

# Reconstructing epistemologies of African sciences

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## Introduction

Science has once more assumed centre-stage for development in general and for salvaging the human race from complete demise. The world is often referred to as a global village with the underlying assumption that science (read technology) has reduced both time and spaces for interactions. Hence, a 'universal science' is subsumed under this discourse. In establishing the bases for a 'scientific world', professionals and practitioners lose sight of the earlier colonisation role that the 'universal science' has played in subjugating Africa to the western world. With this short and myopic memory, we run the risk of walking on the same road twice – prescribing a 'universal science' again, which will be a recipe for (re)colonisation of Africa. According to Wiredu (2005), colonisation of Africa was not only a political imposition but a cultural one as well.

Instead of bemoaning this situation and waiting for doomsday, African scholars have assumed a proactive posture – questioning the status quo and querying whether Africa has a science to bring to the discussion table and in so doing carve a niche for herself in this 'global scientific village. A number of pertinent questions arise immediately: *Can we provide an alternative logic that will query and challenge the 'dominant' or 'conventional' science? What are the challenges that Africa has to offer? Do these challenges present themselves in a competitive form that will enable them create a credible constituency for constructive dialogue?*

This study intends to contribute to an anticipated intra- (within Africa) and inter- (Africa and the rest of the world) scientific dialogue by attempting, in addition to contributing to the answers to the pertinent questions, to generate information for a logic/rationale and vocabulary; in fact a paradigm (foundational theory) for an alternative science based on a worldview of the African.

The position taken here is that there is no one body of knowledge referred to as 'African Science' as you would for European or Western Science. It is more apt to refer to 'African Sciences' because of the proliferation of expression of bodies of *knowledges*. The basic building blocks are similar, but differently expressed because of the cultural, spiritual, philosophical and other specificities resulting from empirical encounters. Hence, pluralism is a better expression of what Africa has to share with the rest of the world. There is also no distinction between 'science' and 'arts' in the African context. What rural people have is a body of knowledge constructed (and perpetually being reconstructed) from generation to generation and over time and space covering various livelihoods and life-encountered experiences. African Sciences include therefore all the so-called sciences and arts.

*I see ancestor-centrism as a philosophy, with cosmovision as one perspective of a worldview expressing this philosophy. Endogenous development is therefore a strategy that carries along with it a body of knowledges and sciences within the context of African peoples' cultures. This sets the stage for the ensuing.*

## The 'roots': ancestor-centrism

I start my presentation by looking at a concept I refer to as *ancestor-centrism* (for lack of a better terminology) – a concept I have found to be very widely expressed in many cultures in Ghana. It is about our heritage: a heritage that is not static or an unchanging artefact of a former way of life, but a heritage that is adapting to the contemporary world and contact with others and that will continue to change.

As a matter of survival, the ancestors have long sought to understand the regularities and irregularities in the world around them, recognising that nature is underlain with many unseen patterns of order. They have learnt to decipher and adapt to the constantly changing worlds. For the ancestors there is a recognition that many unseen forces are in action in the elements of the universe, resulting in new sets of relationships which point to the essential balances and diversity that help nature to thrive (see Goduka, 1999).

There are various expressions and vocabulary surrounding the relations between the living, the dead, and the yet-unborn, which form part of the philosophy behind the linkage of the African to his/her ancestors (male and female). In Ghana the various expressions of ancestor-centrism are found in indigenous vocabulary such as Saakumnu in Dagaari, Nyaaba Itigo for the Gruni, and Amaamere for the Akans. The Ubuntu concept is known throughout Ghana and East and Southern Africa

The ancestors are at the apex of the ontological ladder. All knowledges and wisdoms emanate from here and are created and re-created by them. The development of knowledges is guided by the spiritual influences of the ancestors (by showing ample signs of concordance and discordance). There is an array of spiritual institutions that safeguard the interest of the ancestors, and that are in constant dialogue with the ancestral world – forming a vital link of inter- and intra-connectedness with *Mwin* (God).

