

Respice Prospice: Re-imagining education in a complex 21st Century

Josef de Beer

Jdebeer@uwc.ac.za

EASA Conference 16 January 2024



UNIVERSITY *of the*
WESTERN CAPE

The world we live in: Meet Sophia

- A humanoid robot, designed to resemble a woman
- Incorporates artificial intelligence technologies to process information, understand and respond to speech, and engage in conversations
- Sophia recognize faces and maintain eye contact
- “She” is designed to learn and adapt to new information
- She was **awarded citizenship by Saudi Arabia in 2017**
- She **could also be a teacher with advanced PCK?**



Scary thought...

Can robots replace teachers in schools

No bot can ever match up to the advantages of having an actual teacher in classrooms, writes Anuradha Premnath

Share



TNN | Posted July 12, 2023 11:57 AM



My Brief for this Keynote from Prof Maximus Sefotho

Interpret the following:

1. The evolution of education, and its relevance and future
2. Re-imagining education for students with neurodiversity
3. Future-fit leadership in education in response to SDG4 (providing quality education) and SDG8 (create decent work and economic growth)



My research, and the conference theme

The Cradle, evolution and the future of education

- While employed at UJ, the new CAPS curriculum was released, with a strong focus on evolution in Life Sciences
- My postgrad students studied the influence of religious beliefs (Christian, Islam & Hindu) on the learning of evolution, and conceptual change
- Later (NWU) my research focus shifted towards indigenous knowledge systems
- My current research niche: **Epistemological border-crossing in the science classroom** (Western science and indigenous knowledge as knowledge systems)



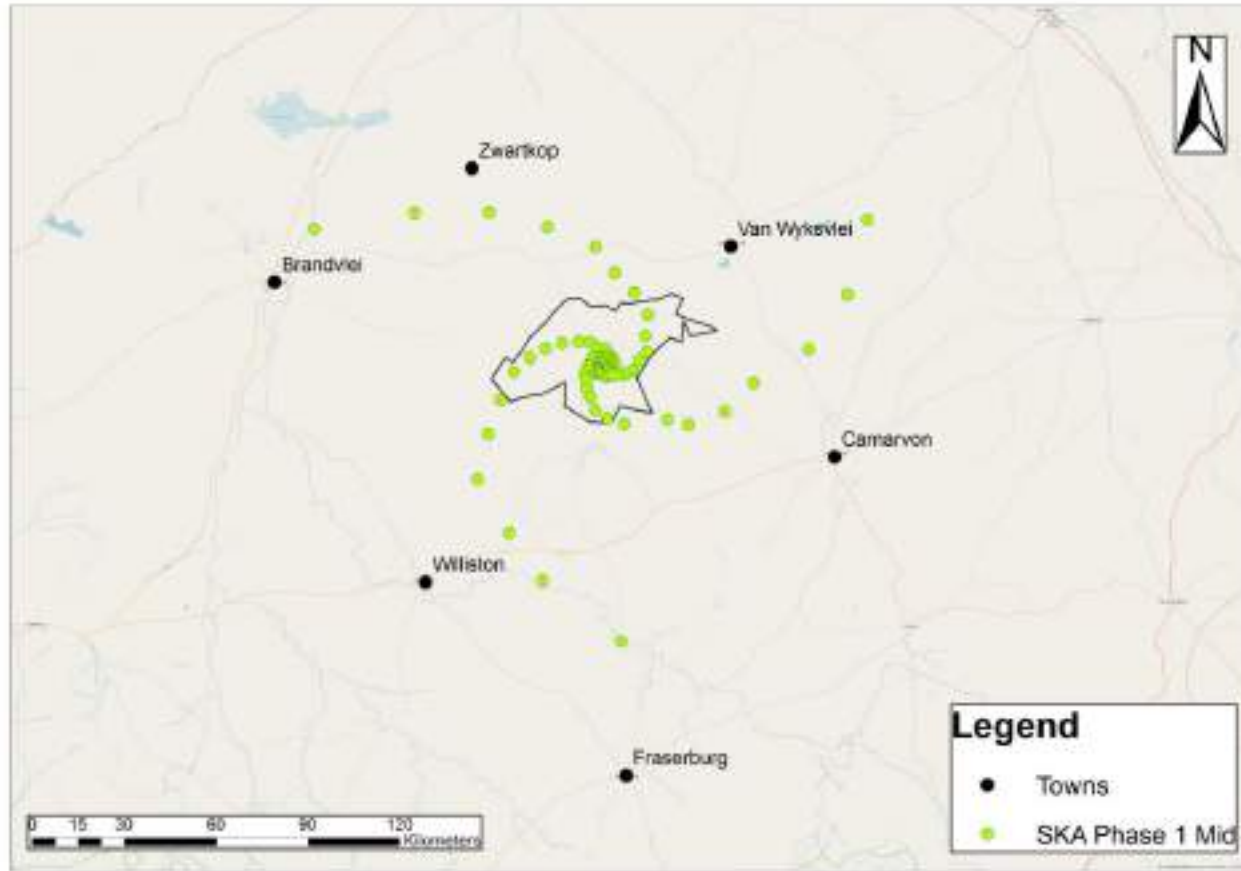
Genesis of my research on indigenous knowledge

Traditional plant use in Southern Bushmanland, and the Hantam (Calvinia), South Africa, and potential links to !Xam ethnobotany

- Ethnobotany research with Ben-Erik van Wyk (UJ)



Study area in the Northern Cape



The study area

- Southern Bushmanland- Swartkop- Vanwyksvlei- Carnarvon- Williston- Brandvlei area/ Hantam (Calvinia)
- Heartland of the San people- the origin of humankind, and the oldest indigenous knowledge system
- Juxtaposed herewith, the Carnarvon area is also the site of very advanced technology and scientific innovation (the SKA telescopes)



The !Xam

- Origin of humankind
- Rich indigenous knowledge at risk of becoming extinct
- Urbanization of people (e.g. SKA project)
- Holistic nature of !Xam indigenous knowledge (including metaphysical)
- Cross-pollination with other cultural knowledge



