Indigenous Knowledge of Custodians of Zulu Culture – Implications for Multilogical Dialogue in the Academy

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Abstract

South African academic institutions and the government have recognized the importance of Indigenous Knowledge Systems (IKS) in the development of the country. The role of traditional kings, traditional chiefs and medicinal healers in the social, economic and political development of communities and the environment are recognized for their value in society. While there are new developments of IKS research in South Africa (SA), little has been done in academia to bridge the gap between students and lecturers at the tertiary level, to link them to the local community on an equal footing. This paper explores through interviews and dialogues with chiefs (*amakhosi*), headmen (*izinduna*), diviners-spiritualists (*izangoma*) and diviners-herbalists (*izinyanga*) their concerns about the state and future of IKS, and their aspirations for the inclusion of IKS into formal societal structures like universities. More specifically, the paper explores their experiential knowledge that can be incorporated in formal education, and their values and ethics linked to spirituality. An interpretive paradigm, using multilogical dialogue was used to frame this study. Seventeen African custodians of Zulu culture from rural KwaZulu-Natal were purposively selected to participate in the research. The data was inductively analysed by searching for themes. The interviews with the custodians also focussed on the attitude of the youth towards IKS, and the influence of religion on indigenous knowledge and practices. The implications of the findings offer new insights regarding the content of curricula in tertiary education and also pose challenges for how academia should respond to the inclusion of IKS in the curriculum.

Keywords: Indigenous Knowledge Systems (IKS), Zulu custodians, multilogicality, academia, culture

Introduction

Indigenous Knowledge (IK) refers to traditional, cultural, local and community knowledge (Sillitoe Dixon & Barr 2005:3). It is a body of knowledge produced and owned by local people in their specific communities and passed on from generation to generation, through practice and oral channels. By indigenous knowledge we mean the kind of localized knowledge that 'historically has been considered to originate from a particular place' (Manzini 2000:20). While IKS, as an aspect of culture, belong to all who participate, the guardians of traditional Nguni culture have been the kings, chiefs, headmen, traditional healers and elders. The term Nguni refers to an 'aggregate of Bantu-speaking peoples who live on the eastern coast of southern Africa' and who organized themselves in 'patrilineal, mostly pastoral, chiefdoms at the turn of the 19th century…' (Bargna 2007:106). This group, in particular, retain a substantial body of folklore and traditional knowledge transmitted to them via memory and this is sustained through leadership structures, rituals and celebrations. This includes indigenous knowledge of weather, agriculture, ethnoastronomy, and socio-political administration.

Historically and currently, IKS has been undermined in an era of modernization and globalization, and continues to be under threat of being lost in many parts of the world (Carter 2008; McKinley 2005). South African indigenous communities, in particular, are facing enormous Western challenges after colonization and apartheid, resulting in drastic changes that impact individual and community identity, leading to a loss related to cultural, language, traditional management and knowledge structures (Masoga 2005). In this regard the SA government with its National Department of Traditional Affairs - a legally recognized Council for Traditional Leaders of South Africa (CONTRALESA) and with parliamentary representations, play a significant role in ensuring that at the highest political level, the aspirations and problems of indigenous communities are addressed. Part of the CONTRALESA mandate is to restore traditional norms, values and knowledge consistent with SA democratic principles (Ray & Reddy 2003).

Recently there has been a mounting call for the role of humanities and social sciences (HSS) in South African universities to be strengthened in the development of our society, our economy and in our intellectual life (Govender 2012; Sitas, Mosoetsa, Tame & Lorgat 2011). The recent South African report on the Charter for Humanities and Social Sciences (CHSS) points to the 'absence of a large and relatively coherent social movement striving to attain a common goal, resulting in a rupture between popular struggles and the social sciences' (Sitas, Mosoetsa, Tame & Lorgat 2011:5). The report also suggests that critical questions, some requiring meta-analysis of several small scale studies that many academics are already doing, seek elucidation, analysis and coherence and perceives the role of the higher education system as pivotal to the 'modalities of development of the African continent and its manifold forms of heritage' (Sitas *et al*. 2011:6). Studies of IK systems and African indigenousness aim to promote a holistic understanding of knowledge as a shared responsibility that will stand in sharp contrast to the present compartmentalization of knowledge as entrenched in isolated disciplines at universities (Govender 2012). Sefa Dei (2008) suggests that the examination of African indigenousness is an alternative way of knowing the world, and he expands on this concept as follows:

> Different knowledges represent different points on a continuum; they involve ways that peoples perceive the world and act on it. Through daily practice, societies 'import' and 'adapt' freely whatever from 'outside' will enrich their accumulated knowledge. In this sense, 'modernity' is embedded in indigenous knowledges (Sefa Dei 2008:73).

This paradigm allows space for a holistic and critical discussion of the challenges of African education, and assigns the idea that there are '… commonalities in African peoples' culture(s) that should be interrogated and investigated to serve as the basis for Afrocentric unity' (Sefa Dei 1994:7). In this regard, the South African government and a few universities have focused on African scholarship to promote high quality research within the African context including Indigenous Knowledge Systems; Maritime Studies; Agriculture and Food Security; and Astronomy as niche areas for research development.

