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Using the School Environmental Education Programme (SEEP) to Decolonise the Curriculum: Lessons from Ufasimba Primary School in South Africa

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Abstract

The topic of decolonisation has become a contested terrain because of the curriculum challenges facing education systems in Africa, particularly South Africa. To address these challenges, many scholars have underscored the importance of using socio-culturally relevant curricula in Africa. This article is divided into two sections. First, it explores challenges facing education systems in Africa and how decolonisation and socio-culturally relevant curricula, resources, and teacher training can provide answers to those challenges. Then the article explains how Ufasimba Primary School emerged as a school where the School Environmental Education Programme (SEEP) was used to decolonise the curriculum. The challenge, however, was that the Department of Basic Education (DBE) in the KwaZulu-Natal province in South Africa had not made it mandatory for schools to implement the SEEP. This study recommends that the integration of the SEEP into the curriculum should be mandatory at primary education level. A qualitative approach and a grounded theory method, underpinned by the social constructivist paradigm, were used for this study. Data collection methods included semi-structured interviews and the observation method. The basic principles of grounded theory and the NVivo software program assisted in the data analysis for this study.

Keywords: basic education; curriculum; decolonisation; culture; indigenous knowledge; Ufasimba Primary School; School Environment Education Programme (SEEP); South Africa

Introduction

In South Africa, basic education is a constitutionally entrenched right that has been described by the Constitutional Court as “immediately realisable” and by the Supreme



Court of Appeal as “a primary driver of transformation” (Hodgson and Khumalo 2016, 4). The rights of children to education, language and culture, and a clean environment are constitutionally enunciated in Chapter Two of the Bill of Rights of the Constitution of the Republic of South Africa, 1996. However, these rights do not seem to have been sufficiently realised, because of the skewed education system that was inherited from the apartheid regime. Many studies have lamented the fact that elements of colonial education continue to haunt teaching and learning spaces in Africa (De Beer 2016; Jegede 1995; Musitha and Mafukata 2018a; Uzomah 2018). Odora Hoppers (2017) and Tlali (2017) reiterate that certain cultures still dominate in educational spaces, to the extent that others are subjugated and excluded. Shava and Manyike (2018) give the example of languages such as English, Portuguese, and French, which have been imposed as languages of education and commercialisation, thus robbing African people of the cultural identity embedded in their languages. For these scholars, language and culture are inseparable, as language defines and revitalises one’s cultural identity (Shava and Manyike 2018). Jegede (1995) notes that linguistic barriers have been viewed by non-Western scholars as one impediment to the successful acquisition of knowledge.

Odora Hoppers (2017) avers that the West not only colonised the world, but also information about the world. In addition, the West developed a monopoly control over concepts and images, including those of god, knowledge, life, and death. Furthermore, Odora Hoppers (2017) posits that knowledge, as described within the context of globalisation, is Western-based and Americanised. Africa needs to affirm the importance of local knowledge (both formal and informal) and extend its intellectual pursuits beyond those dictated by international interests. Dumbrajs, De Jager, and Bergstrom-Nyberg (2013) and Jegede (1995) explain how, historically, curricula were structured to promote the interests of the West. For example, science was taught in such a way as to promote rote learning at the expense of learning with comprehension. The key educational objectives of the missionaries and colonialists were to produce clerics, catechists, clerks, and interpreters. The teaching of science and mathematics was not approved, for fear of the power it might transfer to African people. The healthy integration of Western and African science was hardly promoted; rather, sanitising and civilising teaching approaches were utilised that aimed to promote a Western-oriented ethos (Jegede 1995).

The challenges described above have triggered debates on the topic of decolonisation, particularly in higher education institutions. The university student protests of 2015 to 2016 illuminated students’ dissatisfaction with a curriculum that is Western-orientated, at the expense of Afrocentrism (Costandius et al. 2018). The decolonisation of academic curricula has been a key aspect of demands by students and other sectors, including academics in South Africa (Sayed, Motala, and Hoffman 2017). For example, the #RhodesMustFall manifesto of the University of Cape Town (UCT), for instance, asserts that one of its long-term goals is to “implement a curriculum which critically centres

Africa and the subaltern. By this we mean treating African discourses as the point of departure—through addressing not only content, but languages and methodologies of education and learning—and only examining western traditions in so far as they are relevant to our own experience” (Sayed, Motala, and Hoffman 2017, 60).

It is assumed that these protests also triggered debates on what the concept of “decolonisation” means to scholars and authors. Various scholars (Chaka, Lephala, and Ngesi 2017; Fomunyan 2017; Methula 2017; Sayed, Motala, and Hoffman 2017) agree that the term has various interpretations, as determined by the contextual use. Many scholars have associated it with transformation, Africanisation, and African intellectuals such as Ngũgĩ wa Thiong’o, Julius Nyerere, Frantz Fanon, Thabo Mbeki, Catherine Odora Hoppers, and many others (Costandius et al. 2018; Fomunyan 2017; Shava and Manyike 2018; Uzomah 2018). For example, former president Julius Nyerere advocated for the idea of “educating for self-reliance, self-confidence, independence, responsibility and democratic involvement” (Uzomah 2018, 33). According to Tlali (2017), Ngũgĩ wa Thiong’o opined that decolonisation is a complicated process that focuses on initiatives of rejecting the centrality of the West to push for Africa’s understanding of herself and her place in the world. It is about a paradigm shift of power in relation to the knowledge hegemony and knowledge economy. Furthermore, it focuses on redefining African institutions from an African perspective, with the aim of constructing knowledge about Africa for Africans and the rest of the world (Tlali 2017).

