Decolonising Methodology: Who Benefits From Indigenous Knowledge Research?

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Abstract

It is common for indigenous knowledge (IK) researchers in South Africa to conduct studies within conventional Western paradigms, especially in the field of IK–science curriculum integration. The scientific paradigm usually takes precedence and research publishing follows the rules of the academy. There is an inherent paradox in this practice. An endeavour that aims to redress Western knowledge hegemony and decolonise the school science curriculum often judges its own value in terms of the very system it critiques. While much useful work has been done in IK–science curriculum integration, and calls are made for appreciating both knowledge systems, it is concerning that the research knowledge is available to academics and generally not to indigenous communities who are usually cocontributors (at least) to the research data. This paper argues for research processes and outcomes that could benefit indigenous communities. We present examples drawn from three science curriculum studies in different areas of South Africa. We briefly describe the research contexts, and the ways that the researchers sought to ensure knowledge was shared in relevant representations with each community. We also discuss some of the dilemmas we encountered and offer suggestions for strengthening knowledge dissemination, appreciation, preservation, as well as reimagining IK for new generations.

Keywords: indigenous research methodology, indigenous knowledge, decolonised research, school science

Introduction

> *"Research was talked about . . . in terms of its absolute worthlessness to us, the indigenous world." (Smith, 1999, p. 3)*

At one time people believed that research had to be objective, with an unseen researcher and hidden "subjects." Data needed to be quantified. Over time, in spite of all manner of qualitative research gaining credibility (Badenhorst, 2007; Patton, 2002), we, as indigenous knowledge (IK) researchers in the field of school science integration still have a leaning to a Western scientific paradigm often justifying IK in terms of its scientific validity. Furthermore, the ultimate judgement of the worth of research comes through peer-reviewed publications, citation indices, and impact factors. Journal articles are often charged for, and are read by those academics who have access. As Smith (2012, p. 74) asked: "Who will listen?" when I speak—when knowledge production is controlled largely by the west? Ironically, the same measures of the worth of research are generally true for indigenous knowledge systems (IKS) studies that aim for redress and supposedly decolonised methodologies.

While some argue for research dissemination that will have a greater impact on civil society (Motala, 2015), research is essentially written for other researchers—an incestuous dialogue within an academic club. Motala went on to point out that such an approach "is disingenuous from the perspective of the public purposes of knowledge and the responsibility that universities have to engage with communities." (2015, p. 29). When convenient for policy makers, politicians, or companies such research may be appropriated—in this case usually quantitative research that lends credibility to a specific agenda, or provides evidence for embarking on certain paths of action. Of course, this is a cynical and provocative view of a system in which we, the authors of this article, too are participating. Our jobs depend on it.

In IK research, especially research focused on science education, researchers usually are still very conservative. The scientific paradigm is the usual framework and the product, an academic paper published in a peer-reviewed journal. Much IK research tries to align with the constraints and dictates of Western gate keeping. We concede that this has worked well in attaining conventional knowledge credibility and raising awareness of IK. Without pioneering IK academics, activists, and intellectual elders (such as Professors Odora Hoppers, Ogunniyi, Shiza—to name just a few) the appeal for decolonised knowledge would probably not have reached the policy levels that it has, nor engendered wide interest in curriculum transformation. We would not have found links to other IK research communities globally. Nevertheless, scholars have identified limitations in research efforts. It is almost two decades since Naidoo (1998, p. 178) warned: "More must be done to improve African educational research." He identified problems such as "narrow and inappropriate research agendas . . . research paradigms, frameworks and methods being inappropriate to the educational problems that face Africa." (1998, p. 179). Smith (1999, p. 85) cited an example of the colonial official Elson Best in New Zealand in the late 1800s: "While Best lives on as an expert, the names of his informants and the rest of their knowledge lie buried in manuscripts and archives." The same is mostly true of research in Africa; it is shocking that for the most part not much has changed in over 120 years. It is not surprising that, as Ramphele (2002, p. 23) noted, "One of the strategies of people who have learnt to mistrust authority is either to withhold information altogether or to give misleading information." A similar point has been made by Archibald (2008) in Canada.

We argue that in the African context we still have not done enough to redress this travesty of disseminating knowledge in ways that have no relevance for the original knowledge holders. Smith

called for prioritising "accountability to and outcomes for Maori" (1999, p. 197). Louis (2007, p. 131) warned: "If research does not benefit the community by extending the quality of life for those in the community, it should not be done." This is a call that still needs to be realised in research in Southern Africa. Louis (p. 135) went on to accuse us with good reason: "Researchers rarely think about sharing their archival research with the indigenous community." The question arises: How does the knowledge generated in IK research contribute to the decolonisation of indigenous communities? To whom should IK research be accountable? Put more simply: Who benefits from the research?