Indigenous Knowledges

In order to make a deeper sense of traditional knowledge and its evolution in the current Western and global context, both, the explicit and implicit aspects involving its custodians and community members need to be unravelled. IKS is indeed a complex human system comprising of trial and error experiences, practical wisdom, applied knowledge and historically acquired experiences, embedded and shared locally through collective structures via diverse learning modes (Govender 2012; Sefa Dei, Hall & Rosenberg 2008). While IKS and its philosophy have made inroads into critical pedagogy theory and indigenous methodologists can 'speak to the oppressed, colonized persons living in postcolonial situations of injustice …' (Denzin, Lincoln & Smith 2008: x), IKS is still in its development stages and requires greater research at universities and more practical input into school and tertiary curricula. On the other hand, IKS is a dynamic and evolutionary system of knowledge, leading to an autopoeitic (self-generation) network (Govender 2012), and functions on the 'boundaries' of holistic practices that can, involve the following aspects (Cilliers 2000:19):

- psychological (e.g. a sense of safety),
- social (e.g. rules of interaction),
- cultural (e.g. rituals and stories),
- technological (e.g. building structures),
- physical and structural (e.g. locality, chiefdoms, workplace etc.), and
- morality (*ubuntu*) and spirituality (connection to ancestors, etc.).

Exploring these shifting boundaries in IKS communities is a crucial step towards understanding how IKS evolves in the South African society, which is subjected to Western social influences. While historically the roles of chiefs and diviners have been dominant in the daily lives of the community, urbanization and mass conversion mostly to Christianity have led to the diminished value and role of IKS. Sometimes traditional healers acting as unscrupulous 'witchdoctors' or wizards (*abathakathi*) are looked upon negatively as they are feared 'of causing things to go wrong' (Alcock 2010:577). Media reports of sensational involvement of 'witchdoctors' linked to crime where, the medicinal use of human body parts has led to community witch-hunts. The danger lies in society tending to attribute negative labels to

authentic traditional healers such as diviners - izangoma and izinyanga as 'witchdoctors' (Schons 2011).

The recognition of traditional knowledge in the economic, agricultural, health and educational spheres is gaining widespread momentum especially because these areas have practical and economic value for communities (Mander, Ntuli, Diederichs & Mavundla 2007). The SA school curriculum (Department of Basic Education 2011) also encourages some aspects of IKS (particularly African and other IKS) to be incorporated in teaching and learning.

Over the years, the traditional educative role of the custodians of indigenous culture and their languages have been marginalized by Western system of education and globalization (McKinley 2005). School and university curricula tend to entrench and reward only one historically privileged way of knowing - the Western-Eurocentric knowledge, which permeates Africa and the rest of the globe (Bear 2009). Why is this so? How can educational institutions address the marginalization of IKS? The first question is analysed by Diamond (1997) in his book 'Guns, germs and steel' where he outlines how the West colonized and attained power and controlled of many indigenous communities through the use of guns, germs and steel production. The second question is more relevant to our current context of education and politics where policy, research and implementation of IKS issues are being addressed in South Africa. Our role as science teacher educators participating in IK research is to address the second question to some extent and to seek redress through partnerships, by creating an IK-academia community (Gupta 2011). The issues then for this paper are three-fold: First, how do we meaningfully and critically contextualize the current roles of the custodians of indigenous knowledge? Second, how do we use their different ways of knowing - learning, teaching and practice of IKS, without demeaning the important role of these custodians operating in a Western environment, and where Western values, ethics and practices are privileged? Third, how can academia be involved in the recording and dissemination of IK for it to be integrated with current knowledge on an equal educational platform?

This paper is based upon data obtained from an ethnographic study conducted with the custodians of Zulu culture and raises issues of IKS practices as observed in the daily lives of African-Zulu indigenous-rural communities within the Northern (Kwangwanase, Newcastle, and Greytown),

Central (Valley of Thousand Hills) and Southern districts (Port Shepstone and Ixopo) of KwaZulu-Natal. The data from fieldwork was gathered from their daily experiences and issues and provided a basis to generate a narrative framework in IKS of *knowing* as learning, understanding, transmission, and wisdom using a multilogical theoretical lens.

Multilogicality: A Theoretical Frame to Inform Democratic Curricula

The framework of 'multilogicality' espoused by Kincheloe (2008:4) is defined as 'exploring the world … from diverse perspectives', including those which are 'forged by pain, suffering and degradation'. This model is useful to initiate processes of dialoguing in our educational system at all levels. Multilogicality is also used to understand the epistemological decolonization of the African continent, and to explore ways of bringing indigenous knowledge into the mainstream of knowledge production in and about Africa. This theory calls for a greater awareness of 'ways of seeing and being' (Villaverde, Kincheloe & Helyar 2006:324). It calls for a 'critical ontological awareness' of how one's positioning as a result of one's race, political views, religion, sexual orientation and gender, are shaped by hegemonic cultural perspectives (Kincheloe 2006:334). A critical reflection of selfhood entails examining how ubiquitous cultural perspectives impact who we are and the possibilities of who we can become. According to the theory of multilogicality,

> ways of being reflect cultural contexts, and influence production of knowledge (who you are in the world is influenced by the knowledge system of the dominant cultural group, and this, in turn, influences the knowledge that you produce). The lines, then, between ontology and epistemology, become hazy (Kincheloe 2006:334).

Teachers who are aware of how multiple influences of dominant groups influence the lives of students can 'help students connect to the civic web of the political domain, the biotic web of the natural world, the social web of human life, and the epistemological web of knowledge production' (Kincheloe 2006: 335).