The author is of the view that intellectual discourses on the decolonisation of the education system have tended to focus on universities at the expense of other education levels, such as basic education. Neglecting other levels can aggravate the situation. For example, the low pass rate among Grade 12 students illustrates the effect that the skewed inherited system of education has had on all levels of education. It is apparent that, to be able to redress these imbalances effectively, curriculum decolonisation and transformation need to commence at the Foundation Phase and then extend to other levels (Dumbrajs, De Jager, and Bergstrom-Nyberg 2013; Musitha and Mafukata 2018a). This study seeks to address that gap. Its aim is to gain insight into how the School Environmental Education Programme (SEEP) was integrated into the school curriculum at Ufasimba Primary School. To help the reader understand why the SEEP forms the focus of this article, a brief overview is given. Detailed information is provided under the discussion of the study’s findings.

This article is informed by the author’s thesis, entitled “The Management and Preservation of Indigenous Knowledge in Dlangubo Village in KwaZulu-Natal Province in South Africa”(2016), written as part of the fulfilment of the author’s doctoral degree. During a semi-structured interview with the women crop-farming focus group from Ufasimba sub-place, a male educator from Ufasimba Primary School emerged as the key informant in their crop-farming activities. It was indicated that the educator shared knowledge on how to do gardening using permaculture manure. A follow-up interview

was then arranged with the educator. He confirmed that, besides sharing knowledge about good crop farming with the women, he shared similar knowledge with learners. This knowledge was acquired from various sources, including the manuals used for the SEEP, which were obtained from the Department of Economic Development, Tourism and Environmental Affairs (EDTEA). The SEEP emerged as an important programme that was gradually infiltrating the curriculum at Ufasimba Primary School. In this article, the SEEP is viewed as striving to decolonise the hegemonies that still haunt primary education teaching and learning spaces. It aims to promote an interdisciplinary, integrated, and active learning approach on environmental and sustainable development issues, as recommended by the South African White Paper on Education and Training (DoE 1995).

In South Africa, many environmental education (EE) programmes were introduced after the Johannesburg World Summit of 2002, including the national school programme called the Eco-school EE programme. The process of embedding an EE programme in the school curriculum was championed by the government, in collaboration with the Department of Environmental Affairs and Tourism (DEAT), the Department of Water Affairs and Forestry (DWAF), the Department of Health (DoH), NGOs such as the Wildlife and Environment Society of South Africa (WESSA), national parks and local councils, and other stakeholders such as private conservation enterprises, universities, and research institutes. WESSA played a key role in formalising the eco-school within the school curriculum. Each provincial education department had to structure the Eco-school EE programme according to its local needs (Wanyama 2009). In the KwaZulu-Natal province, the programme is known as the SEEP.

Since South Africa became a democratic country, the school curriculum has changed frequently, with the aim of improving the education system. The current National Curriculum Statement (NCS) is divided into categories, which are the Foundation Phase (grades R to 3), the Intermediate Phase (grades 4 to 6), the Senior Phase (grades 7 to 9), and the Further Education and Training Phase (grades 10 to 12). Although there is an overlap in terms of subjects offered, they differ depending on the phase (DBE 2015). From 2012, the two NCSs, for grades R to 9 and grades 10 to 12 respectively, were combined, to be known as the NCS for grades R–12. The NCS for grades R–12 builds on the previous curriculum, but also updates it and aims to provide clearer indications of what needs to be taught and learnt on a term-by-term basis. The NCS for grades R–12 represents the Curriculum and Assessment Policy Statements (CAPS) for learning and teaching in South African schools (DBE 2011). Details regarding how the NCS (grades 1 to 6) of Ufasimba Primary School is structured will be discussed later in this article.

Contextual Background

Ufasimba Primary School is located in KwaZulu-Natal, a province which is classified as predominantly rural. In South Africa, three provinces—the Eastern Cape, KwaZulu-Natal, and Limpopo—are classified as predominantly rural, as they have incorporated most of the former rural homelands. The homelands were predominantly occupied by black South Africans, engaged in the production of crops and livestock, mainly for own consumption or for sale on local informal markets. This is important for poverty alleviation. It is in these three provinces where many learners are found (Mojapelo 2018). This primary school is in a village named Dlangubo. The school incorporates grades 1 to 6. The motto of the school, as clearly illustrated in the school logo, is “Gqama NgeMfundo”, meaning “Use Education to Shine”. It is clear that the school is using the SEEP to “shine”.

Dlangubo is a small rural village that comprises eight sub-places: Bonisani, Dlangubo, Enqoleni, Khabingwe, MngaMpondo, Mqadayi, Nomyaca, and Ufasimba. It is administered by a tribal authority called the Dlangubo Traditional Council, which comprises the chief and his headmen. The village is still underdeveloped and infrastructural development is taking place slowly. There is still a scarcity of electricity and water, as these services have not reached all areas. Some members of the community still survive by using water from rain, rivers, lakes, and tanks. The use of wood collected from the natural vegetation for cooking is still a common practice. Some community members practice small-scale resource-poor agricultural farming for sustainable development purposes.

