

# **The development of ESD materials for inclusive education in South African curriculum settings.**

**Rob O'Donoghue and Katarina Roncevic**

Abstract:

*From an opening standpoint that inclusion implies previous exclusions, this paper reviews the scope of inclusive processes of ESD in the South African education system.*

*It explores how the historical colonising process and modernist trajectories in the emerging nation state were exclusive and driven by interventionist forms of education that were underpinned by paternalism and abjection over many generations. Colonial education, was initially centred on the displacement of indigenous cultures to inculcate the necessary literacy and skills in a labour force to drive an extended process of colonial modernisation. Here there was an uneven provision of special education for learners with disabilities. National provision for special needs is now being mainstreamed in new policies of inclusive education shaping education provision with a broader inclusivity agenda that one finds elsewhere.*

*The study examines how more inclusive processes of education emerged alongside a residual institutional culture of ESD as interventions to effect behavioural change. It notes how, for ESD to achieve sustainable socio-economic and ecological change, education will need to foster social cohesion and foster more inclusive processes of co-engaged action learning.*

*An emerging and more inclusive landscape for ESD is thus explored as co-engaged processes of deliberative transformation. These disrupt the paternalism of an alienating state towards an inclusive engagement of citizens intent on constituting the futures they want through deliberative processes of learning-led change. Here inclusive processes of social cohesion towards humans working together to emancipate ourselves within the limits that our past and present activities are creating for us and future generations. Achieving the necessary social cohesion for the learning-led changes through inclusive processes will not be an easy matter.*

*The study reports two cases of materials development for more inclusive ESD in South Africa:*

- 1. the localisation of a German, Global Education resource for inclusive education with the support of a German NGO bezev, the ESD Expert Net and a small team of South African specialists in mainstream inclusion with the focus on provision for students with disabilities.*

2. *The development of a Hand-Print CARE resource as a Climate Change Tool Kit for the inclusion of indigenous knowledge and sustainability technologies for hand-on action learning in response to the deepening effects of water shortage, health risk, reduced food production, poverty and health risk associated with climate change.*

*The most notable outcome these Exploratory processes of ESD was a realisation that the scope of ESD and inclusion in southern Africa had developed a broader focus than that in Germany. This developed around redress following the cultural exclusions of colonial history and the need for social cohesion as a focus for a developing competence to navigate the processes of re-integration and transitional change after an extended period of exclusion in colonial modernisation characterised by modes of patronage and intervention-led processes for effecting social change.*

## **1. Background**

The idea of inclusion in education conveys a sense of change where something excluded or omitted is now being included in the system. From this standpoint the ideas of inclusive education in South Africa has a unique character with the advent of a single, inclusive education system with the overturning of the apartheid system of separate education in the early 1990s. The inclusive education system that developed from 1994 was the outcome of a long struggle to overcome the differentiating exclusions of colonial and apartheid education from the 1800s.

Within a colonial system differentiated by race, students with disabilities, were mainstreamed from early on but there were numerous patterns of differentiated educational provision, particularly for students with impaired sight and hearing. Provision was very uneven across the dominant racial differentiation of state schooling. Where the state did not make provision for children with disabilities, a wide array of religious and volunteer organisations provided the necessary specialist facilities especially for the physically disabled as well as children who were hearing and sight impaired. This meant that across the school system, children with special needs in poorer areas were either integrated in schooling or stayed at home in the villages. Exclusionary processes in the colonial and the apartheid system that superseded the mainstreaming inclusion we find today, provide a complex backdrop to the expansion of inclusive approaches to teaching and learning that are emerging with ESD across the current systems of educational provision in the region.

## **2. Historical processes of exclusion and the struggle for inclusion in education**

Colonial modernity in South Africa was characterised by exclusionary cultural processes of erasure, appropriation, socio-economic marginalisation and recent mainstreaming patterns of inclusion with ESD.