A critical ontological reflection reveals ways in which the normalization of the knowledge and cultural practices of dominant social groups as 'official knowledge' have paved the way for dominant groups to exert a controlling influence on society (Kanu 2006:5). Formal education in schools and universities bestow 'cultural legitimacy' on the knowledge of dominant groups, and then becomes the vehicle through which leading social groups exercise power. The intellectual challenge for researchers in education, then, is to understand and address the effects of colonization by creating curricula which are informed by, and are sensitive and responsive to a variety of cultures, both of Western and Non-Western origin (Aikenhead & Ogawa 2007:584).

The value of critical ontological awareness, a central theoretical construct of multilogicality, is that it enables the researcher to recognise reductionist views postulated by Cartesianism, which have resulted in the separation of the individual human being from the inanimate, the disconnect between the human being and the cosmos. This has led to an ontological unevenness, which can be addressed by looking to knowledge generated by indigenous educators, knowledge which re-joins people to social, metaphysical and physical systems of reality. This reconnection can lead to a restructuring of African identity into one that is positive, powerful and self-dependent. A pluralistic epistemology endows multilogical researchers with higher order seeing and listening skills, as they attempt to understand practices across different cultures. Researchers who are critically aware about the intersecting influences of ontology and epistemology, and who engage with research participants, who are different from themselves, undergo a fundamental change. Far from reproducing the Cartesian practice of making conclusions about universal truths, they view themselves as part of a dynamic 'intercultural conversation' (Kincheloe 2006:337). They acknowledge the legitimacy of diverse knowledges, as well as the variety of ways employed by different people to perceive the world. This enables researchers who work with indigenous knowledge to seek multiple perspectives, in a variety of spaces, and to embrace the power of difference. Education researchers who embrace the multilogical approach with a view to striving towards culturally inclusive curricula through dialogue with custodians of indigenous knowledge promote legitimation of indigenous knowledge and, what Hooley (2009:133) refers to as 'democratic reconciliation'.

Zulu (2006:44) expands on the notion of multilogicality beyond just

recognition of IKS towards building a 'theoretical construct' of African education that must be able to meet local and global demands. This implies that education policy makers need to consider several key points, namely:

- a theory of African education (epistemology) that moves beyond problematic analysis to a constructive critique of internal and external forces that impede progressive social change,
- a research methodology that will continuously include a study of how indigenous knowledge, education and learning techniques can inform modern social, economic and political reality,
- a curriculum to maximize human resource potential to advance national and international development, and
- a creation and sustenance of an active group of independent thinkers/leaders to address common educational and social issues throughout the continent.

This paper focuses on the second aspect of Zulu's proposition, namely, a study of IK methodology informing reality. The notion of multilogicality suggests an engagement with issues to pertaining indigenous knowledge practices and its preservation. The contributions in this regard by the Zulu custodians of culture can be incorporated in studies in formal education thus linking knowledge of informal structures to formal established disciplines.

Methodology

The sample consisted of seventeen custodians from the Zulu community in KwaZulu-Natal (KZN) province. Three of these were chiefs, two were headmen, three were traditional healers, five were elder women and four were elder men. The sample was purposefully selected as it was based on our students' knowledge of, and interaction with elders, traditional healers, and chiefs in their communities. The students as research assistants were also involved in the interview process, translations and discussions with researchers and custodians. Multilogical conversations, using face-to-face interviews with the custodians of Zulu culture facilitated the engagement of how indigenous knowledges are embedded in 'ways of knowing' arising from

observations, thought and cultural practices. The analysis of data includes using the socio-cultural theory which presents a holistic understanding of the roles, links and interconnections of custodians of culture that can interface with formal structures like academia and schooling. Semali and Kincheloe (1999) outline the distinctions between Indigenous African knowledge and other forms of knowledge to report that Indigenous African Knowledge (IAK) does not derive its origins or standing from the individual but from the collective epistemological understanding and rationalization of a community – hence a socio-cultural perspective.

The qualitative analysis of data is supported by three major anthropological books on Zulu culture in KZN, namely, Bryant (1967); Callaway (1970); and Krige (1965); and a recent book on South African indigenous weather knowledge by Alcock (2010). Fieldwork included observations, individual interviews, focus group interviews that explored holistic 'ways of knowing' through oral histories, story-telling, anecdotes and examples of long ago and current Zulu practices. The researcher and student-research assistant first presented their background and the nature of their study to the custodians. From the interview questions we then proceeded to getting to know the clan's *isiBongo*. The word *isiBongo* refers to two terms that are distinct etymologically (Bryant 1969:436) - it can mean praise-names or clan-names providing ancestral roots. It was customary in regard to persons of quality to add their fathers, grandfathers, and many more of their ancestors as one could remember. We encountered many elders and even middle-aged people who could remember and recall their ancestry.