The SKA project, Carnarvon

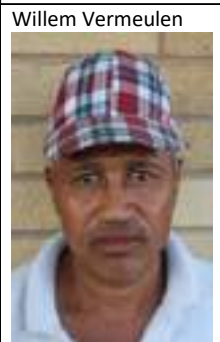
- Meerkat the predecessor of the SKA radio telescopes
- Currently 64 radio telescopes, on 120,000 hectare
- Inhabitants on the farms had to relocate (farms were bought out by SARAQ/ NRF)
- This might further erode the existing indigenous knowledge
- The purpose of our Carnarvon survey was to capture the indigenous knowledge of the people in the area



Methodology

- **Matrix Method** (De Beer & Van Wyk, 2011) used.
- Fieldtrip 1: 13 – 21 July 2019- Carnarvon & Williston- on SARAO invitation
- Fieldtrip 2: 17 – 25 August 2019- Swartkop, Brandvlei & Vanwyksvlei
- **N = 64 participants** (24 in Carnarvon & Williston; 16 in Swartkop; 16 in Vanwyksvlei; and 8 in Brandvlei)
- Flipfile with 160 plant species shown to participants





Example of Xhosa influence: *Boophone disticha*

- ‘Gifbol’, or ‘ishwati’ in Xhosa
- Used for circumcision wounds, immediately after the operation at initiation schools (Mr Nicholas Thambe, Xhosa IK holder)- the scale leaves are kneaded to make it soft.
- Use of ishwati for circumcision wounds reported by Dirk Adams and Hempie Adams.



Dirk Adams



**Nicholas
Thambe**



Boophone disticha

A few important medicinal plants in Khoisan culture



Artemisia afra- Wildeals



Bulbine frutescens-
genesbos



Sutherlandia frutescens- cancer
bush



Mentha longifolia- ballerja



Ruta chalepensis- wynruit



Dassiepis

Use of *Eucalyptus spp.* (Bluegum)

Put leafy twigs on corpses to cover and preserve them, as a form of embalmment, in the days before refrigeration



Inspiring tomorrow's scientists

Names and uses of plants in the Great Karoo



Name en gebruike van plante in die Groot Karoo

Ben-Erik van Wyk & Josef de Beer

false buchu • basterboegoe, boegoe

Agathosma ovata



Agathosma ovata



Agathosma ovata (Great Karoo) (Josef de Beer)



Leaves of *A. debilina* (Thunb.) Pillans

Asinge-stemmed struik van tot 3 m hoog met oval-gland-dotted leaves and white, pink or purple flowers borne in the leaf axils along the stems. The leaves have a strong smell due to the presence of volatile oil. The fruit is a small capsule with five chambers. Two selections are sometimes grown in gardens: the white-flowered 'Witblou' and the pink-flowered 'Kleinblou' (both shown in text).

The leaves are mainly used to treat stomach and urinary tract ailments, but also for colds, back pain, asthma and female fertility. Its uses are similar to those of commercial buchu (*A. debilina* – round leaf buchu, or *A. ovata* – oval leaf buchu).

Agathosma ovata occurs naturally in the mountains of the southern Cape and eastern Cape, extending to Lesotho. It is mainly used in the Little Karoo and southern parts of the Great Karoo.

'n Inseel-stemmerige struik van tot 3 m hoog met oval-vormige, glansloos blare en wit, pienk of pers-blomme wat in die blaaroksels langs die stamme gedra word. 'n Sterk reuk is aan die blare te voel. Die vrug is 'n klein kapsel met vyf kamers. Twee seleksies word soms in tuine gekweek, naamlik 'Witblou', met wit blomme en 'Kleinblou', met pienk blomme. (Beide word in teks getoon.)

Die blare word veral gebruik vir behandeling van maag- en urinêre probleem, maar ook vir verkoue, rugpyn, asma en vroue se vrugbaarheid. Sy gebruik is soortgelyk aan dié van kommersiële buchu (*A. debilina* – rondblou, of *A. ovata* – ovalblou).

Agathosma ovata kom natuurlik in die berge van die suidelike Oos-Kaap voor, tot so ver as Lesotho. Dit word veral in die Klein Karoo en suidelike dele van die Groot Karoo gebruik.

3. *Agathosma ovata* (Thunb.) Pillans

Rutaceae

basterboegoe, wilde boegoe, bokkeboegoe, boegoe (Afrikaans), false buchu (English)



Inspiring tomorrow's ethnobotanists

Respice Prospice: To look back, to look forward

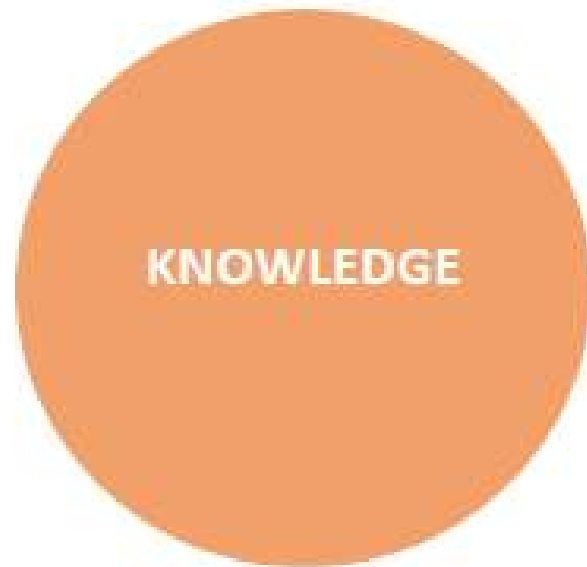
- To take what is worthy from the past and build the future
- The decolonization of the curriculum debate
- The affordances of indigenous knowledge to enhance self-directed learning in a complex 21st century
- Focusing on the **three sub-themes on two levels**: (a) a **generic perspective**; and (b) through an **indigenous knowledge perspective**