The concept of spirits is key in the expression of *Saakumnu*. The positions of the Dagaaba with respect to spirituality are captured by Uka (1991) and in Goduka (2001) thus:

*'.....Indigenous spirituality has no historical founder. It came into existence as a result of human experience of the mystery of the cosmos. In an attempt to solve the mystery of the universe, indigenes have asked questions, searched for answers, and come to the conclusion that the mystery must be supernatural power, to whom belongs both the visible and invisible.*

*It is a spiritual value and practice that is grounded and originated from the indigenous people's environment. It is neither preached nor imported to them. It permeates the private and public lives, as well as in their daily activities. Indigenes are not converted to their spirituality. Each is born into it, lives by it, practices it either in public or private life.*

*It has no written literature, sacred scriptures or creedal forms. It is an essentially oral tradition passed on also through mythology and legends, stories and folktales, songs and dances, liturgies and rituals, proverbs and pithy-sayings, adages and riddles. Some of these oral forms are preserved in*

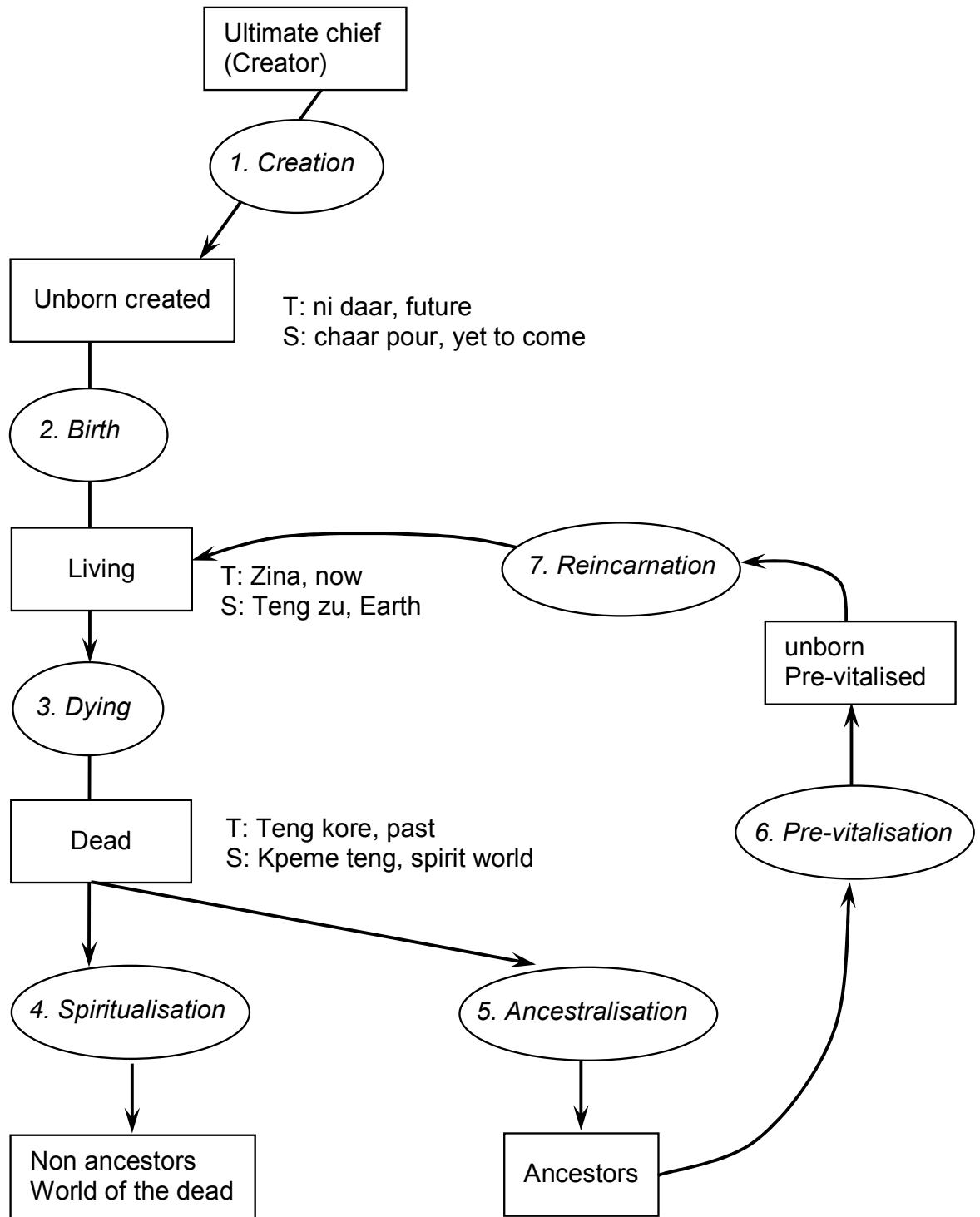
*indigenous arts and crafts, symbols and emblems, names of people and places. Thus the African works of art are not merely for entertainment or for pleasing the eye. Rather they usually are a means of transmitting cultural and spiritual values, sentiments, ideas and indigenous cultural 'truths.'*