Our starting point assumes that IK is not static and fossilised in time. New debates, contextual discoveries, solving of relevant community problems are included in IK and hence, IKS research, yet these "findings" still end up in the global community of researchers rather than in the community that generated or shared their knowledge. It is incumbent on us as researchers that we do not take community-generated data and wisdom and walk away. Through consultations with participants, culturally relevant processes, resources, and knowledge outcomes can be shared in ways that benefit the community (Keane, Malcolm, & Rollnick, 2004).

Aim

Our purpose in this article is to provide examples of how IK researchers, particularly in science education in South Africa, attempted to share knowledge from research with participants in ways that may benefit and acknowledge the community, or research participants, as knowledge holders. We also raise concerns about the complexity of the process and show how attempts to initiate knowledge sharing innovations have, at times, failed.

Approach

This article does draw on larger projects and argues for greater inclusion of community in deciding on and benefitting from the research outcomes. The type of knowledge generated in IK research should relate back to the lives of those who contributed to the research. It is this approach that we have taken up in the research examples we present of sharing the benefits and knowledge of research with indigenous communities in ways that we have worked on and worked out together. The approach in these projects has been one of transformative or participatory action research, which "has broader purposes than the generation of technical knowledge, and works largely from inside the community" (Malcolm, Gopal, Keane, & Kyle, 2009, p. 194).

Limitations

Some of the limitations of being able to share the research products and dissemination findings are the time and cost involved. In the examples given only partial funding was secured for meetings and catering, printing, photography—all of which may appear to funders as peripheral to the actual research project. In addition, where there are resources to be shared, community politics and competing agendas may hamper the intended delivery. Ethical dilemmas may emerge and indeed, in one example below, a research outcome to benefit the community was not realised.

Furthermore, we argue for a principle that we did not always attain: it is likely that in a practical context some negotiation and compromise is needed. However, we still maintain that *striving* for equitable power sharing in this research is essential.

While arguing for community benefits we also acknowledge the irony of writing in a genre against our very endeavour of knowledge sharing.

Literature and Conceptual Frameworks

We draw on indigenous knowledge research paradigms in Africa (Khupe, 2014; Mpofu, 2016) as well as participatory action research and action research (Marshall & Reason 2007; Reason & Bradbury 2008), and transformative action research (TAR; Malcolm et al., 2009) and respond to the arguments by Enver Motala (2015) regarding engaged scholarship.

Reason (2004, p. 5) presented the extended epistemology of action research as consisting of experiential knowing (which includes knowing through empathy and resonance), presentational knowing (which includes story, dance, drawing, among others), propositional knowing (concepts), and practical knowing. There is a resonance with indigenous knowledge in this framework that may point to a potential fusion of approaches and ways of knowing. Such fusion may help to bridge the divide between disparate scientific research processes and indigenous inquiry. Reason (2004, p. 5) argued: "If we want our research to be truly living inquiry we must go beyond the orthodox empirical and rational western epistemology." This challenging the orthodoxy of research (Kouritzin, Piquemal, & Norman, 2009) is a theme across disparate fields from indigenous methodologies, to peer-reviewed publishing. This paper attempts to link the two arguments we make of needing to bridge the divide between science–IK ways of knowing and the need to break out of conventional representations of research findings. We do this by providing empirical examples.

Marshall and Reason (2007, p. 369) suggested that "all researchers can benefit from exploring the ways in which they are connected to their research." We argue that researches can extend the benefits of research beyond themselves to all those connected to the research. And while Marshall and Reason went on to propose that "quality is about becoming rather than being" (2007, p. 369), this can be extended to the ubuntu sense of, I become because of you; in relation to you. Reason articulated the ineffable nature of such knowing: "Experiential knowing . . . is knowing through empathy and resonance, that kind of in-depth knowing that is almost impossible to put into words" (2004, p. 4). It is perhaps this elusive nature of understanding our becoming that led to the failure of aspects of our project examples. The relationship of the researcher with her research may extend to the products of the research, the knowledge, the presentational knowing and practical knowing—all of which resonate well with indigenous ways of knowing. This leads to a consideration of the publishing of research findings as well as ways of sharing consequences of the participatory inquiry.