The researcher then asked questions relating to politics, African cosmology-spirituality, agriculture and traditional notions of education and ethics (respect-*ubuntu*). Questions included an exploration of our custodians' experiences of daily phenomena such as farming, lightning, rain, and their vision of how IK can be recognized in institutional structures. While our bilingual Zulu-speaking rural students helped us with the interpretation of the data, we can make no explicit claims as to the complex and holistic way of how indigenous experiences are deeply rooted and embedded. The thematic ideas are interpreted from the data obtained, from our own experiences, and from literature research, and with interviews conducted with our five Zulu research-assistant students' about their cultural experiences. Thus we discovered that the method of multilogicality - that of passionate outsiders (three academics with scientific knowledge and pursuing indigenous

knowledge understandings) and insider-outsider connections (five science education student-teachers who live in the rural communities) provided a wholesome perspective to help us to make sense of the IKS practices in Nguni culture. The data was finally sorted into four major emerging knowledge areas or broad thematic categories, namely, cultural environment and survival strategies, Zulu cosmology, health and medicine and ethnoastronomy for presentation but the reader needs to be aware that IKS is a complex phenomenon (Govender 2012) and such selected categorizations are for the purpose of presenting the data and reflect only partial knowledge.

Emerging Knowledge Areas

1. Cultural Environment and Survival Strategies

Indigenous African Knowledge (IAK) is about what local people know and do and what local communities have known. IAK has been accrued for generations in utilizing and preserving the environment. Since IAK is the ability to use community knowledge produced from local history that encompasses important literacy skills critical for survival in an African context, this implies that what local communities know about their environment must be acknowledged, included in the planning and implementation process of education at all levels (Semali & Kincheloe 1999). Semali and Kincheloe (1999:307-308) introduced the idea of indigenous literacy as information communicated via local culture and languages that reflect local innovations and techniques in activities such as fishing, pest control, plant and animal usage to manage local diseases. In the South African school curriculum, such a concept is already in place at schools and in teacher education courses, albeit at a basic introductory level (Department of Basic Education 2011). Indigenous Zulu communities in SA working with their chiefs and elders have over the years developed keen powers of observations and orally recorded the types of soils, weather patterns (Alcock 2010), birds and other animal life, herbs, plants and trees (Krige 1965). Nature's sounds (birds and animals) are well imitated indicating powers of listening and learning skills (Alcock 2010:434-435). Most of this knowledge is passed through interesting and dramatic oral tradition and story-telling techniques. Thus story-telling developed into an art that embodies careful use of language, words, ideas and connections so that data is formatted, shared

and presented through generations and 'in maintaining social structures … and oral tradition in protecting knowledge necessary for the survival of society' (McIsaac 2008:93).

Another significant survival strategy involves food (Bryant 1967: 264-295). The preparing and storing of traditional food required some basic chemistry knowledge (fermentation, catalyst agent, storage, concentrations, filtration etc.) and trial runs until the final process and edible product developed (Gupta 2011). The food recipes have been passed down from generation to generation through cultural and spiritual activities. The community's cultural feasts (the Royal Reed Dance-*uMkosi woMhlanga*, the Harvest Celebration-*ukuNyatela* etc.) involve youth and sexuality education, skills taught (slaughtering, tanning etc.), and social cohesion (Alcock 2010:141-142). While the traditional village is headed by the chief (*induna*), the elders (*abadala*) also command authority and hold deeply rooted IK practices (Brindley 1982). Table 1 indicates the activities of an elderly grandmother in her household.

Interviewers: How did you know that it is time to plant crops?	Gogo: We used to see plants germinating from the soil; we used to hear the rain bird (Red-chested Cuckoo - *Cuculus solitarius*) singing a beautiful song (*phezu komkhono*) (Alcock 2010:434), then we knew that is time to plough sorghum (*amabele*). The sorghum is traditional grain used to make Zulu alcoholic beer (*Utshwala besizulu*) and we use it for ancestral prayers and cultural functions.

Table 1: Interview with 'Gogo' in Newcastle – Northern KZN village on subsistence farming

As subsistence farming is dominant in rural areas, knowledge of grain sowing and appropriate use of seeds (sorghum, maize, pumpkin, calabash etc.) for beverage-making and a daily source of food (Table 2) requires knowledge of planting, harvesting, preservation and storage (Alcock 2010). This knowledge is crucial for survival during seasonal droughts and winter months. The Zulu-

beer is important in daily Zulu life, especially in ancestral worship, and serves as a beverage for guests as well. It is also symbolic in most cultural functions (Bryant 1967). 'The method of making it is an old traditional one which is basically common to most of the tribes of Southern Africa' (Elliott 1978:129). The brewing methods have been adapted in different areas to suit the species of grain growing in the local climatic conditions (Bryant 1967:274-275). Prior to engaging with spiritual ritual worship with the ancestors, the beer must be prepared well and is placed in the ancestral prayer hut as an offering to ancestral spirits (see Table 1).

Interviewers: How do you make Zulu beer?	Gogo: You take grounded mealies (*impuphu*) and put it in water until it ferments (*amahewu*), you cook it and then take sorghum grain (*amabele*) and then mix with the fermented mealies.

Table 2: Basic recipe for Zulu-beer

Intimate knowledge of the environment was crucial to daily survival. Hence, weather, changes in weather patterns, water distribution areas, landscapes and environmental education were 'natural' learning environments where mentorship in the form of expert-novice or apprenticeship system was essential to teach the youth skills and knowledge of living (Alcock 2010). The sangoma or Zulu diviner spiritualist is the main link between the ancestors and those who are living and is the only person with the power to make known the will of the spirits and to interpret their messages and as such becomes the protector of society. The sangoma is said to possess power to be able to control the elements, to ward off lightning, to control hail and to make rain (Krige 1965:297-320). Rain is an important requirement for agriculture and the community's survival. Hence, observation of the skies, noticing the types of clouds, listening to bird sounds (Table 3), predicting rainfall and cyclones are valuable skills to be learnt. The izangoma are most knowledgeable in this area and are often sought to induce rain. Krige (1965:298) notes that the sangoma is 'one of the pivots upon which the welfare of society rests, and she is for this reason most highly respected'.