Within the context above, the Dagaaba believe that all living things have *sie* or *vuru* – this is *Mwin's* (God) gift to all His creation on earth. If there is no *sie* or *vuru*, there is no life or the living thing is dead. In the tree kingdom, for example, the Dagaaba believe that the *sie* of a tree can do harm to a person who kills it. There is a popular saying, '*a tie nyogu na*', meaning the *sie* or soul of the tree has harmed the person who killed it.

Limiting my studies to the Dagaaba (Dagaari is my native language, so I have conducted my investigations directly, through experiential learning and participant observation), I have done an in-depth investigation around the concept *saakumnu* – ancestor-centrism. I have used *saakumnu* as my starting point for a deeper understanding of the epistemologies and ontologies of African sciences, which I outline below.

## **Ontological cycle of existence**

Within the African context, the discourse about the ancestral spirits (ancestor-centrism) almost invariably makes a link between the 'living', the 'dead' and the 'yet-unborn'. These three are inter-connected and provide a basis for the reconstruction of African sciences as shown in Figure 1.



Block: Entities with Time and Space dimensions  
 Circle: process of transition

Figure 1 Dagaaba ontology: cycle of existence

### ***Kpeme-teng*: the world of the dead**

It is important to emphasise that not all the dead in Africa are known as the ancestors. The qualification (which can refer to a man or woman) refers to the following categories:

- The founder of the community or village;
- The first settlers of the clan or lineage;
- A person that has lived a life that is in some way special or spectacular, has made a unique contribution to the community and has therefore been ‘canonised’.

Hence in the World of the Dead (*Kpeme-teng*) we have, through an unknown process of spiritualisation, a category of spirits in general (non-ancestors), and by a similarly unknown process of ancestralisation, a specialised category referred to as ancestors (*Saakumine*). The Dagaaba believe that it is only the category of Ancestors that has the ability to re-incarnate in birth as and when they wish.

Some of the ancestors (*Saakumine*), through a process referred to here as pre-vitalisation, manifest themselves in ‘unborn pre-vitalised forms’, which through reincarnation, are then born into the world of the living.

*Kpeme-teng*, the World of the Spirits, is a space. The time element that coincides with this space is referred to as *Teng-kore* (Past).

### ***Teng-zu*: the world of the living**

One category of the living (the Dagaaba say it is the smaller percentage) is contributed from the ancestral world. A larger percentage comes from God (the Chief of the gods – *Naa-mwin*). The Chief of the gods, through the process of creation, develops the ‘unborn created’. Then through the process of birth, they join the living on the Earth (*Teng-zu*). Eventually, through the process of dying they become spirits and return to *Kpeme-teng* for the cycle to continue.

For the living, *Teng-zu* is the space that coincides with the time referred to by the Dagaaba as *Zina* (now, the present).