With a few exceptions, early colonial schooling was in a foreign language intended to rescue students from their primitive cultures through induction into the Christian faith and the civilised ways of The West. There were some notable exceptions like the inclusionary approach that emerged at the mission station in Colenso, for example. Here students learned in Mother Tongue in more inclusive ways than elsewhere. These approaches eventually contributed to Bishop Colenso being excommunicated by the Mother Church in Britain for heresy and 'going native' as he began to find merit in Nguni cosmology, particularly in relation to the story of creation. The struggles for inclusive education across colonial and apartheid history have many examples of enlightened transitioning to more inclusive approaches to education but these seldom developed on any scale until the advent of an inclusive system in 1994.

Over this imperial period of ferment, the institutional sciences came into an ascendancy in colonial institutions and much in the prevailing indigenous knowledge practices was appropriated to inform the rapidly growing sciences. Shava (2008) illustrates how scientific institutions came to appropriate indigenous knowledge into the Western Canons and Odora-Hoppers (2002) illustrates how some of the knowledge in the current school subject disciplines is now not recognisable for having been derived from the wisdom of many generations of indigenous people. For Example, many of the health properties of Rooibos tea as a herbal infusion had been mapped out by the Koi peoples of the Cape Fynbos Region and were taken up as a caffeine-free alternative to Ceylon tea from India. In recent history the roots of this knowledge were acknowledged with the reversal of a copyrighting of 'Rooibos' in the USA. Another interesting example of colonial and modernist exclusion is how the ecological relation between the African Honey guide and indigenous people in the local gathering for honey was reduced to myth. The history of abjection (exclusion as if something does not exist) is now under correction with the re-insertion of African heritage and knowledge practices to enhance inclusive relevance in the education system.

After the early paternalism of an exclusionary colonial system of forced cultural induction and English language literacy, the Apartheid system of racially segregated education in Mother Tongue with Afrikaans and English developed. An attempt to introduce Afrikaans as the language of instruction in schools sparked the 1976 student uprising that started in Soweto and is commemorated as an iconic turning point into a national struggle for an inclusive education that would be free from the inscriptive divisions of Apartheid.

With the overturning of Apartheid system came inclusionary change but the struggle to effect quality education for all was centred on surface inscriptions of inclusive education for all. The question of inclusion was seldom read against historical patterns of

intervention to give effect to change behaviour through education that characterised modern education in the 20<sup>th</sup> Century.

### **3. The exclusionary hand of ESD as social intervention**

The sustained paternalism and exclusionary culture of colonial modernism prevailed in education despite the hand of liberation intent on charting a new inclusionary path within an Outcomes-Based education system after 1994. A deepening of thought was notable in Environmental Education (EE) as sustainability concerns were included as cross-cutting matters of concern in the new curriculum. EE had emerged around imperatives to effect a transformative, social solidarity in more participatory approaches to environment and sustainability education. In contrast, to EE in The Global North, South African approaches reflect an early transitioning from nature study in natural areas to the inclusion of socio-economic and political concerns within an expanding scope that not only included social justice but also developed as an inclusive learning process of deliberative social cohesion. This emerged alongside and contrasted with the colonial institutional legacy of educational interventions notable in the programmes of most environmental organisations and state organs. Here an underlying paternalism retained EE/ESD as interventions to effect behavioural change.

Chikamori argues, that ESD “insists on a version of [Sustainable Development] that refers to our *present actions*, is aligned with the wellbeing of *present and future* generations, and is based on our understanding of, and learning from, *past activities*”. A flowing interaction between retroductive learning alongside retrodictive analysis impinge learners in make decisions and take action in the present and events going forward (Figure TMESD XXXX). Ojala emphasizes the need to consider emotion regulation strategies within ESD practices at individual, group and cultural levels. Further Ojala emphasizes the importance “to be aware of emotion regulation strategies to promote pluralistic learning”. Applying to Chikamoris TMESD, including indigenous knowledge in ESD practices opens up to learners emotions and identity, however, may stimulate co-engaged learning and affiliation and therefore promotes inclusive learning processes.

The cultural and methodological shift in the culture of EE/ESD from processes of paternalistic intervention to inclusive processes of social solidarity and transformative social learning remains a long struggle. The landscape of educational inclusion in South Africa today is thus characterised by diverse and often contrasting perspectives on ESD. The Sustainable Development Goals, as an agreed nation state agenda, include a

complex array of interacting concerns with the necessary scope for contemplating societal actions to transition to a more just and sustainable future world.