Interviewers: How do you know when it's going to rain?	Sangoma: We used a black-brown bird (Burchell's Coucal-*Centropus burchellii-umGugwane*) that symbolizes rain to see if it's going to rain (The bird call is used to forecast rain). We used to see clouds, when there were dark clouds underneath and white clouds on top then we would detect that it was going to be a storm and it was going to rain hail stones. We also prayed asking the ancestors for rain but we used some umuthi (traditional medicines for rituals).
Interviewers: What can you tell us about the rainbow?	Sangoma: We see the rainbow usually after the rain and when the rainbow comes out it symbolizes that the sun will come out on the next day and the skies will be clear.
Interviewers: What did you believe about the water-snake in the sky?	Sangoma: The cyclone (water-snake-*inyoka-yamanzi*) is too rough and violent; where ever it goes it causes destruction. It can shrink the corrugated iron in the houses to a very small size (*modelling with her fist*).

Table 3: Sangoma using weather observation skills to predict rain

The use of modern chemical fertilizers, while essential to meet the current societal food needs, has done great damage to the rivers and soils (Gruhn, Goletti & Yudelman 2000) . The use of natural composting - animal and plant materials is now encouraged by environmentalists but has been practiced and is still practiced by Zulu community subsistence farmers (Table 4). The concepts of recycling and wise use of natural resources are not new ideas and are part of IAK for many generations. The storage of food in rural areas

lacking electricity is still a problem and ingenious ways to preserve and store food have evolved across generations. Table 4 illustrates some of the traditional practices still in vogue in some rural areas.

Interviewers: How did they keep the food for a long time?	Gogo: We used to dig a big hole in the middle of the cattle kraal (*modelling*) where we put mealies and other food we harvested. We store these foods. During summer we eat fruits and then in the winter we use this stored food. This hole acted as a food storage tank to us. The food did not get rotten because we covered the hole with wet cow dung such that the food is not in the soil but protected by the cow dung which made the food stay longer. We ate green field herbs (*imbuya*) which grows as a result of dried cow dung (*umquba*), it is usually found in the kraal and in the ploughing grounds, and we also ate another *imbuya* which grew from the flowers of pumpkins. We did not know about cabbages and spinaches. We used to hear people coming from the town saying that we saw round things big like this (*modelling with her hand*) and those who work in the towns will say oh!!!!! Those are cabbages (*amaklabishi*).
Interviewers: When you planted, what did you use to make the soil rich?	Gogo: We used the cow dung (*umquba*).

Table 4: IK practices of food storage and soil enrichment

2. Zulu Cosmology – Nature's Force in Lightning and Cyclones

Throughout the history of humankind's survival, the search has been to protect, understand and possibly transform nature's forces into valuable energy resources. In Zulu community IK (Table 5 for lightning) and even in Western society's knowledge systems, explanations and protection mechanisms were sought against the forces of nature and these were wrapped around stories of survival, triumph and sorrow.

Interviewers: Lightning is often an important and dangerous natural event. What can you tell us about the practice of lightning?	Induna: When the lightning (*ummbani*) strikes we used to hide the container which stored soured milk (*igula*). When you sleep you do not fold your feet (as part of respect of nature). We used to burn incense grass (Helichrysum petiolare - *Impepho*). We also use the lightning sticks (*abafana*) that are black and charred from other lightning strikes for protection. We also see the lightning bird (Hammerkop - *Thekwane*).

Table 5: Zulu protection measures during lightning strikes

The early Zulu notion that lightning could conduct through liquids was observed through lightning mishaps and experiences and translated into protection measures during lightning strikes. We do the same now when we insulate or ground metal conductors, metal water pipes etc. through scientific understanding of conductors and charges. Protection measures which can be rationalized are taken when out in the fields and in the huts before, during and after lightning strikes. Observation of the lightning birds and even the rain birds (Tables 3 and 5) were early warning indicators and natural detection tools for imminent dangers (Krige 1965). It is well-observed by indigenous communities that animals are ultra-sensitive to small changes in the environment. As an example, in the 2004 Tsunamis in Sri Lanka, India and Bangladesh, wild and domesticated animals with more acute senses

began to react much quicker than humans. However scientists are sceptical of this anecdotal information as a reproducible connection between a specific behaviour of an animal and the occurrence of a quake has not been made as yet (Mott 2005).

The control of lightning was managed by the Zulu diviners (*izangoma*). The diviners played a significant role in the political scenario due to their inherent powers of foretelling as well as their link with ancestors (*amadlozi*) (Flint & Parle 2008). They were sometimes used by the chiefs to gain dominance over their folk. The diviners were commanded to seek trouble-makers or witches out through their skills of 'sniffing' out the culprit. This and other ritualistic practices, however led to the role of African diviners being often misunderstood under colonial rule in Africa. As in much of Africa, 'most healers in Natal and Zululand were outlawed' in the 19th and 20th C, and white missionaries 'misunderstood the nature of many local therapeutic practices' (Flint & Parle 2008:313) and mistakenly believed that the Zulu diviners practised the evils of witchcraft. In some cases, some folk performed witchcraft and used witchcraft medicines (*ubuthakathi*) which was quite a 'bane to both Africans and whites alike' (Flint & Parle 2008:313).