### ***Chaa-pour*: the world of the yet-unborn**

From the above, it can be seen that the world of the yet-unborn, in the cosmovision of the Dagaaba, comprises the un-born pre-vital (of the ancestors) and the un-born created (of God).

This world of the un-born occupies is referred to as *Chaa-pour* and the time dimension is *Nidaar* (future).

Hence, the ontology of the Dagaaba concerning their existence has the following elements, with their definitions of time and space:

- Entities are: Unborn Created (*Nidaar*) and Unborn Pre-vital (*Chaa-pour*), the Living (*Zina* and *Teng-zu*), and the Dead, consisting of non-ancestors (*Teng-kore*) and ancestors (*Kpime-teng*).
- The processes of transition towards existence include: creation by Chief of the gods, birth, dying, spiritualisation, ancestralisation, pre-vitalisation and reincarnation.

To keep the wheel of existence turning, the Dagaaba identify the following institutions and functionaries:

- Birth attendants (women, young and old);
- Dying attendants (very elderly women);
- Undertakers (largely men);
- Special visionaries for reincarnation (fortune tellers and sorcerers – ‘gifted’ men and women);
- Functionaries for pre-vitalisation and creation are not human, but purely spiritual; they communicate with specialised soothsayers who are human (both men and women ‘with the second eye’).

The roles and rituals associated with these processes are interesting for further investigation.

## **Cosmovision and various forms of knowledges**

Religious and philosophical concepts have their place within traditional worldviews. Often a hierarchy is indicated between divine beings, spiritual beings, especially the ancestors, men and women, and natural forces, such as climate, disease, floods, soil, vegetation or animals. These cosmovisions give rise to several rituals in which the elders, the priests, soothsayers and spiritual leaders play a prominent role. Cosmovision, to a large extent, dictates the way land, water, plants and animals are to be used, how decisions are taken, problems are solved, experimentation takes place and how rural people organise themselves (Haverkort & Hiemstra, 1999; Millar, 1999).

For the traditional people in Northern Ghana gods, spirits, ancestors, spiritual and political leaders, sacred groves, lands and shrines, ritual crops and animals, food items and cash crops are all interrelated. Obviously, Christianity, Islam and Western education have influenced the cosmovision of the Africans, especially those with formal education.

According to Gonese (1999), for the Shona, the human world, the natural world and the spiritual world are linked. The natural world provides the habitat for the spirits and sends messages from the spiritual world to the human world. The spiritual world provides guidance, punishment and blessing to the human world. People therefore have to relate to both the natural and the spiritual world.

From these examples of traditional cosmovisions in two countries as far apart as Ghana and Zimbabwe, it becomes clear that in the general traditional African worldview, land, water, animals and plants are not just a production factor with economic significance. They have their place within the sanctity of nature. Moreover, certain places have a special spiritual significance and are used as locations for rituals and sacrifices, for example sacred groves, shrines, mountains and rivers (Millar, 1999; Gonese, 1999). Fig trees and baobabs are often treated as sacred trees. The sun, moon and stars feature in myths and beliefs of many people. Certain animal species have a spiritual significance too. Cattle, sheep, goats and chicken are often used for sacrifices and other religious purposes. Creeping wild animals frequently feature in religious concepts. Snakes, lizards, chameleons and certain birds are considered messengers of the spiritual world.

Rain is regarded by African peoples as one of the greatest blessings of God, who is often referred to as the 'giver-of-rain'. Many people make sacrifices, offerings and prayers to God in connection with rain. Rainmakers are reported in all parts of the continent. Their duties are to solicit God's help in providing rain or halting it if too much falls.

These worldviews have resulted in the development of knowledges, knowing and their epistemologies. A study of the cosmivision concept has resulted in the following constellations of bodies of worldviews of African knowledges, depicted both in Figure 2 and in the box below.