Statement of the Problem

As already highlighted, since the fall of the apartheid regime in South Africa in 1994, the country has implemented a series of curriculum changes, with the aim of improving the education system. The implementation of Curriculum 2005, based on outcomes-based principles, was a break away from the content-laden apartheid education system (Dumbrajs, De Jager, and Bergstrom-Nyberg 2013). The aim of the reform policies was to teach curricula based on the students’ own socio-economic environment and to equip them with skills they will need in real-life situations. Other policies included the NCS, the Revised National Curriculum Statement (RNCS), and the CAPS, which indicated a period of rapid transformation and democratisation (Dumbrajs, De Jager, and Bergstrom-Nyberg 2013). The RNCS and NCS prescribe what learners should know and be able to do, while the assessment standards for each grade describe the minimum level, depth, and breadth of what should be learnt in each learning area (Letsekha, Wiebesiek-Pienaar, and Meyiwa 2013). These political and social changes created opportunities for the inclusion of indigenous knowledge (IK) and a dialogue incorporating different socio-cultural views (Dumbrajs, De Jager, and Bergstrom-Nyberg 2013). According to

Letsekha, Wiebesiek-Pienaar, and Meyiwa (2013), advocates of IK maintain that its study has profound educational and ethical relevance.

Notwithstanding all these initiatives, some rural schools are still unable to take advantage of the opportunities created by the RNCS, due to many factors, including the limited resources available to them (Letsekha, Wiebesiek-Pienaar, and Meyiwa 2013). Musitha and Mafukata (2018a) argue that the curriculum transformation has not really made the vision of basic education a reality, as this initiative has not sufficiently improved the performance of learners. As already highlighted, the low pass rate among Grade 12 students, including the dwindling numbers of those who pass with Science and Mathematics on higher-grade level, bears evidence of this (Le Grange 2007). In addition, South Africa has performed badly on international surveys, such as those conducted as part of the Trends in International Mathematics and Science Study (TIMSS) (Le Grange 2007). Spaul (2012) indicates that the Southern and Eastern African Consortium for Monitoring Educational Quality (SACMEQ) III has confirmed that a high proportion of South Africa's learners are functionally illiterate and functionally innumerate. Spaul's (2012) thesis concluded that South Africa is still a tale of two school sub-systems: one which is wealthy, functional, and able to educate students, while the other is poor, dysfunctional, and unable to equip students with the numeracy and literacy skills they should be acquiring in primary school.

Mbeki (2011) is of the view that the education system does not show any improvement when compared with countries of the Southern African Development Community (SADC) or the southern African region. Furthermore, former president Thabo Mbeki (1999) opines that the legacy of colonial education has had a long-term effect in the form of the domination of African people's minds, including the alienation of an African child from his or her own indigenous experiences and environment. Costandius et al. (2018) suggest that Africa needs knowledge that will help to address its needs and challenges. Mafeje (2000) reiterates that Africa needs to ensure that its education system is rooted in African conditions, discourses, and experiences. In all educational sectors, irrespective of level, the way knowledge is taught needs to be decolonised in order to accommodate all knowledges (Costandius et al. 2018). Jegede (1995) reiterates that the use of a curriculum that accommodates the integration of an African ethos, traditional culture, and Western science and mathematics is imperative for nation building and personal development. This study resonates well with these views, as it explored how the SEEP has strived to fulfil the mandate of decolonising the education system at Ufasimba Primary School.

Objectives

This study aimed to:

- gain insight about the SEEP and its importance in decolonising the curriculum
- establish the challenges of implementing the SEEP
- make recommendations about the SEEP.

Theoretical Framework

In order to gain insight into the topic at hand, three theoretical constructs were adopted: Aikenhead's border crossing, Jegede's collateral learning, and Ogunniyi's contiguity learning. Fakudze (2004) adopted these three theoretical constructs to describe how the learning of science concepts can take place within a traditional socio-cultural environment. Le Grange (2007) used Jegede's theory of collateral learning to explain how the teaching of science to school learners can be re-imagined in South Africa. Jegede (1995) used collateral learning to explain how non-Western learners have attempted to cope with science learning within a classroom environment not very receptive to their IK. This study has adopted the three constructs to understand how the SEEP can be integrated into the school curriculum. To strengthen the three constructs, the theory of education for self-reliance and radical restructuring was also adopted.

Aikenhead's Border Crossing

Aikenhead (1996) and Fakudze (2004) detailed four types of border crossing between the student's traditional cosmology and school or modern science, namely smooth, managed, hazardous, and impossible border crossings. To clarify how modern science differs from traditional science, Jegede (1995) explains that protagonists of modern science view it as the only correct path to knowledge acquisition in popular Western culture. It serves to separate the Western way of thinking (which in the main follows scientific reasoning) from the so-called primitive thinking represented by traditional, usually non-Western forms of thought. Jegede (1995) further cites various authors who argue that there does not seem to be any scientific basis for regarding non-Western thought as unscientific, antiscientific, or any less superior. Jegede (1995) is of the view that being different does not relegate one to primitiveness, inferiority, or lacking in logical thought. In this argument, Odora Hoppers' (2017) view, namely that the aim of the West was to colonise not only the world but also information—and ultimately to monopolise concepts—is confirmed.

The author will now clarify Aikenhead's (1996) four types of border crossing. Smooth border crossing is said to occur when a student's worldviews are congruent with the school or modern science. Managed border crossing occurs when a student's

worldviews are different from the school science one; thus, a transition is required in order to manage the crossing. Hazardous border crossing takes place when a student's worldviews and scientific worldviews about school science are diffused, leading to a hazardous transition. Impossible border crossing manifests when the two worldviews are highly conflicting, causing the student to resist transition from one world to the other (Fakudze 2004).

Jegede's Collateral Learning

Collateral learning theory serves as a mechanism to explain how a student harmonises the conflict between a traditional worldview and that of school science (Fakudze 2004). Jegede (1995) avers that a learner in a science classroom will construct scientific concepts side by side with, and with minimal interference and interaction with, their indigenous concepts (related to the same physical event) (Fakudze 2004; Jegede 1995). Le Grange (2007) reiterates that learners or students use collateral learning to cope in a learning environment that is hostile to what indigenous learners bring to the science classroom.