There is, however, little direction on how the change developed in the goals and inscribed in SDG 4 and how this ought to be enacted. Education work with the SDGs (ESD) is clearly mapped out in SDG4 as transitioning process of global education that commonly presents as inclusive processes of co-engaged learning and learner-led change in school curriculum and school-in-community settings.

All of these concerns were deliberated in the framing of a research team to review ESD and inclusivity in the South African CAPS<sup>1</sup> curriculum with a view to the adaptive redevelopment of an inclusive education resource for use in teacher education and school curriculum settings in South Africa.

#### **4. Framing an ESD materials for the landscape of inclusion in South African education**

Two ESD processes of materials development for inclusive education are reported below. Both were centred on teacher education but were designed for use by student and in-service teachers to use in inclusive curriculum settings. The first produced exemplars for mainstreaming inclusion and focuses on special learning needs and the second was centred on the inclusive of indigenous knowledge practices in school curriculum settings.

##### **4.1 Global ESD materials: “Cashew - A Global Learning Challenge”<sup>2</sup>**

The adaptive development of a cashew resource for South African involved a comparative policy review on inclusive education and an attempt to match the content with the requirements of the curriculum. The local materials were produced for teacher education and as a resource for inclusion of students with special learning needs in mainstream. The Cashew-Material has been developed as an inclusive and multi-perspective educational resource for secondary schools but much of the resource can be adapted for use in earlier years. ESD-relevant topics, such as politics, fair trade, climate change, world trade, natural sciences, history and cultivation have been captured around the Cashew. The UNESCO<sup>3</sup> competencies have been integrated as a cross-cutting

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<sup>1</sup> A National Curriculum and Assessment Policy Statement (CAPs)

<sup>2</sup> A project team was convened to adaptively redevelop a ESD resource on Cashews that had been developed for inclusive education. The adaptive use of the materials was undertaken with the support of a German NGO *bezev*, the ESD Expert Net (South Africa, Germany, Mexico and India) and a small team of South African specialists in inclusive education for students with disabilities.

<sup>3</sup> Rieckmann, M. (2018) Learning to transform the world: key competencies in Education for Sustainable Development. In Leicht, A., Heiss, J. and Byun, W.J. (2018) Issues and Trends in Education for Sustainable

through all the modules, such as system thinking, strategic competencies, critical thinking or self-awareness.

The example of the cashew shows how Inclusion and Education for Sustainable Development (ESD) can be addressed through exploring the globalizing dimensions of the small cashew in schools in South Africa and elsewhere.

The inclusive curriculum rationale for school subject orientated, multidisciplinary learning processes resonates with competency perspectives in framing the Cashew learning activities. These invite teachers and learners to work with and adapt the modules to begin to develop ESD competences as capabilities for future sustainability. The modules provide educators with stimulating cognitive content, challenging social-emotional focus areas as well as practical learning-to-change actions towards future sustainability and social justice. The Cashew-material is presented as an adaptable resource for inclusive education and for the planning of diverse subject-centred curriculum programmes.

The goal of the Cashew material is the mainstream of inclusive education in ESD practices also by supporting activation of the social-emotional capabilities for assessing of the matters of concern and enable learner-led responses through a developing capability to act towards sustainability based on the individual learning abilities and a concern for the common good. Applying Klafki's constructivism approach and ESD helps the learners working with cashew materials to recognize what is known, assessing its felt importance and activating a creative capacity to act against the background of individual abilities and interest. This is consistent with the Past-to-Present (retroduction) and Present-to-Future (retrodiction) proposed by Chikamori et al. (2019) and discussed earlier in this paper.

The key aspects in inclusive approaches of the cashew material required adaptations in didactics and methods as well as added adaptations for learners with special needs were learners with cognitive difficulties (complexity and cognition), deaf and hard of hearing and vision and perception. In concrete terms, this also means to differentiate learning contents, methods according to the learning needs, for example by learning with all senses, accessible language, in different settings of group world or action and more learner oriented. The intention here was the use of a variety of methods and for adaptations to help promote the participation of learners as well as increase the quality of teaching and learning. For learners requiring learning assistance, the following principles in lessons planning should be considered:

- Differentiation (time, methods/media, number of exercises, subject matter);
- Reduction (quantity, clarity, objective);  
Motivation (importance, relevance to everyday life, clarity, holistic learning);
- Focus on action (promote active involvement, train activity planning, acceptance of responsibility);
- Repetition/ritualisation (structure of content, space and time, interesting and motivating repetition, clear rules).