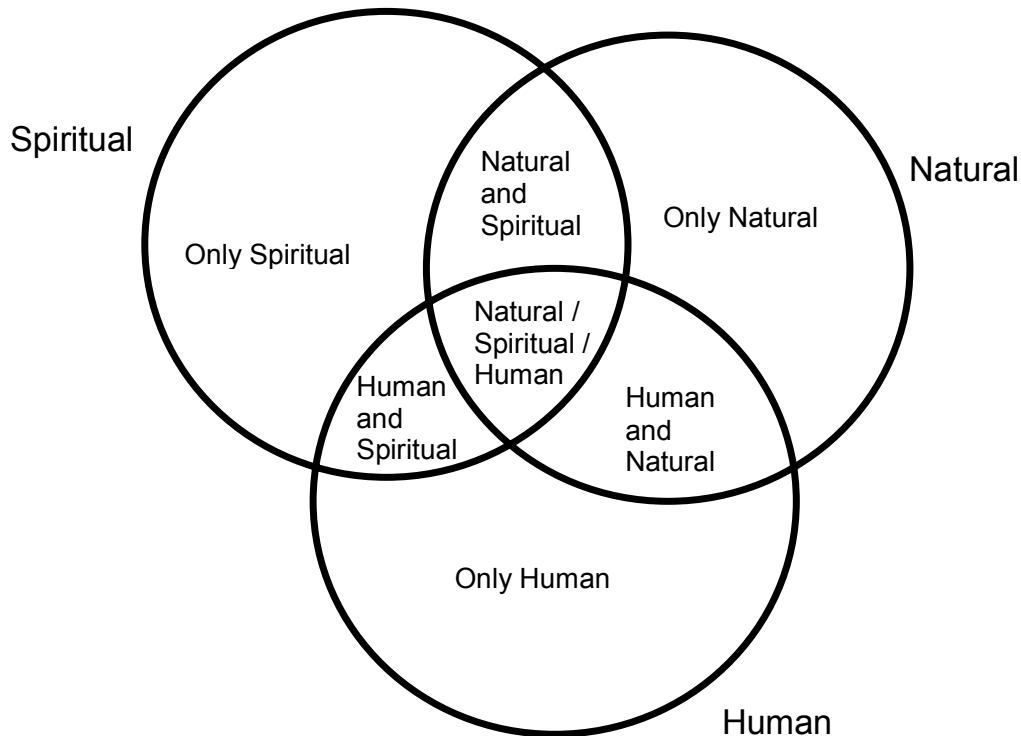


Figure 2 Constellations of cosmivision related knowledges

**The three circles depicting African worldviews**

Social/Human World, Spiritual World, and Natural World – the interaction of the three worlds implies the following constellations of knowledges:

- Knowledge resulting from Social interactions only
- Combination between the Social and Natural
- Combination between the Social and Spiritual
- Knowledge resulting from Natural interactions only
- Combination of the Natural and Spiritual
- Knowledge resulting from Spiritual only
- Combination of Social, Spiritual, and Natural

*The last constellation is the perfect state, which strives for balance or harmony with itself.*

These constellations highlight the heterogeneity and complexities of African Sciences, therefore engendering different bodies of knowledges and sciences that should underscore the development of Africa.

Conventional research concentrates on the 'horizontal level' – the Social and the Material. Investigation and research concerning the African should also be targeted at the 'horizontal level' but especially the *'vertical', which deals with higher order discourses – the spiritual aspect of the African culture.*

## African ways of knowing: the WHAT, the HOW, and the WHY

In order to build an understanding of the theories behind African sciences, we start by analysing the wisdoms surrounding the WHAT, the HOW, and the WHY of African culture. The ensuing is a reconstruction of these wisdoms as independent emerging properties and their various properties when they intersect or interact.