There are four types of collateral learning that can serve as coping mechanisms: parallel, simultaneous, dependent, and secured. Parallel learning becomes evident when a learner first meets school science and thus allows school science to co-exist with IK (Fakudze 2004; Jegede 1995; Le Grange 2007). Simultaneous learning manifests when a learner simultaneously learns concepts from the two worldviews, so that they can be processed and later embedded in long-term memory. Simultaneous learning gives the learner an opportunity to look at the similarities and differences between the concepts. Dependent collateral learning occurs when schemata from one worldview challenge others from a different worldview, to the extent that a learner or student is tempted to modify an existing schema without radically restructuring the existing worldview or rejecting one (Jegede 1995; Le Grange 2007). In secured collateral, the conflicting schemata consciously interact, and the conflict is resolved in some manner (Fakudze 2004). For Le Grange (2007), acquiring knowledge or an intellectual skill is a gradual and incremental process rather than a single event. To ensure that learning is effective, a learner needs to resolve the cognitive conflict or mental dissonance created by the coming together of school science and IK (Jegede 1995; Le Grange 2007).

Ogunniyi's Contiguity Learning Theory

According to Ogunniyi (2002), the contiguity construct serves as an explanatory model for cognitive border crossing. It views border crossing as a dynamic rather than a fixed process. It proposes that border crossing depends on the context and interest being served. Border crossings vary depending on various factors, such as the results

of a given response; the interest or satisfaction distilled from a learning experience; the desire to gain mastery over a learning task; the challenge of meeting peer, teacher, parent, or societal expectations; and so on (Fakudze 2004).

The Theory of Education for Self-Reliance and Radical Restructuring

In order to support the three theoretical constructs, the theory of education for self-reliance and radical restructuring was deemed fit for this study (Uzomah 2018). According to Uzomah (2018), Nyerere's concept of education for self-reliance is premised on the assertion that education is about self-confidence, independence, responsibility, and democratic involvement. Nyerere argued that any educational reform in Africa must be relevant to society. Education must be problem-solving and work-oriented. Educated individuals need to strive for this. However, the key obstacles to actualising self-reliance in Africa's education policies are the unavailability of the resources needed for quality education and governments' inability to transform school curricula in line with contextual needs. For example, Nigeria has been criticised for irrelevant school curricula, obsolete education policy, and high drop-out and repetition rates. In Kenya, the education system lacked the capacity and flexibility to respond to the changing aspirations of individual Kenyans and labour market needs in terms of new skills, new technologies, and the attitude to work. The policy was viewed as too academic and not suitable for direct employment (Uzomah 2018).

How the Adopted Theoretical Constructs Inform This Article

While the three theoretical constructs remain important, the weakness of this study is that it did not gather empirical evidence on how learners progressed in various phases, as articulated in the three models. The focus was on how the SEEP was integrated into the school curriculum. However, as indicated, the existing literature confirms that the literacy and numeracy of primary school learners, particularly from historically disadvantaged schools in South Africa, is a challenge that calls for more attention (Spaull 2012). The SEEP is viewed as the best fit to facilitate collateral learning and the principles of educating for self-reliance. Scholars have varied views regarding border crossing. For example, Cobern (1994) opines that traditional cultures pose no threat to school science and thus need not be viewed as impediments to the learning of modern science. Ogunniyi (1988) concurs that it is possible to hold both worldviews—scientific and traditional—and substantiates this view using the example of the Japanese model of technology. However, the concept of decolonisation proposes that an African ethos should be the nucleus. Other relevant epistemologies can be integrated into the system as and when the need arises. This can help in facilitating harmonious border crossing with limited hazardous experiences.

For the success of curriculum transformation, Jegede (1995) underscores that it is critical that educators understand how children learn in different socio-cultural contexts. Teacher training and preparedness on how to handle learner border crossing and subject matter thus becomes another critical component in this scenario. The United Nations Education, Scientific and Cultural Organization (UNESCO) (1989) and Haggis (1993), as cited in Jegede (1995), have emphasised the importance of understanding culture as a precondition for effective teaching and learning in Africa. The use of the eco-cultural paradigm or approach in the teaching of science and mathematics cannot be overemphasised.

Literature Review

Culture is viewed as a critical component in the learning process. Environment strongly influences culture. Unless the education system understands the importance of culture and environment (the eco-cultural paradigm) in the learning process, it is doomed to be less effective or to fail (Jegede 1995). Culture plays a crucial role in pedagogical values, learning styles, and cognitive processes. The value of learning largely depends on the learner's experiences of culture and history (Dumbrajs, De Jager, and Bergstrom-Nyberg 2013). Le Grange (2007) reiterates that socio-cultural factors serve as a connecting thread between informal home learning and formal school learning. As culture is not confined to one definition, Majeke (2002, 142) explains culture as the "ensemble of meaning practices and uniformities of behaviour through which self-defined groups within and across social classes express themselves in a unique way or locate themselves within an identifiable field of significations". According to Majeke (2002), every community has its own unique culture geared towards survival, which can be mobilised for social transformation. Culture can be carried from one generation to the next. Furthermore, Majeke (2002, 142) refers to Ngũgĩ wa Thiong'o, who lists various artefacts as aspects of culture, including education. Majeke (2002) is of the view that culture is dynamic and that what qualifies as legitimate culture remains the subject of legal and ethic debates.