Motala (2015) argued for a scholarship of integration (which is what we were aiming for in the research projects cited here) through which the coconstruction of knowledge goes beyond academic knowledge. Unfortunately, through the largely Western–English–academic hegemony it is usually assumed (through a careful gate-keeping process) that only certain knowledge is validated. The consequence of this is the epistemic marginalisation of important ways of knowing and representing knowledge. Hence the call by numerous African scholars for cognitive justice. This call for the re-centring of African knowledge systems was taken up by South African students across the country along with their campaign of #feesmustfall in 2016. While some universities are attempting to review Eurocentric curricula there has been, and continues to be, a slow implementation of decolonising moves from academic structures—at least according to student leadership.[1] While management and government rightly denounce the violence perpetrated by some demonstrators, there is an assumed impunity to the ongoing epistemic violence of the delivered curriculum (notwithstanding attempts by numerous academics to debate the issues). While students may not know exactly what a decolonised curriculum would be, they are certainly aware of the imbalance in the assumed worth of knowledge traditions. We will not find ways to integrate African knowledges into curricula if researchers continue to translate indigenous knowledge findings into conventional modes of scholarly representation

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[1] https://www.facebook.com/WitsSRC/posts/701389943342800
http://ewn.co.za/2016/09/20/Wits-students-abandon-march-to-Hillbrow-police-station
https://theconversation.com/student-protests-in-south-africa-have-pitted-reform-against-revolution-50604

controlled by the dominant systems. That is, however, for the purposes of our argument here, a secondary argument. The main focus is on finding ways to make IK research findings (and processes) of benefit to knowledge creators.

Examples of Research Sharing: Possible Benefits to Indigenous Communities

The examples are drawn from three research projects into science education curriculum in South Africa. Two of the projects (Khupe 2014; Seehawer, 2016) were specifically on IKS–school science integration and one on relevant science curriculum for two rural schools and their communities (Keane, 2006). All three studies used participatory and indigenous methodologies and worked closely with schools, teachers, and students. The studies of Keane and Khupe were situated in rural KwaZulu-Natal, and researchers worked with, and were guided by, the communities of the area.

Our intention here is not to provide detailed examples of beneficial purposes and processes, although these were part of the three projects' methodologies—see Keane (2006), Khupe (2014), and Seehawer (2016). Nor will we describe the studies in detail. Rather, after giving a brief outline of our respective projects, we will focus on providing examples of how knowledge products were reframed in ways that could be of interest to, and useful for, the participants and their communities.

We begin with a brief description of each project; we then present a synthesis of nine features of "decolonised research" that we draw from the three projects. This section gives examples from the three authors where applicable.

Project 1 (Keane, 2006): Relevant science for a rural community

In this study the community and I explored concepts of relevant science curriculum and development through participation and engagement with two schools in the rural area of Chibini in KwaZulu-Natal. The topic of "What is relevant science for your community?" was proposed by me after an invitation "for any helpful engagement" from a school principal. My need for academically acceptable research and the elders' purpose of solving immediate needs for food security and their youths' cultural development meant that we had many meetings trying to find ways to meet everyone's needs. One solution that worked well was involving a farming NGO to contribute to setting up chicken farming projects. This initiative could also then serve as an aspect of authentic curriculum design that drew on IK. A similar tension of purposes exists between classroom learning and assessment, and community life. Again, in bridging this, teachers and community members came together to showcase learning in and out of school, as well as research findings.

While the details of the research are beyond the scope of this paper, during a 3-year involvement, a research team, students, teachers, parents, and farmers, supported by traditional leaders and NGOs, developed a community-based science curriculum. Amongst urgent concerns for health care, employment, traditional values—even survival, profound lessons in understandings of appropriate science, practical skills-development, and ubuntu emerged. Western conventions of frameworks, protocols, goals, identity, even ways of researching, were challenged through engaged transformation. Relevant science has parallels with relevant research in its purposes and processes of contributing to both knowledge and community well-being.

Project 2 (Khupe, 2014): Indigenous Knowledge for science teaching

My study was part of a larger project on science curriculum and development. It was carried out together with elders, high school students, and teachers in Mqatsheni community in rural KwaZulu-Natal between August 2009 and July 2011. I sought to understand—through interactions with the community—knowledge as well as the worldview that underpinned the community's knowledge and

related practices, with a view to identifying indigenous knowledge that could be used for science teaching and learning. Although I initiated the research project, I negotiated with the school and community leaders on the processes and outcomes. Subsequent meetings included matters beyond the research agenda, such as livestock theft and violent crime. I intended that the study contributes to transformation in indigenous knowledge research by engaging processes that placed value in indigenous knowledge, practices, languages, and practical concerns.

Project 3 (Seehawer, 2016): Integrating indigenous and Western knowledges in South African science classrooms

Based on calls to decolonise African education and to make learning relevant for African learners' life realities (e.g., Abdi, 2005; Dei & Asgharzadeh, 2006; Ntuli, 2002), I explored how South African science teachers might integrate indigenous knowledges with the teaching of Western science. Attempting to follow up indigenous critique of Western research methodologies, I chose a participatory action research (PAR) approach because PAR has been recommended as compatible with indigenous methodology (e.g., Lavallée, 2009). The study was carried out in Grahamstown, South Africa, from July to November 2015 with a team consisting of five science teachers as coresearchers and myself, a doctoral candidate from Norway, as the initiator and facilitator of the research. While in our list below we talk about "Project 3's examples" and while I will be the one writing up the research, I wish to acknowledge my coresearchers' contribution to this project. It has been *our* research not *mine*.