Juxtaposing cutting-edge 21st Century skills and rich indigenous knowledge

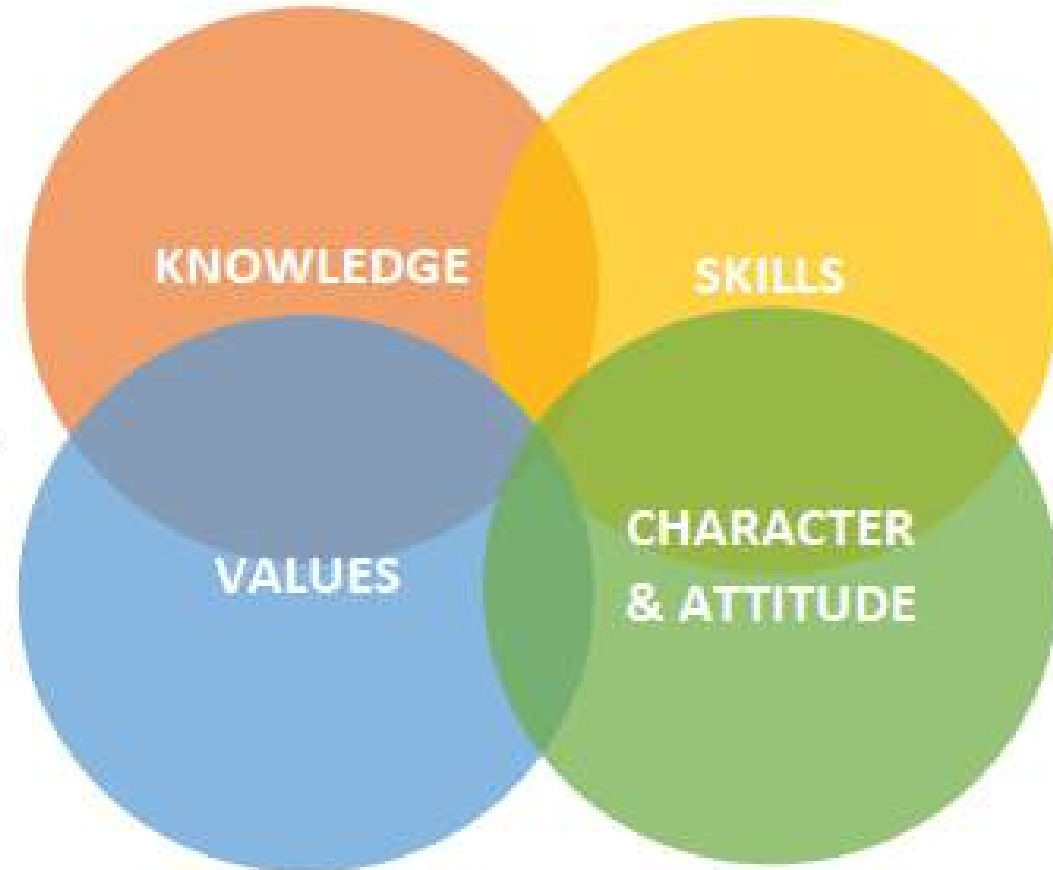


South African Competency Framework

CURRENT EMPHASIS



NEW EMPHASIS

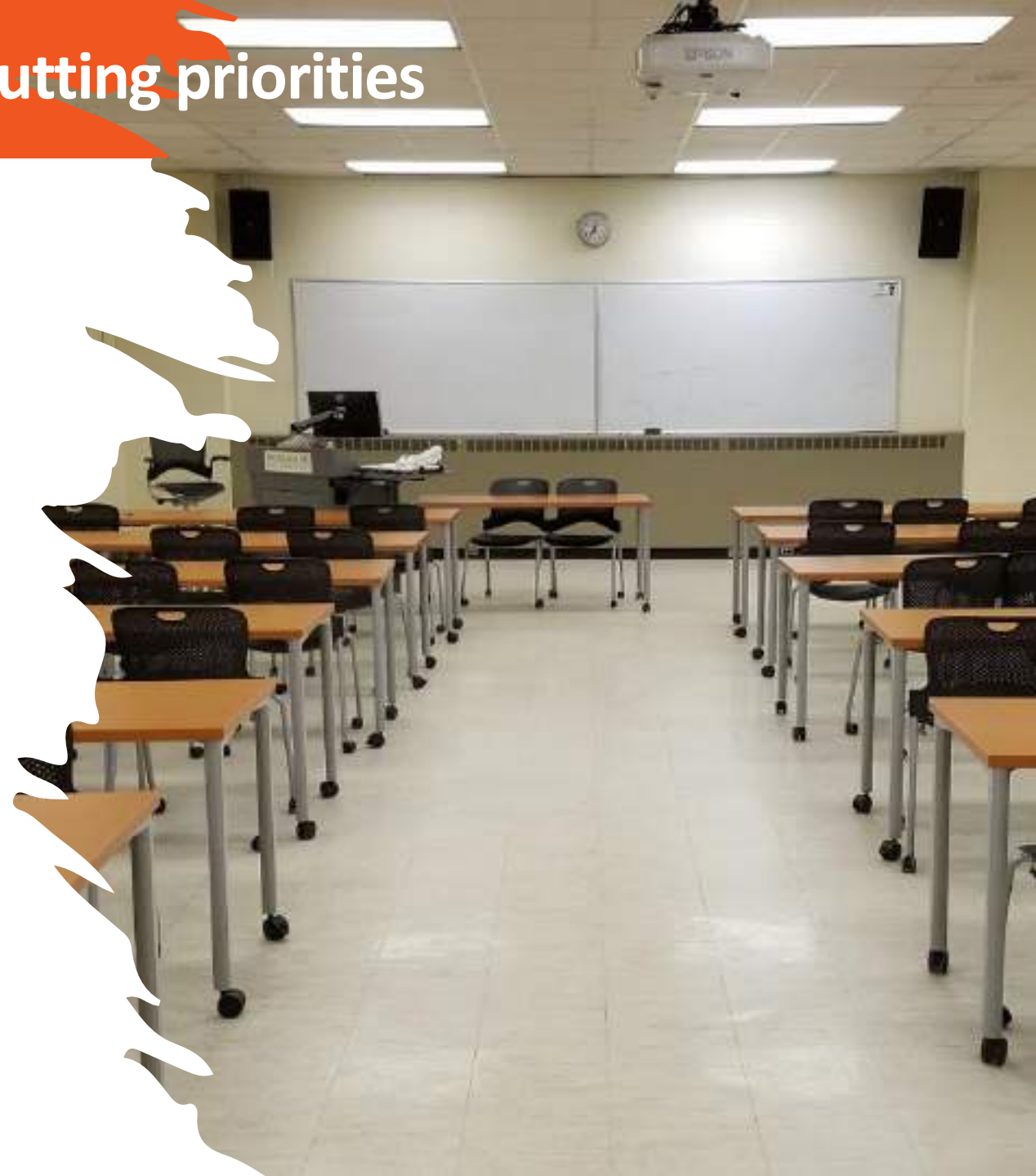


Need for cross-cutting priorities

Examples of cross-cutting priorities:

- Sustainability
- Citizenship
- **Incorporation of Indigenous Knowledge Systems**
- **Decolonisation**
- Digital Literacy
- **Entrepreneurship**
- **Career Development**

Incorporated holistically and not as standalone subjects or content areas



1. Evolution of education and its future relevance

- **Ancient roots-** Mesopotamia, Egypt, China, Greece; oral traditions & apprenticeships
- **Classical education-** philosophers like Socrates, Plato & Aristotle
- **Medieval education-** learning in Middle Ages controlled by the church
- **Renaissance-** emphasis on humanism, arts and sciences



Evolution of education

- **Industrial revolution-** mass education & standardization of curricula
- **20th Century changes-** progressive education spearheaded by educators like John Dewey; whole-child development
- **Digital age-** E-learning, distance learning and personalized education
- Shift towards **inclusivity and diversity-** diverse learning styles and cultural background



Evolution of education

- **21st Century skills emphasis-** critical thinking, problem-solving, creativity and digital literacy
- **Adaptation to future needs-** evolving education to meet the demands of a digital, knowledge based economy- lifelong learning, **self-directed learning**, adaptability and entrepreneurship development



So, where did this evolution brought us?

State of Education in South Africa

- Well?
- 2022 Grade 12 pass rate 80.1%
- Best performing provinces:
 - Free State 88.7%
 - Gauteng 82.8%
 - Western Cape 81.2%
 - North-West 78.2%



State of Education?

- Daily Maverick 22 November 2023
- Article by Mark Tomlinson (Stellenbosch University)

“Let us call it what it is. **The South African education system is in ruins.** Centuries of colonization and apartheid ensured this ruination. And I would contend that a singular lack of imagination and vision since 1994 has ensured we have remained mostly stagnant”



Ensuring that education remains relevant in future

- Emphasis on **critical thinking** and **problem solving**
- Technology integration
- Personalised and flexible learning
- Focus on social and emotional learning
- Environmental and sustainable education
- Accessible education for all
- Emphasizing **self-directed learning**



A few concerns i.t.o. indigenous knowledge and SDL

- Do we have well-qualified teachers with the necessary insight and PCK?
- Prof Sarah Gravett's question to us yesterday: Relevant content? What do we include and exclude in the curriculum?
- Challenging our own perceptions and pre-conceived ideas
- Politicizing the IK discourse
- IK could enhance scientific literacy (see next slide)
- **Dr Pali Lehohla: "The era of the idiot" - are we making politically-driven decisions, or data-informed decisions?**

Tenets of science and indigenous knowledge

Nature of science	Nature of indigenous knowledge
Empirical – observable & testable	Empirical and metaphysical
Tentative	Tentative- knowledge constantly changing
Inferential- deductions and conclusions made from observations	Inferential
Creative	Creative
Socially and cultural based	Socially and cultural based
Reductionist - complex phenomena broken down into small parts	Holistic - problems solved in a holistic fashion

From Lucy Lloyd to Lucy Guglielmino: Reflections on self-directed learning

- Affordances of indigenous knowledge and contextualized learning to enhance SDL
- Insights from the two “Lucy’s” that contribute to SDL scholarship, and implications for education



Lucy Lloyd

- Lloyd worked with Wilhelm Bleek (she was his sister-in-law) in the 1800's on grammatical gender in African languages research.
- These researchers were particularly interested in the San language, and the indigenous knowledge of the IXam people.
- The Governor of the Cape Colony in the period 1854 - 1861, Sir George Grey, gave them the opportunity to pursue this research goal, by granting them custody over San prisoners that were jailed (in the Breakwater Prison in Cape Town), for "theft" (they occasionally killed a cow/livestock for food, which should be seen in the light of the San worldview).
- Four San men, //Kabbo, Dia!kwain, /Han#kasso and A!kunta were released under custody of Lucy Lloyd.



Studying San indigenous knowledge

Bleek & Lloyd's work



Lucy Lloyd



Wilhelm Bleek



||kabbo



|a!kunta



Dorothea Bleek



!kweiten ta ||ken

Dorothea Bleek was the daughter of Wilhelm Bleek, who continued his research on the San

<http://lloydbleekcollection.cs.uct.ac.za/>


THE DIGITAL BLEEK AND LLOYD **HOME**

This digital publication is part of a Liarec project to digitise, research and publish the Bleek and Lloyd Archive. The Digital Bleek and Lloyd includes scans of every page of the 110 Lucy Lloyd Xosm notebooks, 17 Lloyd (mostly) Ikum notebooks and 28 Wilhelm Bleek Xosm notebooks. It also includes Jemima Bleek's solitary Korana and Ikum notebook and four Lloyd Korana notebooks in the Masingard collection of the Library at the University of South Africa, as well as Dorothea Bleek's 32 notebooks. All the drawings and watercolours made by (Janekasse's, Dinkwain, Tamme, Jums, Inanni and Da) are also in the digital collection. The digital archive includes a 280 000-word searchable index, cross-referenced and including notes and summaries for each of the stories listed. Notes in italics are direct quotes from the reports of Bleek and Lloyd in which they detailed the progress of their research.


Liarec (the Lucy Lloyd Archive, Resource and Exhibition Centre) is part of the Centre for Curating the Archive, a University of Cape Town research centre directed by Pippa Skotnes and located at the Michaelis School of Fine Art. The initial "Digital Bleek and Lloyd" accompanied the publication "Claim to the Country: the Archive of Wilhelm Bleek and Lucy Lloyd" by Pippa Skotnes (2007), published by Jacana Media and Ohio University Press. Subsequently Jemima Bleek's and Dorothea Bleek's notebooks have been added, as well as the Digital Stow, featuring the rock art copies of George Stow. The search index and summaries have also been extended and currently the Bleek and Lloyd dictionaries are being digitised. Please refer to the CCA website at <http://www.cca.uct.ac.za> for updates.