In the South African context, IK refers to a body of knowledge embedded in African philosophical thinking and social practices that have evolved over the years (Letsekha, Wiebesiek-Pienaar, and Meyiwa 2013). To reiterate, Shava and Manyike (2018) argue that culture and language are inseparable. This article argues that cultural practices and IK practices are inseparable, as they all define one's cultural identity. Jegede (1995) and Le Grange (2007) agree that any curriculum that does not take cognisance of culture and the indigenous worldview of the learner risks destroying the framework through which the learner is likely to interpret concepts. Le Grange (2007) opines that the integration of indigenous and Western worldviews is crucial for effective learning, especially of science in Africa.

Jegede (1995) and Le Grange (2007) concur that there is a vast amount of literature on the problematic aspects of science learning among African students. Key findings indicate the following:

- Socio-cultural background has a greater effect on learning than subject content.
- The indigenous worldview inhibits the initial adoption of Western science by learners.
- Indigenous (non-Western) learners are involuntarily selective when making observations in science classrooms.
- The indigenous learner might explain natural phenomena in ways that appear as non-rational in the perception of Western science, but the learner experiences no contradictions in his/her conceptual system.
- Knowledge learned about school science and through traditional ways is compartmentalised by the learner and drawn upon to explain a phenomenon depending on the situation.

Furthermore, Jegede (1995) indicates that many national and international forums, such as the World Conference on Education for All (WCEFA), UNESCO, and the International Council of Associations for Science Education (ICASE), have been held to determine strategies that can be used to promote context-relevant teaching and learning and the development of scientific and technological literacy in Africa. These forums have concluded that the key challenges facing Africa include the following (Jegede 1995):

- Curricula are not well developed.
- Teachers are not well prepared to handle the curricula.
- There are insufficient material teaching and learning resources.

The following section focuses on how these key challenges have impacted education systems and curricula in Africa, particularly in South Africa.

Curriculum and Material Teaching and Learning Resources

Similar to other African countries, the curriculum has been an issue in South Africa. Kayira (2015) opines that the education system in South Africa is predominantly and inherently based on the Western system of education. Further, Kayira (2015) is of the view that, in order to decolonise the skewed inherited education system, the South African education system needs to rigorously integrate IK systems (IKSs) and sustainable development concepts into the curriculum. The failure to do this has culminated in many challenges. For example, in South Africa there is a dearth of skilled artisans and a high

rate of unemployed graduates, due to the challenge of skills mismatch (Uzomah 2018). Scholars have highlighted this concern and recommended that the school curriculum be contextualised in line with the local needs of learners and the community (Masuku van Damme and Neluvhalani 2004; Shizha 2007; Tema 2002).

Studies have reiterated that the RNCS and NCS have been designed to accommodate the inclusion of IK and the socio-cultural needs of local schools and their communities (Dumbrajs, De Jager, and Bergstrom-Nyberg 2013; Letsekha, Wiebesiek-Pienaar, and Meyiwa 2013). However, not all schools have benefited from the new curriculum—only the few affluent ones, as they could afford the needed educational resources (Kayira 2015). Letsekha, Wiebesiek-Pienaar, and Meyiwa (2013), in their study to assess the development of context-relevant teaching tools using local and indigenous knowledge in seven rural schools in Cofimvaba in the Eastern Cape, South Africa, confirmed that the schools were unable to deliver context-relevant teaching and learning due to the dearth of resources.

According to Wanyama (2009), eco-environmental school programmes in various South African provinces, including the SEEP, are prototypes of the European Union's education system. The SEEP is used in the province of KwaZulu-Natal. It offers a flexible approach that allows schools to implement environmental management systems based on International Standards Organization (ISO) 14001 or the Eco-Management and Audit Scheme (EMAS). Eco-environmental school programmes are formal school programmes which were developed in the context of schools in industrialised countries. They focus on themes such as energy, water, waste, noise, healthy living, and transport, reflecting the environmental realities of most industrialised countries (Wanyama 2009). The key themes tally with the key areas of transformation of the South African National System of Innovation, which are environment, energy, health, industry, and education (Hart 2016). According to Costandius et al. (2018), knowledge systems cannot exist in isolation from global systems. They will continue to influence one another; hence, as mentioned, Africa needs knowledge that will help to address its needs and challenges. In all educational sectors, irrespective of level, particularly in Africa, the way knowledge is taught calls for decolonisation processes to accommodate the previously marginalised epistemologies (Costandius et al. 2018).

Shava and Manyike (2018) have underlined the issue of language, as it plays an important role as a medium of communication of people's knowledge, practices, and culture. In Africa, colonial languages are used as media of instruction. Shava and Manyike (2018) aver that there is a need to decolonise Eurocentric languages. According to Musitha and Mafukata (2018b), history needs to be made compulsory in basic education up to Grade 12. Currently, it is not compulsory from Grade 10. According to these scholars, history is an important subject that can be used to reconstruct the continent. Tlali (2017) raises concerns about the teaching of the physical sciences in an overly teacher-centred and examination-orientated way, which does not prepare learners for an uncertain future in

relation to the high unemployment rate in South Africa. Tlali (2017) opines that teaching and learning physical sciences for socio-economic development and environmental management for sustainability have the potential to transform and decolonise education. De Beer (2016) asserts that one of the reasons for the poor performance in science in South Africa is the marginalisation of the affective domain of human thinking and reasoning. De Beer (2016) is of the view that by making science more interesting and relevant to the learners, performance might be improved. Both Tlali (2017) and De Beer (2016) agree that science inclusivity can be achieved by giving space to other knowledge systems, such as IKSS. Furthermore, Tlali (2017) underscores the need for the strengthening of school–community coordination through service-learning projects, to create empowering and meaningful learning spaces that have the capacity to facilitate the generation of functional and relevant knowledge. This is important for education for self-reliance; hence, the theory of self-reliance is one of the models adopted in this study.