South Africa's own history and the experiences of other countries show that unity and social cohesion are necessary to meet social and economic objectives (NCP, 2013, p. 25).

The Cashew-Material was thus designed to foster a sense of social cohesion. The material was developed in the way, that the didactic-methodological approaches towards the learning goals included a peace oriented pedagogy, critical thinking, cooperative learning, participation, empowerment and dialogue. This approach implicates a strong inquiry-based learning focus and a transformative approach for learning settings and communities. The Cashew-Material are thus intended to enable educators to foster resilience amongst the learners and to incorporate elements of critical reflection and dialogue with diverse identities and sense of belonging in diverse contexts. For example, in comparative and emerging identities in relation to cashew production and trade in Mexico, India, Germany and South Africa and the diverse contexts within these countries. By supporting teachers to avoid the reproduction of stereotypes, the Cashew Material contains methods for educators and learners to deal with stereotypes to foster social cohesion.

The cashew material were developed within a broad concept of inclusion. For example, for the south African adaption of the cashew material it was deliberately omitted to include all 11 national languages. Same challenge can be observed in including sign language materials for South African context. SASL (South African Sign Language) as the official national language of the Deaf community convey differences and variations in the lexicon across the nine provinces in the country.

South African Sign Language (SASL) is the official national language of the Deaf community in South Africa. While the grammar or syntax remains consistent, there are differences in the lexicon of SASL. These variations occur across the nine provinces, with further variations emerging within regions and schools. While all signs are recognised and acknowledged as being part of SASL and its rich and diverse heritage, "it would have been a somewhat onerous task to capture the content of the Cashew learning programme in a single signed presentation that would be spontaneously understood" (*Cashew - A Global Learning Challenge*) for all deaf learners in South Africa.

## 4.2 Hand-Print CARE and the inclusion of Indigenous Knowledge

The Hand-Print concept emerged as a proposition for learner-led action learning in the Centre for Environmental Education (CEE), Ahmedabad, India. Hand-Print CARE as an ethics-led action learning proposition was developed at a LOCUMS<sup>4</sup> research group meeting with Same educators in Alta, Norway. Here **CARE** emerged as an acronym reflecting an ethic of inclusive respect through **C**oncern for others, being **A**ttentive to needs, showing **R**espect for each other and being **E**ngaged in learning actions for the common good.

The inclusion of Indigenous Knowledge in learning became a key research trajectory in the materials development process. In a paper to explore the low school achievement of Indigenous Mother Tongue speakers, an analysis of the constitution of knowledge of natural processes indicated how concepts in the sciences were constituted as abstractions that bore little or no reference to the intergenerational knowledge practices of indigenous people in southern Africa (O'Donoghue, Kibuka-Sebitosi, Tshiningayamwe, and Palmer 2019). Science pedagogy was centred around the constituting of Pedagogical Content Knowledge (PCK) that took account of learner experience but not in a cultural historical sense that included intergenerational knowledge muted by colonial exclusions.

A key focus in the development of Hand-Print CARE materials became an imperative to include Indigenous Heritage Knowledge in ways that might enhance learning and relevance amongst indigenous learners learning the modern natural sciences related to the areas in which they are living.

At the time there was an extreme drought that had the knock-on effects of:

- **Water shortages** (*What did indigenous people do in the past?*)
- **Declining water quality** (*How did they collect sweet water?*)
- **Decreased food security** (*What foods were used in times of drought?*)
- **Reductions in nutrition** (*How has nutrition changed with the modern diet?*)
- **Increasing health risk** (*How were health risks managed in the past?*)

By asking the questions in brackets we worked with indigenous scholars to review historical patterns of response to drought, water quality, food security, nutrition and health practices to mobilise the intergenerational heritage knowledge that might provide relevant foundational learning for more inclusive ways of teaching the topic of climate change in the sciences, technology, economic and management science and Life Skills.