The notion that some diviners (*izangoma*) can control lightning is still widely believed by many elders and even by some scientific literate students in the African communities. However, many report having heard about this from their elders but they themselves have not witnessed lightning control. Currently there is no recorded scientific evidence that izangoma can indeed control lightning and scientifically this is not possible due to the randomness and high voltages of lightning strikes.

3. Health - Zulu Medicines and the Treatment of Diseases

As Table 6 shows, diviners-herbalists (*izinyanga*) still play an important role in health issues while diviners-spiritualists (*izangoma*) are still valued by their communities for their psycho-spiritual healing powers. *Izinyanga*, which were recognized and registered by the early twentieth century Natal colonial government (Flint & Parle 2008:313) are incorporated into South Africa's health system.

Interviewers: Do you still go to Zulu traditional spiritual healers (*izangoma*) and herbalists (*izinyanga*)?	Gogo: Yes, when I'm sick, it's part of my culture. I strongly believe that sangoma or traditional healer (*inyanga*) will help me but I also go to the clinic and doctors.

Table 6: Health care practices

In general, the Zulu diviners (*izangoma* and *izinyanga*) played an important role in their earlier societies. Approximately 72% of Black South Africans still use traditional medicines supplemented by allopathic medicines from chemists and clinics (Mander, Ntuli, Diederichs & Mavundla 2007). The concept of 'like' treatment for countering lightning strikes and many traditional treatments may seem archaic but no more different from the current use of anti-venoms, flu-vaccines etc.

Krige (1965) reported that medicines played a dual role – often used to combat magic and/or illnesses either due to wizardry or natural sickness. Bryant (1909) recorded the medicinal value of several hundreds of plants, herbs, barks, and their roots that have real use in Zulu treatment of diseases. In the interview with an inyanga in the rural Valley of Thousand Hills, KZN, the inyanga explained how he learnt the art of herbal healing. This inyanga informed us that most of his knowledge was obtained through apprenticeship with his uncle, a well-known inyanga. He also demonstrated to us how plants, barks, and roots are to be used sparingly and he showed us his conservation garden of common and rare plants that he used. In addition to plants, he also uses other diverse ingredients from fats, bones etc. Although each diviner has his/her own special medicines and methods of treating patients, there are certain general methods of treating many common ailments, 'some of which are surprisingly simple and scientific' (Krige 1965:331). For example, clay and hides are used to re-set broken arms, ointments for sprains, paste of nightshade or milky juice of euphorbia for ringworms, poultices for wounds, and a paste of leaf over the wound reducing inflammation, protection and ensures healing.

For boils, leaves of a tree (*umHlankosi*) are crushed and applied to draw out the matter. Lotions are also used and there are treatments for ear

infections, headaches etc. The use of an enema is a common technique for internal cleansing in Zulu culture as the belief that both internal body and external body must be thoroughly cleansed before engaging in spiritual practices in ancestral worship. Other methods include incisions, cupping, and snuffing for headaches and neuralgia. In addition, natural purifying aromatic herbs served to clean the air in the largely enclosed thatched huts and as natural insecticides for killing harmful insects-mosquitoes etc. were part of the survival and health strategies (Brindley 1882; Krige 1965). There are other medicinal practices used for magic and in rituals but in reality have 'no curative' effect at all. In Zulu cosmology, medicine (*umuthi*) and magic go hand in hand and the izangoma has to be well-versed in both.

4. Ethnoastronomy

Even the skies in terms of ethnoastronomical observations and understandings have been integrated into the African daily practical way of life (Govender 2009 2011; Snedegar 2007) and into spiritual symbols like the rainbow and the 'Princess of Heaven' (Nomkhubulwane). Nomkhubulwane is also described as the goddess of corn, 'the Zulu fertility goddess' (Lambert 2008:545), and as 'robed with light as a garment' (Krige 1965:197). She has the power to bring rain and she is described as coming from heaven to teach people to harvest. The Zulus have developed distinct concepts of the universe and arising from their keen powers of observations they describe and provide explanations for the origins and movement of the sky, sun, moon, stars, rainbow, eclipse, calendar and months (Govender 2011; Krige 1965:410-412). Table 7 provides some evidence of current conceptions of ethnoastronomy embedded in Zulu culture. The data indicate that they have keen powers of observation of the phases of the Moon linked to predicting rainfall. The 'iKhwezi stars' are linked to time. IKhwezi is actually the planet Venus and commonly referred to as Morning and Evening 'stars'. The Zulus viewed these as two different objects, the evening 'star' as iCelankobe and the morning 'star' as iKhwezi (Krige 1967:411). The 'iKhwezi stars' provides a meaningful calendar for daily and seasonal activities (Table 7). The familiar observation of a 'lady on the Moon' by the Zulus is also linked with religious injunctions of Basotho's as well (Govender 2009). These observations are embedded into oral-stories that make interesting and exciting presentations and are an easy way to record and pass down

knowledge. An in-depth description on Zulu ethnoastronomy can be found in Krige (1965) and in Govender (2009; 2011).