Teacher Education and Training

According to Jegede (1995), teacher education programmes in Africa need to be re-imagined or redeveloped to be philosophically rooted in and guided by African imperatives. Many African scholars have supported this view and suggested the philosophy needed to situate science and mathematics education in Africa (Abimbola 1988; Mbiti 1969; Nduka 1974; Prophet 1990). Ogunniyi (1987) and Urevbu (1987) have argued for the education and re-education of teachers to be accommodating, practical, and positively oriented. Other scholars have suggested that teacher education should integrate traditional culture with Western cultures of teaching science and mathematics. Some have recommended the use of an African ethos as an integral part of the school curriculum (Jegede 1995). Furthermore, Jegede (1995) avers that apprentice education has been viewed as an efficient method of traditional education and thus needs to be introduced into classroom education. The advantage of apprentice education is that it can help teachers cope with the large classes which are common in Africa. In addition, it helps in promoting competency-based learning. These views, recommending the use of environmental science to decolonise the curriculum, thus providing context-relevant teaching and learning spaces, are in harmony with this study.

According to Sayed, Motala, and Hoffman (2017), one implication of this conceptualisation of decolonisation is that South Africa's education system has been silent about current discourses, particularly about teacher education at universities and their role in decolonising schools. Mamdani (2007, 213) argues: "Higher education is where teachers are trained, and curricula developed. Without research in higher education to develop curricula for the entire system of education, all curricula will be as an off-the-shelf imported facility, with little relevance to the lived circumstances of

both student and society. If our object is to transform general education, we need to begin with higher education. Higher education is the strategic heart—indeed head—of education.”

To reflect on decolonisation requires, in part, breaking the silence about teacher education and asking: What does it mean to decolonise the curriculum as it relates to initial teacher education, and what sort of processes will this require? This also provides a way of thinking about education as a unified system, since teacher education links schools and universities (Sayed, Motala, and Hoffman 2017). The topic addressed by this article resonates well with this idea, and its call for engaging basic education in decolonisation discourses cannot be overemphasised. The following sections discuss the study’s research methodology, the findings of the study regarding how the SEEP has strived to fulfil the mandate of using culture and IK as integral parts of the curriculum, and conclusions and recommendations.

Research Methodology

The qualitative approach and the grounded theory (GT) method, underpinned by the social constructivist paradigm, were used for this study. The qualitative approach uses naturalistic, in-depth inquiry to explore the phenomenon being studied. A strong feature of the qualitative approach is the subjective understanding of human experiences in their natural setting (Silverman 2010). This approach helped the researcher to rely on the views of the participants and to gather data by conducting an inquiry in a subjective, biased manner. Varied data collection methods, such as semi-structured interviews and observation, were used for data collection for triangulation purposes. The research design that was adopted for this study was GT. According to Gudykunst (1983), GT focuses on generating theory through constant comparative analysis. To gain greater insight into the concept of decolonisation, the literature was reviewed. The analysis of documents is viewed as a qualitative research method that allows the researcher to use documents to gain understanding, elicit meaning, and develop empirical knowledge (Bowen 2009; Mnkeni-Saurombe and Zimu 2015). Leedy and Ormrod (2010) and Mnkeni-Saurombe and Zimu (2015) assert that the review of documents can help researchers to determine patterns, themes, or biases within those documents.

For this research study, the population comprised the two educators of Ufasimba Primary School: one male and one female, between the ages of 40 and 50. The male educator was the leader and coordinator of the SEEP project and the female educator was the school librarian. A snowball sampling procedure helped the researcher to identify them. They were selected because they were responsible for the SEEP project. In snowball sampling, the researcher identifies a small number of subjects who in turn identify other knowledgeable subjects in the population (Gray 2009). In this context, the Ufasimba crop-farming women’s focus group helped the researcher to identify the

educators. During the focus group discussions, the Ufasimba Primary School educators emerged as active role players in knowledge sharing with the women crop farmers, who were employed by the Department of Cooperative Governance of Traditional Affairs (CoGTA). They shared various forms of knowledge, including recycling, how to keep land clean when doing crop farming, how to prepare permaculture, and seasonal planting and harvesting. The data was analysed thematically, with the help of the NVivo software program.

Findings and Discussions

The findings are discussed in line with the objectives of this study, commencing with the first objective.

Gaining Insight into the SEEP and Its Importance in Decolonising the Curriculum

The project coordinator of the SEEP at Ufasimba Primary School was asked when the SEEP was launched and how it linked with the school curriculum. The results indicated that the SEEP was started in 2013. It was based on the memorandum of understanding between the Department of Basic Education (DBE) and the EDTEA of KwaZulu-Natal. The vision of the SEEP was to empower citizens to participate in the environmental governance of their province and thus become an environmentally literate community.

The SEEP programme was offered from grades 1 to 6. The project coordinator initiated the project because of his previous exposure to it. In order to monitor and evaluate progress effectively and efficiently, a committee was formed. It included the school librarian, interested educators, parents, and some members of the school governing body. The parents and the school governing body were included to facilitate channels of communication with community members. In addition, the project coordinator indicated that there was a committee for the learners, called the Enviro-Club. The main function of the Enviro-Club was to ensure that all the learners' meetings and projects were conducted in a responsible manner and according to the predetermined programme. This was done under the project coordinator's supervision. Further, he indicated that because communication was important in running the project, meetings were held quarterly with the committee that involved external stakeholders; however, with the internal educators, meetings were held weekly to discuss programmes.

Further, when asked why the SEEP was viewed as important for the school, the project coordinator listed four key areas: the curriculum, the learners, education, and community engagement. Regarding the school curriculum, the SEEP was integrated with the school subjects, as indicated in Table 1.