In summary, we found that the Xhosa, Hlubi and Pondo peoples had brought in and developed knowledge practices for coping with cycles of drought in the Eastern Cape.

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<sup>4</sup> *Local Culture for Understanding Mathematics and Science*



The extremes in the seasonal cycles were primarily driven by the el Nino-la Nina oscillation in the southern Pacific and the Botswana High Pressure System over the sub-continent in the winter season is now contributing to some of the increasing extremes of climate in the area.

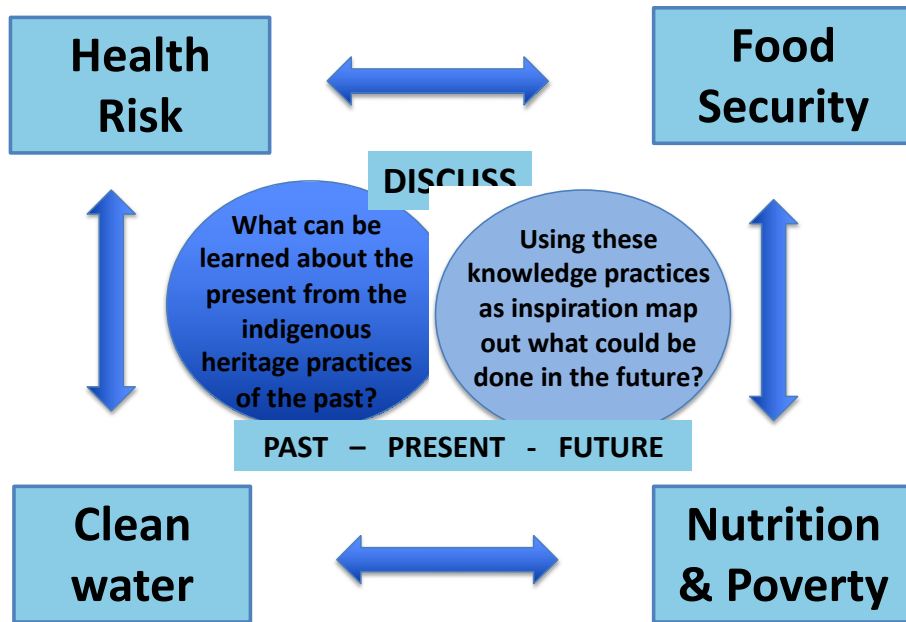
The intergenerational knowledge uncovered and recovered through the research provided a rich foundation of heritage for engaging in social innovation to mitigate the effects of drought in the area. The foundational knowledge integrated in the Hand-Print CARE materials informed an expanded perspective on Topic-Specific Pedagogical Content Knowledge (TS PCK) and a Past-to-Present and Present-to-Future TMESD pedagogy reflected in Figure 3 below.



*Practical  
Challenge*

**Connecting Past and Present into Future climate action around complex matters of concern?**

**How do the 4 concerns connect in the Makhanda drought?**



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The climate extreme of drought in the area has produced low dams with knock-on effects of health risk, reduced food security, more costly clean water and decreasing nutrition that is deepening poverty in the area but this has not yet contributed to unrest and migration. Figure 3 is developed as an inquiry task to explore past responses to drought by indigenous peoples and the learning challenge of deploying this in relation to the problem of drought in the region today.

The Topic Specific Pedagogical Content Knowledge in the Hand-Print CARE materials includes information on the following indigenous knowledge practices as foundational

heritage for understanding science and imagining better ways of doing things together in response to climate change:

- *Galesha* (breaking the soil cap) to enhance water ingress into soil in anticipation of a delayed start to the summer rains.
- *Uthuthu* (ash flocculation) to clear springs and Amanzi mNandi (Zulu) water lifting to reduce bacterial loading.
- Combining *umfuno* (crops) with *imifino* (wild vegetables) in food gardening.
- Hand-washing when arriving home or greeting guests to keep disease at bay.