The project has been made possible by funding provided by the Andrew W. Mellon Foundation and De Beers; and is the result of the cooperation of the four curating institutions: University of Cape Town, Unisa, Iziko South African Museum and The National Library of South Africa.


These scans of the documents and images that comprise the Bleek and Lloyd archive may not be used or reproduced for any purpose without permission of the copyright holders.




Books
[Cover/cover](#) | [Contributor](#) | [Key](#) | [Category](#) | [Keyword](#)



Drawings/Watercolours
[Description](#) | [Category](#) | [Keyword](#)



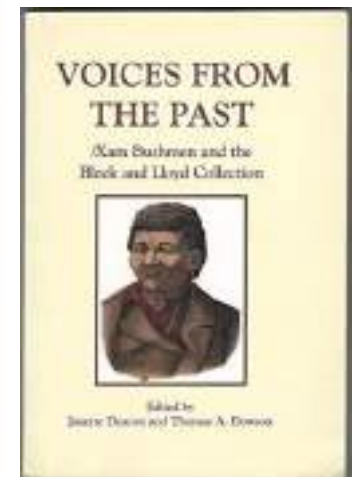
Digital George Stow
[Images](#)



Contributors
[Index](#) | [Name](#) | [Description](#)

The work of Lucy Lloyd

- Lucy Lloyd and Wilhelm Bleek collected some 3600 pages of notes on the San language, culture and plant use, bounded in 84 volumes.
- After Bleek's untimely death in 1875, Lloyd continued the research. During the period 1879 – 1884, Lloyd's household included four *!kun* boys (as Lloyd referred to them), namely **//Kabbo**, **Dia!kwain**, **/Han#kass'o**, and **A!kunta**. Another San man, **#Kasiq**, stayed in the Bleek homestead between 1873 – 1875.
- Lloyd collected artifacts, e.g. arrows, drawings and narratives produced by the four |Xam people, which ended up in **8,400 pages of |Xam material**.
- Lloyd developed close relationships with the informants, and also became quite fluent in |Xam (Wessels 2008).



Lucy Guglielmino

- Author of the ***Self-Directed Learning Readiness Scale (SDLRS)***
- The *SDLRS* is the most widely used assessment in the field of self-directed learning (Merriam, Caffarella, & Baumgartner, 2007). It is a self-report instrument to measure the **complex of attitudes, abilities, and characteristics that comprise readiness to engage in self-directed learning**.
- The *SDLRS* has been used by more than 500 major organizations around the world. More than 95 doctoral dissertations have been completed using the *SDLRS*. The instrument has been translated into Spanish, Japanese, Chinese, Korean, German, Finnish, Greek, Portuguese, Italian, Malaysian, Indonesian, Dutch, Polish, Russian, Turkish, Lithuanian, Latvian, Farsi , Arabic, Thai, Nepali, and Afrikaans.



Guglielmino- a leading scholar in SDL research

- Guglielmino (1978) provided us with a **useful operational definition of a self-directed learner** through her Delphi survey:
- A highly self-directed learner, based on the survey results, is one who **exhibits initiative, independence, and persistence** in learning; one who **accepts responsibility** for his or her own learning and **views problems as challenges**, not obstacles; one who is capable of **self-discipline** and has a high degree of **curiosity**; one who has a strong desire to learn or **change** and is **self-confident**; one who is able to use basic **study skills, organise** his or her time and set an appropriate pace for learning, and to **develop a plan** for completing work; one who **enjoys learning** and has a tendency to be **goal-oriented** (p. 73).



Characteristics of a self-directed learner Is this what we achieve with the CAPS curriculum?

- initiative
- independence
- persistence
- a sense of responsibility for one's own learning
- a tendency to view problems as challenges
- self-discipline
- a high degree of curiosity
- a strong desire to learn or change

Insights from the Delphi study: Characteristics of a self-directed learner

- the ability to use basic study skills
- the ability to organise one's time and set an appropriate pace for learning
- self-confidence
- the ability to develop a plan for completing work
- joy in learning
- tolerance of ambiguity
- a preference for active participation in shaping educational programmes

Insights from the Delphi study: Characteristics of a self-directed learner

- the ability to evaluate one's own progress
- an exploratory view of education
- above average risk-taking behaviour
- knowledge of a variety of potential learning resources and the ability to use them
- the ability to accept and use criticism
- the ability to discover new approaches for dealing with problems

The two Lucy's: A connection?

- A juxtaposition of the work of Lloyd and Guglielmino provides insight into education which is very relevant in the “decolonisation of the curriculum” debate