Interviewers: Can you recall any Zulu stories related to the Moon?	Gogo: When the crescent Moon has faced Swaziland (modelling with her fingers) we believed that it was going to rain if it faced downwards and if it faced upwards (modelling with her hand), there will be no rain. In the Moon there is a picture of a woman who worked on the Sunday, the women is carrying her baby and a burden of logs which she was coming to collect from the bushes. It is believed God cursed that woman and took her to the Moon. My grandparents told me this story and they warned me that I mustn't work on Sundays.
Interviewers: Are there any Zulu stories about the stars?	Chief: The *iKhwezi* 'stars' are different, there is a small *iKhwezi* and there is a big *iKhwezi*. When the small *iKwezi iCelankobe* shines it symbolizes the evening and the big *iKhwezi* symbolized the morning star (*iKhwezi*). I used to measure time and know seasons with the *iKhwezi* 'stars'.

Table 7: Snippets of Zulu Ethnoastronomy

Discussion and Conclusion

As academics and Zulu-students, we have interacted with seventeen custodians of the Zulu community in KZN – chiefs (amakhosi), headmen (*izinDuna*), diviners (*izangoma* and *izinyanga*) and elders (*abadala*) regarding their Indigenous knowledge and practices through a process of 'multilogical' conversations. We believe that the knowledge that emerged in this small-scale ethnographic study points to deeper fountains of knowledge

into the areas of Zulu culture, cosmology, medicine and ethnoastronomy and more nuanced understandings needs to be recorded and shared. Tables 1-7 show snippets of evidence of such holistic and experiential indigenous knowledge that should be acknowledged, critically engaged with and accounted for IKS inclusion into the academy in several of its disciplines.

While the different ways of knowing have emerged in broad thematic categories that we have classified for discussion to support the notion of multilogicality – this involves the endorsement of adopting multidisciplinary, multiperspectival approaches in knowledge generation (Kincheloe 2008), we are fully cognizant that indigenous knowledge and experiences are holistic in context, place, time and manner. IK when engaged in a trustworthy multilogical process can be rewarding for both the academy and the indigenous communities (Kincheloe 2006). Several spinoffs can arise when multilogicality conversations occurs with equal mindedness striving towards parity of IK communities, democracy and a caring interwoven society that begins to recognize the several ways of knowing, understanding and being. The spinoffs of multilogical engagement can lead to a 'rethinking of our purpose as educators' and 'producing new levels of insight' (Kincheloe & Steinberg 2008:147), tolerance, improved use of multi-skills and raising the self-esteem of marginalized communities and their indigenous knowledge in a predominantly hegemonic Western system.

While currently, there are many challenges facing education in Africa, contemporary African education needs a critical examination of its mission, goals and objectives that are needed 'to extract the best of indigenous African knowledge thought and practice to present research-based alternatives and solutions to current educational challenges in Africa' (Zulu 2006:41). The challenge then will be to encompass and legitimize IK in formal structures with positive critiques from academics from different disciplines leading to a transformative educational and cultural system. In some cases, there has been appreciation and recognition, primarily due to economic necessities in this 21st century of IK in areas of agriculture and medicine. This paper recognizes that the cultural knowledge of the custodians of Zulu culture is still valuable knowledge that can contribute to IK in the academia and hence provide recognition of the community's contribution to knowledge development.

Acknowledgement:
The authors want to thank the Zulu community of KZN and students K. Sibiya, Nakhonkonke, S. Mahlaba and Kuben Govender (KZNDAE) for their contributions.

References

Alcock, P G 2010. *Rainbows in the Mist: Indigenous Weather Knowledge, Beliefs and Folklore in South Africa*. Pietermaritzburg: South African Weather Service.

Bargna, I 2007. *Africa*. California: University of California Press.

Brindley, M 1982. *The Role of Old Women in Zulu Culture with Special Reference to Three Tribes in the District of Nkandla.* PhD, University of Zululand.

Bryant, AT 1909. Zulu Medicine. *Annals of the Natal Government Museum* 2,1: 77 - 103.

Bryant, AT 1967. *The Zulu People. 2nd Edition.* Pietermaritzburg: Shuter & Shooter.

Callaway, H 1970. *The Religious System of the Amazulu*. Wynberg, Cape: Rustica Press.

Carter, L 2008. Globalization and Science Education: The Implications of Science in the New Economy. *Journal of Research in Science Teaching* 45,5: 617 - 633.

Cilliers, P 2000. What Can We Learn From a Theory of Complexity? *Emergence: A Journal of Complexity Issues in Organizations and Management* 2,1: 23 - 33.

Denzin, NK, YS Lincoln & LT Smith (eds) 2008. *Handbook of Critical and Indigenous Methodologies*. Thousand Oaks: SAGE Publications, Inc.

Department of Basic Education 2011. *Curriculum and Assessment Policy Statements (CAPS), Physical Sciences*. Pretoria: SA Government.

Department of Science and Technology 2004. *Indigenous Knowledge Systems*. Pretoria: SA Government.

Diamond, J 1997. *Guns, Germs and Steel: The Fates of Human Societies*. New York: WW Norton & Company, Inc.

Elliott, A 1978. *Sons of Zulu*. Johannesburg: Collins.

Flint, K & J Parle 2008. Healing and Harming-Medicine, Madness, Witchcraft and Tradition. In Carton, B, J Laband & J Sithole (eds): *Zulu Identities*. Scottsville: University of KwaZulu-Natal.

Govender, N 2009. Rural Lesotho Pre-service Students' Cultural and Indigenous Experiences of Astronomy (Ethnoastronomy) and Implications for Science Education. *Education as Change* 12,1: 113 - 130.

