

ABSTRACT

The integration of indigenous knowledge into the mainstream science curriculum has been advocated for by science educators around the world. The Revised National Curriculum Statements (RNCS) for Grades R-9 (Natural Sciences) clearly advocates for the incorporation of indigenous knowledge into the science curriculum. They stipulate that learners must learn science within the context of their historical, societal and cultural knowledge and values. It is important that learners should understand other systems of knowledge, such as indigenous knowledge systems (IKS). The underlying assumption is that teachers can help learners integrate science and indigenous knowledge but in order to do that, they too must have adequate knowledge and understanding regarding the two thought systems. The challenge is that some teachers are not well informed about the varying indigenous knowledge that typifies the multi-cultural situation in South African classrooms as they have been schooled in western science

The study aimed at eliciting learners' and teachers' knowledge about traditional medicinal plants and their attitudes towards integration of that knowledge into the science curriculum. This was with a view to exploring any differences or similarities between the views of teachers and learners. A case study was carried out at a secondary school in Meadowlands, Soweto. A sample of 36 Grade 9 learners and 10 teachers of Natural sciences was selected using the convenience sampling technique. Structured pictorial questionnaire was used to collect data from both teachers and learners. Field notes were taken during a class debate on the effectiveness of traditional medicines versus western medicines. Unstructured follow up interviews (5 learners- group interview and 3 teachers-individual) were performed on selected participants to probe further their responses to the questionnaire. A ROSE¹ type questionnaire was used as a follow up when learners were in grade 10 (2013).

Analysis of the findings showed that a majority of learners and teachers that participated in this research have opposing attitudes regarding the need to integrate knowledge about traditional medicinal plants into the science curriculum. The

¹ROSE-Relevance Of Science Education, a questionnaire distributed in many countries by Prof Svein Sjøberg, ILS, University of Oslo, Norway.

learners in this study had generally more knowledge than the teachers about traditional medicinal plants. The majority of learners are willing to learn about indigenous knowledge (IK). Nine teachers out of ten in this study were generally less enthusiastic about teaching about traditional medicinal plants. In light of the findings it is recommended that teachers need to have in-house training in so far as the methodological aspects of integrating components IK into the science curriculum relate. This may go a long way in limiting conceptual conflicts amongst the learners.

DECLARATION

I declare that this research report is my own, unaided work. It is being submitted in partial fulfilment of the requirements for the Degree of Master of Science in Science Education at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other University.

.....

BLESSINGS MUZA

On thisday of.....2013

DEDICATION

To my family with love.

ACKNOWLEDGEMENTS

This research report could not have been written without the invaluable support I received from my supervisor, Dr Moyra Keane. I am highly indebted for her selfless guidance, support, encouragement and honest advice. Thank you for lifting me up from the 'doldrums'.

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- The learners especially the thirty six who were directly involved in the research and the others who were indirectly involved.
- The ten educators who participated in the research.
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- My family for excusing me from some of my family responsibilities.

A fair deal of credit is due to all the above mentioned individuals. I, however take full responsibility for any errors or disturbing aspects of the entire research report.

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POSITION STATEMENT

Growing up in post independence Zimbabwe, my life was a challenge and this was not anticipated prior to independence. My interest in this research was spurred by the dilemmas that I faced as I grew up. The “clash” between the traditional rural lifestyle and the western urban lifestyle characterised my life from as early as my primary school days. My family, as most in Zimbabwe, has a “mixed” lifestyle that embraces both traditional and western worldviews. Urbanisation and the high levels of poverty in rural areas necessitated the dual lifestyle.

My mother was a subsistence farmer and was based in the rural areas of Mhondoro, Zimbabwe and my father worked in Harare. I went to primary school in a township area but every school holiday we were taken to the rural areas to assist my mother attend to the maize fields and herd cattle. The visits to the rural areas were always sad experiences for me as I detested the strenuous chores in the fields. This may have led me to have a negative attitude towards anything traditional. I preferred the urban way of life where one would just go to the shops to buy milk instead of having to wake up early in the morning to milk the cows before the calves suckled their mothers. I remember always being ridiculed by my peers from the rural area because I could not whistle or milk the cows. This further enhanced my negative attitude to the traditional way of life. At school in the township I would be ridiculed for the numerous razor blade cuts (*Nyora-shona*) that I got from my grandfather supposedly for identity and physical strength (*mangoromera-shona*). Mangoromera was meant for me to be a brave fighter but I don't recall engaging in any fight throughout my life. Why then did I have to endure the pain of the razor- one wonders? These *nyora* marks are still visible on parts of my body though I am not embarrassed about them now. The reason could be that having grown up I am no longer having peers who ridicule me.