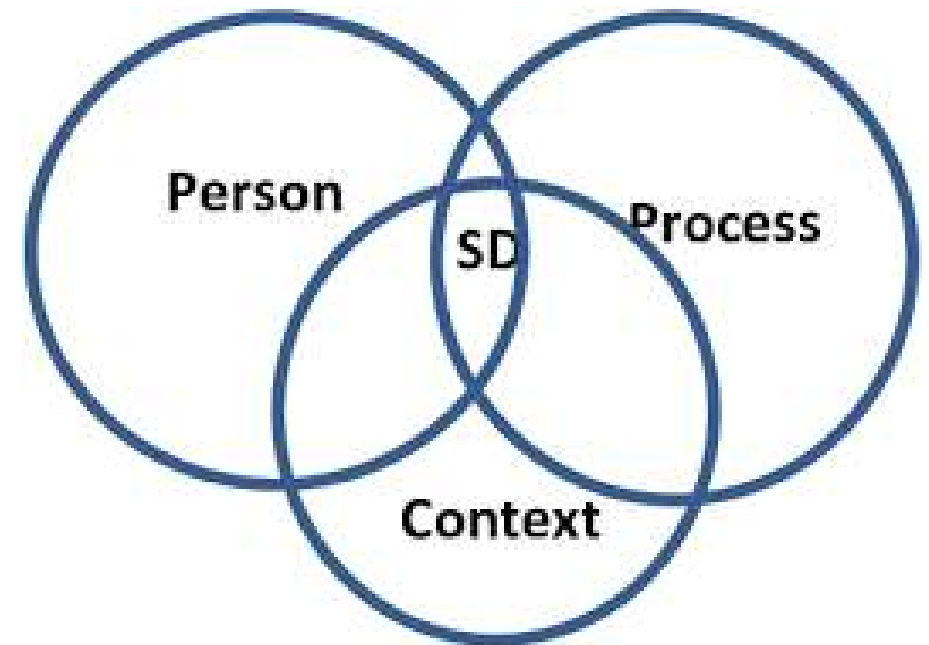


The joint contributions of the two Lucy's in indigenous knowledge research

- Several authors (Candy 1991; Greveson & Spencer 2005; Merriam & Caffarella 1999) have alerted that the ability and motivation needed for **SDL varies with the context of learning**.
- These authors advocate for a stronger focus on how contextual factors contribute to SDL.
- Candy (1991:311) states that '[the] term self-direction has misled many into elevating the individual above the collective – but the nature of knowledge and learning inherently puts learners in relationship with others'.

Context and SDL

- The PPC model of Hiemstra and Brockett (2012) posits that three elements – **person, process and context** – should be seen as equally important in SDL.



Hiemstra & Brockett's PPC Model for SDL

- Hiemstra and Brockett (2012:158) list the following characteristics for each of these three elements:
- **person:** creativity, critical reflection, enthusiasm, life experience, life satisfaction, motivation, previous education, resilience and self-concept of the individual
- **process:** the teaching–learning activities, facilitation, learning skills, learning styles, teaching and learning styles, planning and organisation, evaluating abilities and technological skills
- **context:** the environmental and socio-political climate, such as culture, power, learning environment, finances, gender, learning climate, organisational policies, political milieu, sexual orientation and race.

Respice Prospice

- The holders of indigenous knowledge were self-directed learners
- They had to find innovative solutions to authentic problems
- In today's **classroom, we often provide answers to questions that learners do not ask**
- Summative assessment focus: Mbembe (2016) speaks of the “mania for assessment”

The holders of indigenous knowledge as self-directed learners: An example from Burkina Faso

Zai Farming (Burkina Faso)

Traditional farmers of the Mossi culture in Burkina Faso are faced with this problem: how can they plant and produce crops that are sustainable, cost-effective, and how can they **find home-grown solutions** to the problems that plague agriculture in this challenging environment- with a **rainfall of about 590 mm per year**.

The **zai farming practice** that they developed ensures that the crops are supplied with both nutrients and water.



ZAI FARMING

- Farmers make holes of 10 – 20 cm deep, and put organic material in the holes.
- This attracts termites, that delve deep tunnels stretching several meters deep.
- The rain then accumulates in these deep funnels- too deep for evaporation to take place.



HOLDERS OF INDIGENOUS KNOWLEDGE AS SELF-DIRECTED LEARNERS

If we would measure this practice against the **definition of Knowles (1975)** of SDL, we can see that the Mossi people pass with distinction as **self-directed learners**:

- They realized that they face a problem in a dry country with soil that is not very fertile. Being dependent on farming to survive, they realized that they had to **find home-grown solutions for this problem**.
- They then **identified learning goals** for themselves, based on their needs. In a relatively poor environment, with restricted financial resources, conventional solutions like purchasing very expensive fertilizers, or investing in expensive irrigation, would not have worked. They realized that they will have to develop their own solutions, where they capitalize on what there is in the environment.

HOLDERS OF INDIGENOUS KNOWLEDGE AS SELF-DIRECTED LEARNERS

- They **identified human and material resources**, and worked with members of the community in testing various solutions. They realized that organic nutrients for the poor soil could be obtained with the help of the abundant termites in this area.
- Through a **process of trial-and-error** they developed effective farming practices that would support them. The complex zaï technique shows us that the Mossi people made **careful observations**, accurately **captured their results**, and constantly **reflected** in order to find viable, sustainable solutions. This indigenous knowledge is also passed on to a next generation.
- The Mossi people **evaluated the outcomes**, and have also introduced other farmers in Burkina Faso to zaï. The World Bank has showed that zaï farming practices result in a 500% higher than expected yield.

Indigenous knowledge and SDL, and lessons for the schooling sector?

- The holders of indigenous knowledge were/are, per definition, self-directed learners
- They had to learn how to solve authentic problems in their environments in creative ways
- **Lessons for school education**
 - * **Engage in authentic, ill-structured problems**
 - * **Make use of cooperative- and problem-based learning**

2. Re-imagining education for students with neurodiversity: a few considerations

- **Not pathologizing** being different-abled
- **Personalised learning**- tailor-made education for individual needs
- **Sensory-friendly spaces**
- **Multi-modal learning**, also addressing multiple intelligences
- **Flexible assessment methods**
- **Technological integration**
- **Parent and community engagement**



Aimee Mullins: TED Talk: The opportunity of adversity



The opportunity of adversity

2,789,122 views | Aimee Mullins | TEDMED 2009 • October 2009

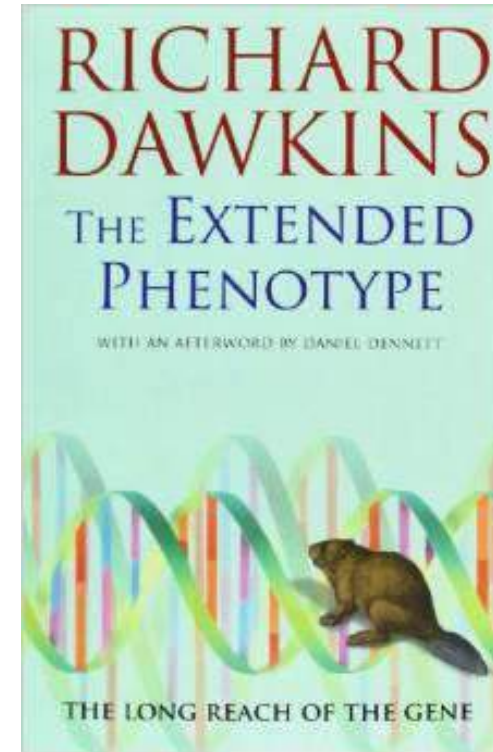
Embodied, situated and distributed cognition

- Indigenous knowledge is part of a human being's lived experiences, whether it is part of the body ("embodied cognition"), or direct environment ("situated cognition") or his/her social interaction with people ("distributed cognition") (Wilson, 2002, p. 625).
- According to Wilson (2002) embodied cognition refers to the intellectual processes deeply rooted in a person's bodily interaction with the world.