Govender, N 2011. South African Primary School Teachers' Scientific and Indigenous Conceptions of the Earth-Moon-Sun System. *African Journal for Research in Mathematics, Science and Technology Education* 15,2: 154 - 167.

Govender, N 2012. Educational Implications of Applying the Complexity Approach to Indigenous (IKS) Knowledge Systems *Alternation* 19,2: 112 - 137.

Gruhn, P, F Goletti & M Yudelman 2000. *Integrated Nutrient Management, Soil Fertility, and Sustainable Agriculture: Current Issues and Future Challenges.* Washington, DC: International Food Policy Research Institute.

Gupta, AD 2011. Does Indigenous Knowledge have Anything to Deal with Sustainable Development? *Antrocom Online Journal of Anthropology* 7,1: 57 - 64.

Hooley, N 2009. *Narrative Life*. New York: Springer.

Kanu, Y 2006. *Curriculum as Cultural Practice: Postcolonial Imaginations*. Toronto: University of Toronto Press.

Kincheloe, JL 2006 Critical Ontology and Indigenous Ways of Being: Forging a Postcolonial Curriculum. In Y Kanu (ed): *Curriculum as Cultural Practice: Postcolonial Imaginations*. Toronto: University of Toronto Press.

Kincheloe, JL 2008 Critical Pedagogy and the Knowledge Wars of the Twentieth Century. Available at: http://freire.education.mcgill.ca/ojs/public/journals/Galleys/IJCP011.pdf. (Accessed on 22 March 2013.)

Kincheloe, JL & RS Steinberg 2008. Indigenous Knowledges in Education: Complexities, Dangers, and Profound Benefits. In Denzin, NK, YS Lincoln & LT Smith (eds): *Handbook of Critical and Indigenous Methodologies*. Thousand Oaks: SAGE Publications, Inc.

Krige, EJ 1965. *The Social System of the Zulus*. Pietermaritzburg: Shuter & Shooter.

Lambert, M 2008. Nomkubulwane: Reinventing a Zulu Goddess. In Carton, B, J Laband & J Sithole (eds): *Zulu Identities*. Scottsville: University of KwaZulu-Natal Press.

Mander, M, L Ntuli, N Diederichs & K Mavundla 2007. *Economics of the Traditional Medicine Trade in South Africa (Department of Trade & Industry, Trans.): South Africa's Traditional Medicines Industry.* Canada: University of Toronto Press.

Manzini, S 2000. Earners' Attitudes towards the Teaching of Indigenous African Science as Part of the School Science Curriculum. *Journal of Southern African Association for Research in Mathematics, Science and Technology Education* 4: 19 - 31.

Masoga, M 2005. South African Research in Indigenous Knowledge Systems and Challenges of Change. *Indilinga - African Journal of Indigenous Knowledge Systems* 4,1: 15 - 30.

McIsaac, E 2008. Oral Narratives as a Site of Resistance: Indigenous Knowledge, Colonialism and Western Discourse. In George, GJ, J Sefa Dei, BL Hall & DG Rosenberg (eds): *Indigenous Knowledges in Global Contexts: Multiple Readings of our World*. Buffalo: University of Toronto Press.

McKinley, E 2005. Locating the Global: Culture, Language and Science Education for Indigenous Students. *International Journal of Science Education* 27,2: 227 - 241.

Mott, M 2005. Did Animals Sense Tsunami Was Coming? *National Geographic News*.

Ray, DI & PS Reddy 2003. *Grassroots Governance? Chiefs in Africa and the Afro-Caribbean.* Calgary: University of Calgary Press.

Schons, M 2011. Witch Trials in the 21st Century. *National Geographic Education*. Available at: http://education.nationalgeographic.com/education/news/witch-trials-21st-century/?ar_a=1.

Sefa Dei, GJ 1994. Afrocentricity: A Cornerstone of Pedagogy. *Anthropology & Education Quarterly* 25,2: 3 - 28.

Sefa Dei, GJ 2008. African Development: The Relevance and Implications of 'Indigenousness'. In Hall, BL, GJ Sefa Dei & DG Rosenberg (eds): *Indigenous Knowledge in a Global Context.* Toronto: University of Toronto Press.

Sefa Dei, GJ, BL Hall & DG Rosenberg 2008. *Indigenous Knowledges in Global Contexts*. Toronto: University of Toronto Press.

Semali, L & J Kincheloe 1999. *What is Indigenous Knowledge? Voices from the Academy*. New York: Garland.

Sillitoe, P, P Dixon & J Barr 2005. *Indigenous Knowledge Inquiries*. Warwickshire: Practical Action Publishing.

Sitas, A, S Mosoetsa, B Tame & A Lorgat 2011. Final Report: Charter for Humanities and Social Sciences. Available at: http://www.codesria.org/IMG/pdf/final_chss_report_web.pdf.

Snedegar, KV 2007. Problems and Prospects in the Cultural History of South African Astronomy. *African Skies* 11.

Villaverde LA, JL Kincheloe & F Helyar 2006. Historical Research in Education. In K Tobin & J L Kincheloe (eds.): *Doing Educational Research.* Netherlands: Sense Publishers.

Zulu, IM 2006. Critical Indigenous Education and Knowledge. *Journal of Pan African Studies* 1,3: 32-49.

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