Table 1: SEEP themes versus NCS curriculum

SEEP	NCS	Content	Outcome
Language and EE	Languages	History of languages; national anthems; coats of arms; African and South African icons	Integration of subjects; importance of languages and African history
Green Projects; Healthy Environment	Life Skills/Life Orientation	IKS; plant and animal foods; folklore; nature conservation; recycling; social activities	Social cohesion; sustainable development
Green Projects; Science, Technology, and Education; Culture, Outdoor, and Education	Natural Sciences and Technology	Landscape gardening; water conservation; healthy ecosystems	Sustainable development
Culture, Outdoor, and Education; Science, Technology, and Education	Social Sciences	Oral tradition; oral history; social activities	Social cohesion
Science, Technology, and Education	Creative Arts	Oral tradition; oral history; social activities	Fine art; performing art skills; public speaking; social cohesion
Culture, Outdoor, and Education; Science, Technology, and Education; Green Projects	Economic Management Sciences (EMS)	Recycling; money generation and saving	Sustainable use of natural resources
Culture, Outdoor, and Education; Green Projects; Healthy Environment; Science, Technology, and Education	Mathematics	Numbers and calculations; shapes and patterns	Integration of subjects; patterns for creative art objects; number of items for recycling of waste

As expected, English emerged as the language that was used as the medium of instruction. This confirmed Shava and Manyike's (2018) view that schools in Africa have served as instruments of the colonial processes of Western languages and knowledge hegemonies. As already highlighted in this study, these scholars propose transformative processes that can give space to local languages. This is where Aikenhead's border crossing,

Jegede's collateral learning, and Ogunniyi's contiguity learning become relevant. As already highlighted, these theoretical constructs can help in border crossing from home science to school science (Fakudze 2004; Jegede 1995; Le Grange 2007). The findings indicated that there has been gradual improvement in the integration of traditional and Western knowledge. For example, Western language was used to accommodate local knowledge, as the learners used it to engage in provincial environmental debates and speech contests about the SEEP project. In addition, the learners were taught about the history of languages, important African and South African leaders, national anthems, and coats of arms.

The SEEP comprised various small projects linked to themes. The findings indicated that the Green Project theme integrated well with various school subjects, such as Natural Sciences and Technology, Life Skills, EMS, Mathematics, and the languages. The activities included landscape gardening, organic and permaculture gardening, water conservation, energy saving, natural resources management, and conservation. EMS became relevant, as surplus crop yields were sometimes used for the school feeding programme and in informal trading, to generate money to buy more seeds. Mathematics was needed to calculate profits or the income generated from the informal trading of crop yields. During the provincial debates and speech contests, Western language was used to transmit knowledge about this ecosystem.

The findings indicated that the Green Project theme also integrated well with Life Skills and Life Orientation. Educators shared their knowledge about the importance of eating healthy and nutritious indigenous foods, such as fresh vegetables from the soil and fresh goat meat. Knowledge was transmitted about the importance of fats from certain animal species, such as snakes, that can be used to heal wounds, and certain herbal plants that can be used for the treatment of ailments. In addition, there was a school garden, which was used to train learners to engage in outdoor education activities such as planting indigenous herbal plants and monitoring their growth. Through apprentice education, the learners were groomed to become crop farming artisans and technicians. As Nyerere has recommended, the learners were educated for self-reliance, self-confidence, independence, responsibility, and democratic involvement (Uzomah 2018). According to Jegede (1995), apprentice education needs to begin during teacher training, thus facilitating border crossing between schools and universities.

The SEEP theme of Culture, Outdoor, and Education also integrated well with Life Orientation. The findings indicated that the learners were educated about the importance of initiation ceremonies. They—especially girls—were encouraged to attend ceremonies. Furthermore, the learners were educated to abstain from pre-marital sex or to use precautionary measures to protect themselves against sexually transmitted diseases, including HIV/AIDS. In this way, the high rate of teenage pregnancies can also be reduced. It emerged that during heritage days, initiation practitioners were invited to come to school and address the learners on the importance of abstaining from pre-

marital sex. These lessons were sometimes shared through songs, folklore, and stage dances and plays that were performed by the learners themselves. Apprentice education, revitalisation, and re-inculcation of the love of culture and IK have become a reality at Ufasimba Primary School. In this article, these activities are viewed as crucial for the current discourses of decolonisation of the curriculum. Dolphen (2013) indicates that in Thailand, similar activities have been used to promote the use of the Mon language, culture, and IK in the school environment.

The SEEP theme of Science, Technology, and Education also integrated well with the subject Natural Science and Technology. The findings indicated that the learners were educated on the importance of hygiene, water conservation, and deforestation. Because the school has a computer laboratory, they were also encouraged to engage in research using the internet and to source primary information from important community members such as community elders and traditional healers.

The SEEP themes of Culture, Outdoor, and Education; Science, Technology, and Education; and Green Projects integrated well with EMS. Issues such as how to promote sustainable cultivation, harvesting, and the commercialisation of natural resources were included in EMS lessons. In addition, the learners were educated regarding the importance of using eco-friendly products and how to engage in recycling activities for environmental protection and to generate income. They were trained in recycling artisanship.

The SEEP themes of Culture, Outdoor, and Education; Science, Technology, and Education; and Green Projects also tallied with Creative Arts and Mathematics. The findings indicated that the learners were sometimes encouraged to bring old cow or goat skins from home, to cut and make artefacts such as traditional drums and beaded traditional attires, which were used during cultural activities at school. Through these objects, the learners were exposed to creative arts, fine arts, and mathematical terms such as two and three dimensions. The school library and the librarian played an important role in housing the traditional artefacts and other SEEP-related materials and documents.