Dawkin's views on the extended phenotype (and relevance for cognition)

- Richard Dawkins (1982: 4-5) asks for a 'mental flip' in how we view phenotype.
- He uses the example of a spider on its web. Through Dawkins' lens, the web is part of the spider's extended phenotype (produced by the spider's DNA (its genotype)).
- Thus- our impressions of our world are part of who we are.



Multimodal learning- an example from ethnomathematics

- The mathematics behind patterns in beadwork



Ethnomathematics: Using Morabaraba and Ncuva to learn mathematics concepts

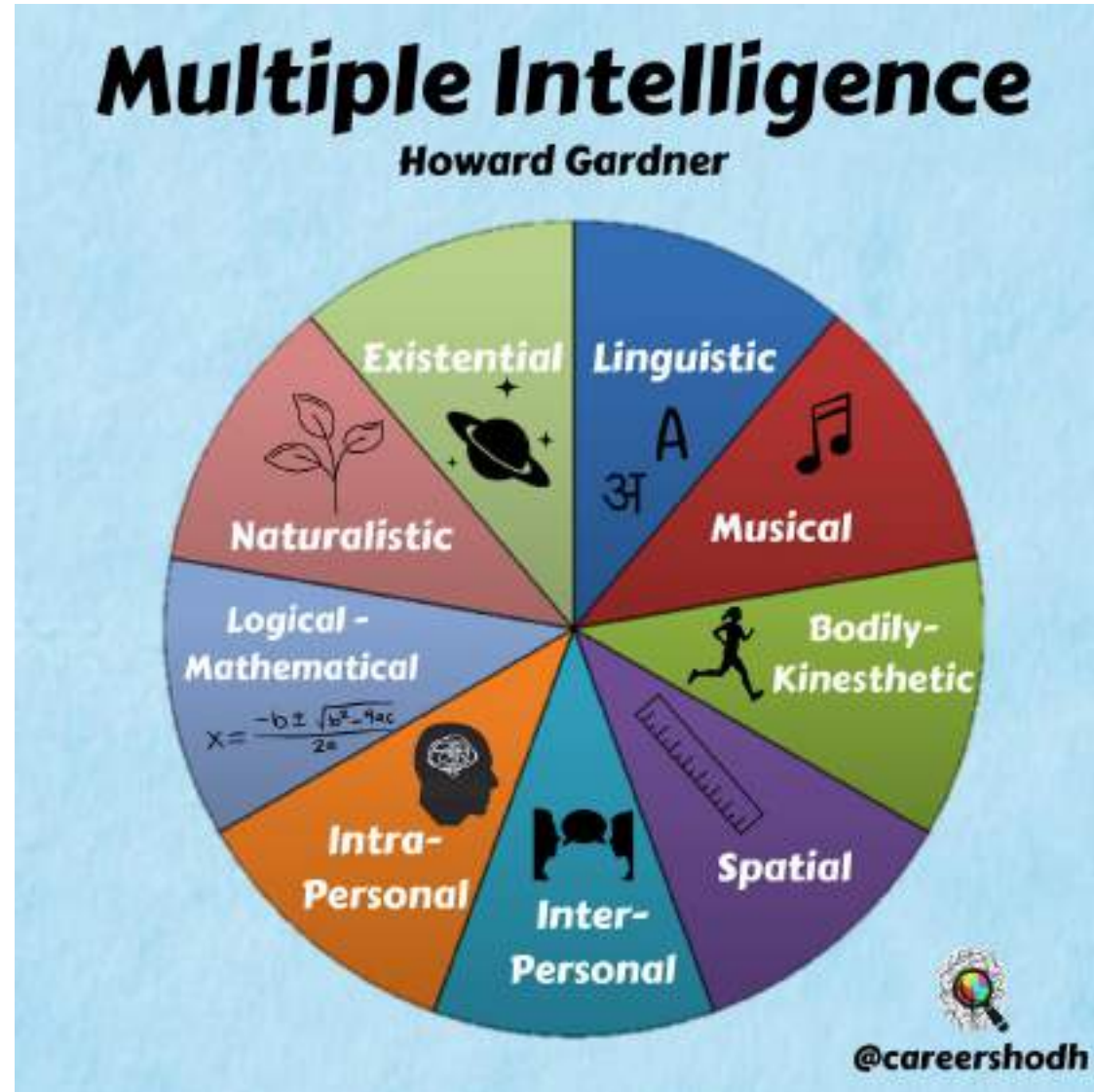


Learning about fractions by making music

- Utilising boomwackers in the Maths classroom



Howard Gardner's MI



SLCA Arts Competition in the build-up to National Science Week

- Emphasis on STEAM approaches (not STEM)
- Learners from Western Cape schools were invited to submit artwork to the SLCA
- Criteria included conceptualization, creativity, technical skill, visual impact, and alignment to the theme.



Story-telling and puppetry

- Story-telling is part of IKS- could be beneficial for neuro-diverse students
- The benefits of puppetry (and affordances for self-directed learning)



Learning as *Homo ludens*, the playing human



A pedagogy of play

3. Future-fit leadership in response to SDG4 and SDG8

- Educational leaders to **align education** with the **demands of the future economy**
- Forge **partnerships with businesses and industries**- develop curricula that align with the skills required in the job market
- Emphasis on skills such as critical- and problem-solving skills, and **creativity**
- Encourage entrepreneurship education- development of **entrepreneurial mindsets**
- Invest in **continuous professional development** of teachers
- Embrace and integrate **emerging technologies** into the education system
- Also focus on **soft skills**- communication, teamwork, adaptability and leadership