Seen together as cultural strategies in drought conditions it was possible to relate the Nguni cultural capital to technological responses to drought and scientific knowledge driving the mitigation of climate extremes in the region. This allowed us to develop a Climate Action Tool Kit for use in the Grade 7 Economics and Management Sciences. The kit also has activities that can be used in the Natural Sciences and Life Skills. The inclusion of Indigenous Heritage Practices in the Hand-Print CARE materials has opened up an educational response to the exclusions in colonial and modernist history.

## **5. Concluding synthesis and discussion**

The southern African landscape of ESD and inclusive education cannot be reduced to teaching educators how best to mainstream learners with special needs.

ESD has developed as an expansion in modern education to include the acquisition of the competences and agency for learning to live in a changing world of and at risk. This is shaping change in learning and training environments (O'Donoghue et al. 2018) on a widening scale. Here cohesion and co-engaged and more inclusive modes of teaching and learning are emerging in school subject disciplines. The Cashew and Hand-Print CARE materials reflect the use of a competency approach and the use of the Sustainable Development Goals (SDGs) in open-ended learning progressions that expand beyond conventional Teach-Task-Test routines of curriculum instruction.

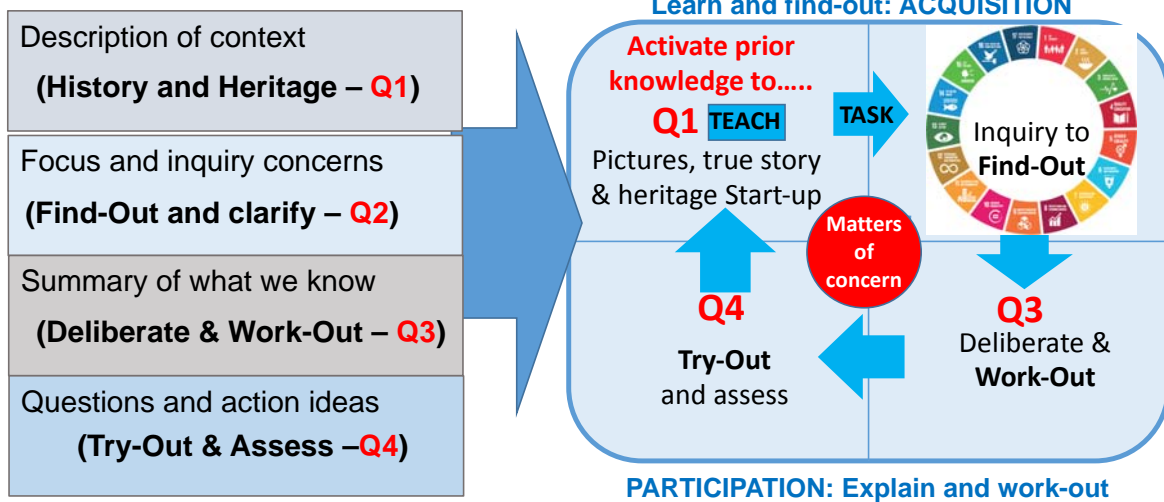
Figure 2 shows how deliberative work on Climate Change in the Eastern Cape of South Africa is informing an expansion of conventional learning progressions to include heritage and more learner-led inquiry and change challenge action in Quadrants 2-4 as well as an inclusive broadening of assessment for, in and of learning by participating students.



# SDGs into Pedagogy



## Hand-Print Action Learning



Integral to these modes of inclusive expansion in education is the need to training to include students with special needs.

Inclusive education has developed as an expanding and challenging education terrain, especially with the inclusion of ESD in the curriculum. Here it is not enough to make provision for an inclusive mainstreaming of students with special needs but there is a need to expand and reconceptualise the educational enterprise if we are to meet the challenges of cohesion and change necessary for constituting sustainable futures on a global scale.

Following his recent sociological analysis of 'Acceleration' in a modern world Rosa (2019) has begun to map out 'A Sociology of our Relationship to the World' within which he notes:

Our relationships to the world are always both *appetitive/affective* and *evaluative/cognitive*, and I am convinced that the dynamic of life can essentially be understood as a constant oscillation between these two poles (p.135).

The prospect of these relations developing in ways that the search for relevance and future sustainability might be achieved will require many expansive shifts in education,

not least of which are a reframing of the educational enterprise as cohesive processes of change borne of inclusive meaning making through ESD.

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