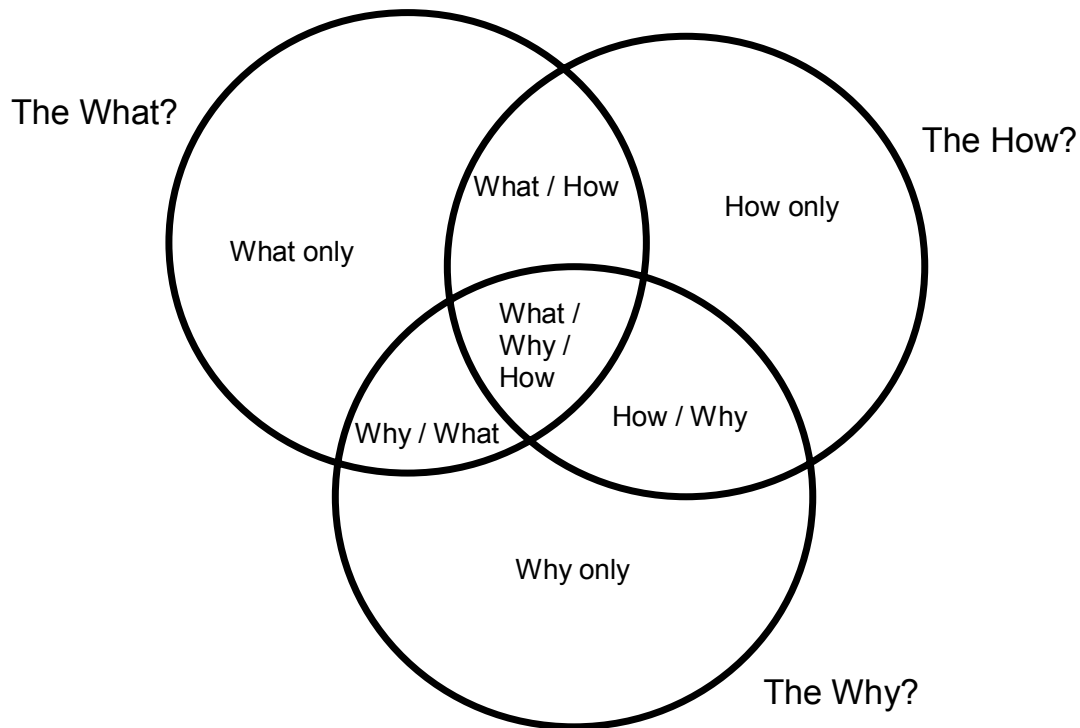


Figure 3 Constellations of knowing

### The logic behind the three circles: African ways of knowing

The WHAT, the HOW, and the WHY – the interaction of the three implies the following constellations of knowing:

- Knowing resulting from the WHAT only
- Combination between the WHAT and the HOW
- Combination between the WHAT and the WHY
- Knowing resulting from the HOW only
- Combination of the HOW and the WHY

- Knowing resulting from the WHY only
- Combination of the WHAT, the HOW, and the WHY.

***The last constellation is the perfect state which strives to be in balance or harmony with regard to the various forms of knowing.***

The WHAT (Subject): Modifying the position of Mifflin (2000), phenomenon is defined here as any state or process known through the senses and by intuition or reasoning. Any fact, circumstance, or experience that is apparent to the senses (and by intuition) can be appraised or defined. This appears to be the central emerging property of the WHAT of African science.

It is characterised by sense and meaning-giving and also by intuition through experiencing and feeling. Because it combines sensing and intuition it has elements of realism. It is a type of realism based on the doctrine that the external world exists independently of perception and relativity, which puts perception at centre-stage in ascribing meaning to phenomenon.

The ultimate desired outcome of phenomenon in the African construction of the WHAT is expressed in essence. Miller (1997) defines essence as, ‘... that which makes a thing what it is. The inner nature or most important quality of a thing or person. The nature of a thing throughout its change from potentiality to actuality.’ For the African, essence signifies ‘both an inner self and an inner peace’ attained also through maintenance of our ethics of the community, reflections, meditations, predisposition, and ‘calls’. It is the holistic total of the meaningful elements of an entity, our existentiality, our life world. The real essence of the WHAT is in the ‘whatness’ – its quiddity, something which makes it what it is and hence makes it different from others. For the African it captures the element of identity or ‘whatness’ – ‘things are what they are’.