Focus on the affective domain

- If we consider the **affective domain** (learners' interest) as a prerequisite for achieving learning outcomes, we need to ask ourselves if the curriculum stimulates learners' interest, and whether they see the **relevance of the school curriculum** in their daily lives.
- My argument is that **indigenous knowledge could serve as a very good entry point into the abstract world of science**, and that such an approach might enhance the relevance of the science curriculum for learners.
- Two **insights from recent neuroscience research**:
- The human brain endows us with a natural curiosity to understand how the world works. **Harnessing natural curiosity of young learners engages and motivates them in the innate process of exploring their environment.**
- Only experiences with an **emotional stamp become committed to memory** [Dubinsky, Roehrig & Varma (2013)]

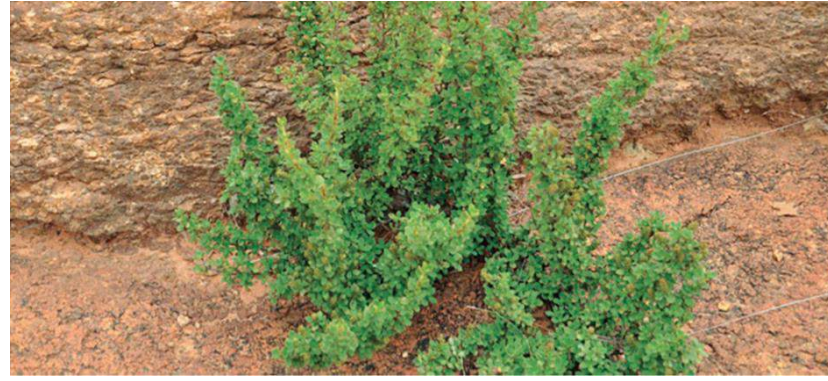
Career guidance and entrepreneurial mind-sets

- Pressure on Life Orientation teachers to provide career guidance
- I asked ChatGPT which are the jobs trending nowadays in the field of genetics and molecular biology. Here is its answer:
 - Genetic counselor
 - Clinical genomic scientist
 - Bioinformatics scientist
 - Genome data analyst
 - Molecular pathologist
 - CRISP/ Cas9 specialist (has to do with genome editing)
 - Genome data curator
 - Pharmacogenomics specialist



African psychology

- Such exciting opportunities for colleagues in educational psychology
- An interesting example of African psychology can be found in the use of *Myrothamnus flabellifolius* ('uvukwabafile' or 'opstandingsplant').
- Used to treat people suffering from the trauma of the death of a beloved, or depression.
- The traditional healer/ African psychologist would give a twig of this plant to the patient, with the instruction to put it in a glass filled with water on a window sill.
- This plant has the unique characteristic that its leaves become brown and curl up in winter, that gives it a dead-like character. When put in water, it almost miraculously becomes green (overnight).
- This serves to show the patient that there is always hope, and that there is life after death.



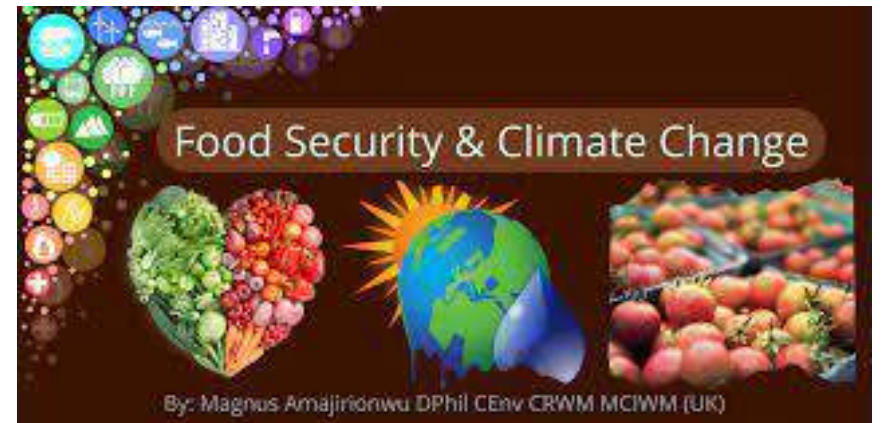
So many questions...So many research opportunities...

- Article by Van der Zeijst et al. in the journal *Transcultural Psychiatry*
- How do beliefs influence perceptions of reality?
- This research focused on the calling by the ancestors to become a traditional health practitioner, and *ukuthwasa*, the training to become a traditional healer
- Would *ukuthwasa* help with the management of mental disturbances or unusual perceptual experiences?



Indigenous knowledge and entrepreneurship

- Indigenous knowledge could assist in developing an entrepreneurial mind set
- Could contribute to food security



Indigenous knowledge and entrepreneurship

- Indigenous knowledge holders in the Giyani district in SA has an environmentally-friendly solution to the problem of mosquitos and malaria.
- The local people in the Giyani district have been using the plant *Lippia javanica* as an insect repellent for decades. The CSIR, in conjunction with the local community in Giyani in Limpopo, has registered a patent on the use of ***Lippia javanica* as insect repellent**.
- Clinical tests on citronella oil as a mosquito repellent showed a success rate of 40% while the oils in *Lippia javanica* seems to be 95% effective (Mothwa, 2011).
- Candles with essential oils from the plant sold as an insect repellent, with the community profit-sharing as partners.



Sutherlandia frutescens, the 'cancer bush' (used for decades by Zulu and KhoiSan traditional healers)



Conclusion

- The role of context should receive more attention from scholars working in the field of SDL. Many school contexts in South Africa are characterised by what Mbembe (2016:31) calls the '*mania for assessment*', which might not be conducive to SDL.
- Indigenous knowledge holds affordances to contextualise curriculum themes to culturally diverse learners
- IK could also develop entrepreneurial mind-sets in learners
- Self-directed learning is a *sine qua non* in a complex 21st Century
- Visionary leadership is needed to ensure that our curricula are responsive to the needs of a complex 21st Century

An Invitation to EASA members

- Via Afrika Publishers is embarking on a 75th Anniversary project
- Providing 400,000 + teachers with a free copy of a new book, “***The authoritative guide to Indigenous Knowledge Systems for Teachers***”
- A coffee-table type book (richly illustrated) on how indigenous knowledge could be infused in the classroom
- We are **looking for authors**
- Book not sold- no royalties- once-off payment of R20,000 for a section (6,000 words)
- Send me a letter of intent and your CV to: jdebeer@uwc.ac.za

THANK YOU!

A special word of appreciation to
the EASA leadership and LOC

