cognitive development. The embodiment thesis supports learning of indigenous languages from birth and continued teaching in the indigenous languages for experiencing the world and developing higher levels of cognition.

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