For the African, essence and therefore quiddity are also essential properties of the HOW and the WHY. This illustrates the complexities of African sciences. We come along with a new set of challenges to the scientific world, querying the very basis of our professionalism.

THE WHY (Reason): As part of the African logic, if phenomenon is established, there is the need to establish the WHY. The dimension of the WHY spans spirituality, humanity and nature. The central emerging property of the WHY things happen as they may is their cosmovision (their view of the world or worldview and also experiences they have encountered through experiential learning). Through the lenses of our cosmovision, sense or meaning is attributed or given to a WHY of an action or inaction. This becomes a basis for establishing ‘knowing structures’ – ontology, that helps attain essence and quiddity.

For the African, the concept of cosmovision includes the assumed interrelationships between spirituality, nature and humankind. It describes the role of supernatural powers, the natural processes that take place and the relationship between man and nature, and it makes explicit the philosophical and scientific basis on which interventions in nature take place (Haverkort & Millar, 1992). (It must be established here that there is not one cosmovision for Africa but many, as perceptions and beliefs of the cosmic world differ.) It often indicates a hierarchy of divine beings, spiritual beings (especially the ancestors) and natural forces (such as climate, diseases,

floods). These hierarchies give rise to several rituals in which the elders, traditional priests and soothsayers play prominent roles and prescribe the way problem-solving and general experimentation can take place. Cosmivision predisposes the way the African peoples go about knowledge and technology development, which form their indigenous knowledges. Hence, indigenous knowledges, and the cosmivisions inherent in them, determine how society organises itself and how effectively it achieves its goals (Millar, 1996).

THE HOW (Method): The way ‘knowing’ is conducted deals largely with the African epistemologies. ‘Knowing’ is constructed from a combination of realism, relativity and ontologies, which lend themselves to the establishment of essence/quiddity.

In order to deepen my understanding of the ways of the different ways of knowing – epistemologies – and to (re)construct the structures of knowledge and knowing – ontologies – it was important to look at this at various levels of addressing the WHY and the HOW, as in the diagram below.