The findings indicated that through the SEEP the name of the school became well known, as they also entered various competitions that were organised by the EDTEA, such as a competition on water saving strategies. In addition, educators and learners were encouraged to engage in environmental awareness excursions and short courses. Educational programmes were conducted by EDTEA officials and their co-partners at no cost. The school was only responsible for travelling and accommodation costs, and sometimes they were subsidised by the government.

According to the project coordinator, Ufasimba Primary School has won awards for being the best school in nature conservation activities in the province in 2013 and 2014. The portfolio of evidence file bears evidence of that.

This study resonates well with the concerns of many scholars regarding the need for decolonising the curriculum and the education system in Africa for the benefit of the local people (Costandius et al. 2018; Musitha and Mafukata 2018a; Shava and Manyike 2018; Tlali 2017; Uzomah 2018). The findings of this study have confirmed the view of Costandius et al. (2018), namely that knowledge systems cannot exist in isolation from global systems. They will continue to influence one another; hence, Africa needs knowledge that can assist in addressing its needs and challenges. According to Tlali (2017), there are multiple purposes and benefits of using projects for teaching and learning purposes. This study attested to that, as the SEEP was of benefit to the educators, learners, and local community members.

Educators and Learners

Educators got an opportunity to be innovative and creative when preparing for their teaching and learning sessions. They became critical, analytical thinkers. They were able to integrate indigenous and Western knowledges and became aware of knowledge integration between various subjects. Informal and formal epistemologies were used to complement and give space to one another.

Through the SEEP, the learners were encouraged to become researchers and critical thinkers, as they were requested to do assignments, for example consulting with IK holders such as elders, traditional leaders, parents, and other relevant community members. The findings indicated that, on one occasion, the learners were tasked with researching the importance of a medicinal plant called *ibovu* or *ibovana* in Zulu. This medicinal plant produces a substance which is reddish in colour, commonly used by women and traditional healers to protect the face from the sun. Sometimes traditional healers would smear it all over their bodies before engaging in spiritual or physical healing and prophesying. It is believed that *ibovu* has multiple benefits, including strong powers of connecting the living to the ancestors.

Community Engagement

According to the project coordinator, knowledge acquired through the SEEP was also shared with the community. This ranged from crop farming knowledge, permaculture manufacturing, and cultural day activities to the knowledge related to learners' assignments. These activities helped to strengthen school–community coordination. The service learning project model and the theory of educating for self-reliance, which were adopted for this study, helped in gaining insight into why formal and informal knowledge sharing was important in building a strong sense of trust and respect between the two sectors. According to Tlali (2017), the Australian project called “To Hold Our Earth Firmly” showed how the inclusion of the knowledges and voices of those who

have been marginalised can help to increase inclusivity and improve skills for self-sustainability. Tlali (2017) argues that service learning projects have multiple benefits, including improving community–school coordination. However, it is well known that all projects have their advantages and disadvantages; hence, this study also aimed to gain insight into the challenges of implementing the SEEP.

Establishing the Challenges of Implementing the SEEP

The challenges that were highlighted included a lack of commitment from some of the stakeholders, such as community members. The project demanded a lot of time, commitment, and dedication and thus added to the responsibilities of the educators and learners. One of the educators indicated that they were challenged by limited or a lack of resources, including material and financial resources, as sometimes they had to travel to attend workshops and excursions. The trips were funded by the school and the environmental officials provided EE services. The school also suffered the impacts of drought and a scarcity of water.

Conclusions and Recommendations

In this article, three main areas emerged as critical for the success of the decolonisation of the education system in Africa: the curriculum, learning and teaching resources, and teacher training (Jegade 1995). Many studies have lamented the fact that IK has been sidelined and not managed in the same way as scientific knowledge (for example Lwoga, Ngulube, and Stilwell 2010). Education scholars have raised the concern that, while the significance of IK is entrenched in curriculum policies, putting theory into practice is a challenge. Many factors are related to this, including a lack of resources (Dumbrajs, De Jager, and Bergstrom-Nyberg 2013; Letsekha, Wiebesiek-Pienaar, and Meyiwa 2013). However, this study discovered that Ufasimba Primary School was an exception. IK was given space and integrated into the school curriculum in order to decolonise traditional teaching and learning habits. The SEEP helped to promote the use of IK. It was used to promote innovative and creative thinking among educators and learners. In addition, the SEEP helped to invigorate a collaborative relationship between the school and local community members. As Nyerere has recommended, Ufasimba Primary School was instrumental in educating learners for self-reliance and self-independence (Uzomah 2018). Educators embraced the SEEP project and used it for its sustainable development benefits. The SEEP was innovatively and creatively integrated into the school curriculum for the benefit of the learners as well as local community members. This is important for socio-economic development and to curb the impact of poverty.

This study thus recommends that the DBE, particularly in KwaZulu-Natal, make the integration of the SEEP into CAPS mandatory in all schools. Inexperienced schools can learn from the more experienced ones. The EDTEA should continue to provide guidance on how the SEEP themes can be integrated into NCS and CAPS themes. This is critical for the realisation of the SEEP's vision in the KwaZulu-Natal province, which is to help citizens to participate in the environmental governance of their province and thus become an environmentally literate community.

In addition, this article recommends that the SEEP be integrated and embedded in the teacher education curriculum, where language education, EE, and life orientation work together for social empowerment and sustainable development. Sayed, Motala, and Hoffman (2017) have raised the concern that the education system has not been vocal enough about the decolonisation of the curriculum of teacher education and training. According to these scholars, it is critical that the process begins there, to facilitate tertiary and basic education decolonisation discourses and knowledge border crossing.

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