Having been introduced to the Christian faith where some traditional practices were not tolerated, the dilemma continued. It was always embarrassing to be associated with traditional practices when amongst fellow Christians in as much as it was embarrassing to be associated with Christianity when amongst traditionalists. Amongst traditionalist a Christian was seen as someone who denounced their own culture in favour of the ‘white’ man's culture. I really did not want to be seen as one

but at the same time I felt more comfortable attending church than traditional ceremonies. I had a desire to learn about the traditional practices but because of the Christian teachings and the fear of going to hell, I always found myself shunning traditional practices. This shunning of traditional practices and the dilemmas I went through spurred my interest in this research.

Later on in life the “clashes” were resuscitated. After the birth of my first child, my wife, who has a strong rural lifestyle background insisted on some traditional *muthi* (Zulu for medicines) to treat *nhova* – Shona (fontanel in English). I was in a dilemma as I had little faith in the practice. For the sake of the baby I gave in although I had to go to the doctor just to be sure the baby would be fine. The *muthi* was a black powder which was burnt like incense and the child would inhale the smoke covered by a blanket until they urinated. The passing of urine was a sign of healing. I am not sure to this day what worked. The cultural ‘borders’ are thus a reality and crossing them is an everyday challenge. Exposure to these different worldviews shaped my current attitudes which are more sympathetic to the traditional knowledge systems hence my interest in this research in order to assist learners to cross the cultural borders smoothly.

As a teacher I have worked in Zimbabwe, Botswana and currently in South Africa. In all these countries the use of traditional medicinal plants to cure common ailments is a common practice. In South Africa, however, it seems more widespread and is prevalent even in townships where numerous *muthi* shops and traditional healers identified by their regalia are commonplace. This means knowledge about traditional medicines has a huge contextual reference. My interest with traditional medicines was also spiked when I stayed with a traditional healer in the same yard in 2009. His passion for his trade and his willingness to be ‘consulted’ about his trade made me develop a serious interest in researching how this knowledge is acquired. I could not help but notice that he was the opposite of the traditional healers I had been exposed to in Zimbabwe who I perceived to be scary and never smiled. These traditional healers never charged a fee for their services but one would be obliged to come back to “thank” the healer if they have been cured of their sickness. They were scary to me because I associated them with witchcraft and magical powers beyond “science”.

It is envisaged that by undertaking this project as a teacher I would be better able to assist learners who are undergoing similar challenges to cope in their learning of science. I should also be able to assist other colleagues in appreciating the role of indigenous knowledge systems in modern science.

ASSUMPTIONS

Several assumptions were made before I undertook this research and these were mainly to do with the research participants, the context and the methodology.

I assumed that the participants by virtue of attending a township school, they would have a lot of knowledge about traditional medicinal plants. This was because of the high levels of poverty which often lead to people seeking alternative cheaper means to healthcare other than the 'western' clinics and hospitals which relatively are more expensive. The high HIV infection rates associated with township locations would be expected to force people to seek alternative 'cures' considering that a cure has not yet been found in 'western' medicines. This would imply that medicinal plant knowledge would be expected to be relatively high compared to urban settings.

The main participants in the research were female learners. From a traditional African society standpoint, girls are expected to have more knowledge about medicines through their closer relationship with their mothers. Mothers traditionally are responsible for taking care of the health and welfare of children as such they are expected to have more knowledge which they would pass down to their daughters. Traditional knowledge would therefore be that knowledge that is passed down from elders to the younger generation.

Having been exposed to traditional medicines mainly as root tubers and leaves myself, I assumed that those were the common forms of the medicines. As a result, the pictures of medicinal plants I used were either tubers or leaves of the plants. I also assumed that the powdered form of the medicines would be difficult to identify from pictures. The use of pictures was also based on the assumption that pictures were more visually appealing and would excite learners to respond rather than a plain questionnaire. As a teacher I asked myself how best I would obtain information from the learners and decided that giving the questionnaire as a classroom "test" would be

more effective. Though the test was not for assessment purposes learners were expected to respond to it as if it were.

The class debate took place after the visual questionnaire had been responded to. The assumption was that the learners would have had ample time to critically think about their views on traditional medicinal plants. Hence the debate was expected to reflect a higher level of reasoning and ultimately richer data to answer my research questions was expected to be obtained.