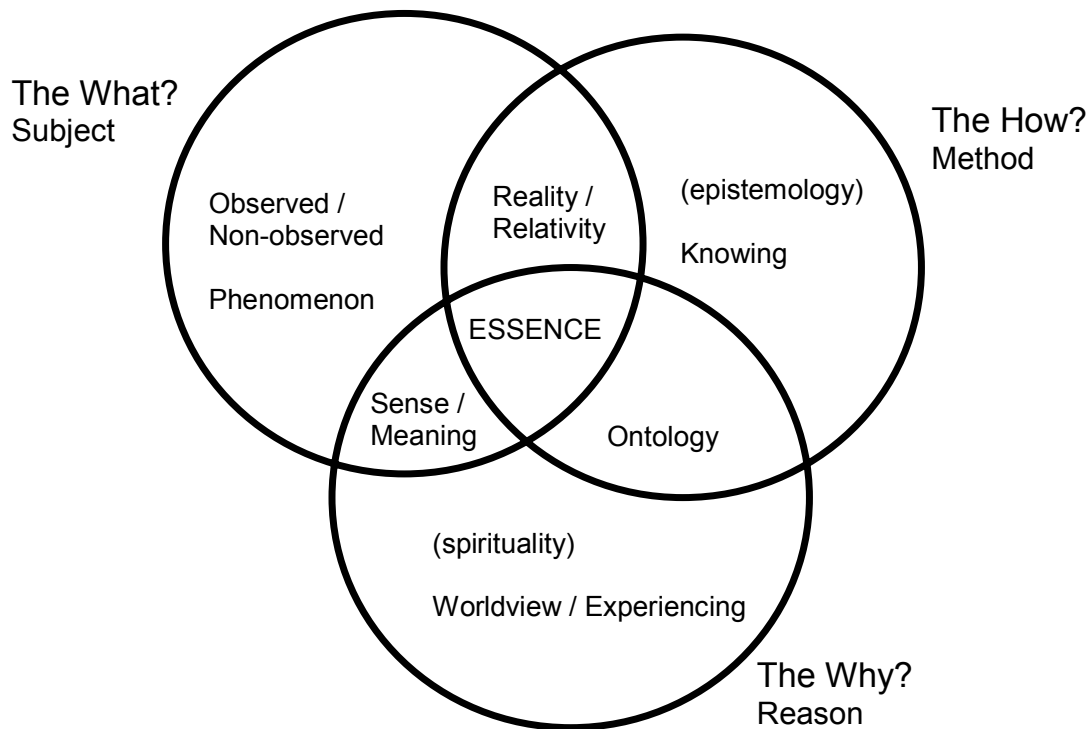


Figure 4 A paradigm for African sciences

**The logic behind the three circles: aspects of African sciences**

The WHAT (expressed in **Subject**), the HOW (expressed in **Method**), and the WHY (as in **Reason for Being**) – the interaction of the three implies the following constellations of knowing:

*Subject:*

- Phenomenon (Observed/Non-observed)
- Reality/Relativity
- Sense/Meaning
- Essence/Quiddity

*Method:*

- Epistemology
- Ontology
- Reality/Relativity
- Essence/Quiddity

*Reason:*

- Ontology
- Spirituality (worldview/experiencing)
- Sense/Meaning
- Essence/Quiddity

These constellations express themselves in the following forms:

- Knowing about/from the SUBJECT only (as in phenomenon – observed/non-observed)
- Combination between the SUBJECT and the METHOD (as in reality/ relativity)
- Combination between the SUBJECT and the REASON (as in the sense/ meaning)
- Knowing about/from the METHOD only (as in epistemology)
- Combination of the METHOD and the REASON (as in ontology)
- Knowing about/from REASON only (as in spirituality – worldview/experiencing)
- Combination of the SUBJECT, the METHOD, and the REASON as in essence/quiddity

***This last constellation is the perfect state which strives to be in balance or harmony with regards to the various emerging properties of knowing.***

## Conclusions

I conclude this discussion on a paradigm of African Sciences by drawing attention to the overlaps and interactions from the ontology of the African notion of existence – the vital link between the living, the dead and the yet-unborn. I have elaborated entities and processes linked to these discourses and their defined characteristics of time and space from the perspectives of the Dagaaba of the Upper West Region of Ghana (an ethnic group also found in Burkina and Ivory Coast).

I have established that ancestor-centrism is a key to African knowing systems. Variously called *Saakumnu*, *Nyaba-Itgo*, *Amaamere*, or *Ubuntu*, ancestor-centrism is central to understanding the persistence of African knowledge and belief systems despite have gone through several persecutions and attempts to stifle this body of knowledge.

From an ancestor-centric position, my investigations showed that essence/quiddity is a common denominator for Africans' ways of knowing. Essence/quiddity is the desired state of our body of knowledges. The WHAT, the HOW, and the WHY of the African epistemologies have essence as a central determinant.

Although I am an African scholar, this is my first attempt at pulling together the series of investigations that I have been involved in since 1980 with respect to the indigenous knowledges of my people. In my attempt to deepen my understanding I

have ended up realising, from the tuition I received from the traditional knowledge experts I encountered, that it is a type of science that is very complex and better understood by the people themselves than by the ‘outsiders’. Some of this knowledge can be, and indeed is, expressed outwardly for expanded learning and sharing, but most of it is ‘internally’ locked up and requires ‘different sets of tools for scientification’. These tools include empathy, immersing/embedding, initiation and just being born into it, tutelage/apprenticeship, experiencing/ experiential learning and a calling.

As I grow in this ‘new form of learning’ it is my hope that I will find peers to help complement my deficiencies. This remains for me a lifelong challenge and, for that matter, a challenge for African sciences and scientists – the schooled and the ‘natives’ who we often refer to as ‘unschooled’ are all key players in establishing a niche in the world of science for African sciences.

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