The following are nine ways of knowledge sharing and bridging knowledge divides in ways that may benefit the community or those involved in the research. Each aspect is presented from the perspective, and in the voice of, the principle researchers involved. Finally, each of the three researchers reflects (from the perspective of her community's project) on "Who benefits?"

Nine ways of knowledge sharing and bridging knowledge divides

1. Community researcher training and support

Project 1 (Keane) and Project 2 (Khupe).
Two young unemployed youth volunteered to serve as research assistants (for each project). We included them in all meetings and negotiations, trained them on some participatory research protocols, ethics, journal keeping, interviewing, and writing field notes. They each had a mentor. We welcomed their observations, insights, and advice. We acknowledged them by name in publications. In Project 1, one research assistant went on to complete bachelor and master's degrees, funded through a scholarship.

Project 3 (Seehawer).

In participatory action research, people who would otherwise be called informants or, at best, research participants, became coresearchers in a process of collaborative knowledge generation. In our team, neither I nor my coresearchers had participated in participatory research before. Thus, knowledge generating went hand-in-hand with methodological capacity building; for all of us it was a process of learning how to be a participatory action researcher. Moreover, all of my coresearchers were either involved in undergraduate or postgraduate study during the time of our research, or had plans to reengage in academic study in the near future. Participating in our research team aligned well with some of their own study foci or with their desire to develop academically.

In addition, after the research had progressed for some weeks and after personal relations and friendships began to develop, our team also became an unofficial professional support group for my coresearchers. All of them taught science, although at different schools and at different grades, including both primary and secondary school. Before and after our official research meetings, the teachers started exchanging learning materials and their teaching innovation experiences. According

to my coresearchers, it is not common for teachers to work together across grades and school types and they appreciated this opportunity.

2. NGO collaboration—including training

Project 1 (Keane) and Project 2 (Khupe).

Khupe questioned: "How does one enter a community where one may be unknown and to which one may not have even been invited? How does the researcher even begin to initiate relationships in which the community feels comfortable to trust an outsider?"

In these two projects, NGOs became involved. We negotiated entry into the communities through the NGOs, which gave us understanding of the leadership structures and assisted with local protocols. In Project 1, an international NGO was requested to join the project to initiate food security (the main concern of the community elders). The farming project that was set up included capacity building for women farmers and was also used as a curriculum focus.

In both projects the NGOs that became involved were Woza Moya, Heifer, and Khuphuka. Woza Moya and Khuphuka were already established in the community and assisted us with access and guidance. We were able to offer some training and stipends to the research assistants.

3. Community festival

Project 1 (Keane).

The research process and findings were celebrated in a community-wide festival cohosted by the researchers and the *induna* [chief] for 500 people to showcase research outcomes in culturally consonant ways: songs, dance, story, drama, photos, drawings, speeches by elders, artefacts. Teachers displayed lesson artefacts relating to community-centred science, senior students put on a play about AIDS (which would otherwise have been a taboo topic), primary children performed dances and songs and displayed drawings, some students displayed their writings and posters and photos of "Science in my life." NGO representative talked about their farming project, elders spoke about culture, a *sangoma* [traditional healer] agreed to come to classes and talk to the students.

4. Coauthored/designed materials on IK–science integration

Project 3 (Seehawer).

During the course of this research, five coresearchers developed one or several pilot lessons in order to explore the integration of indigenous knowledges into their own science teaching. The lessons were implemented as far as possible (due to the exams that take place in South African schools in November, not all pilot lessons could be taught) and collaboratively evaluated by our research team. Not only was reflecting on the curriculum and planning these lessons an enriching activity, but my coresearchers will also be able to use their own and their colleagues' materials in the future.

5. Issues of language

If you talk to a man in a language he understands, that goes to his head. If you talk to him in his language, that goes to his heart". (Nelson Mandela, n. d.)

Project 2 (Khupe).

From my experience of growing up and working in a rural community, communicating in the local language is particularly valued, especially when speaking with the elderly (Khupe, 2014). Speaking to community elders in a language other than their own could be considered disrespectful. I drew on this experience and committed to take up the challenge of language flexibility. All the interactions with elders, students, and teachers were in the community participants' chosen language—and most chose

to interact in their home language. I had sufficient working knowledge of isiZulu to get along fairly well in all meetings, discussions, informal conversations, and in transcribing audio data. I consulted with research assistants when I came across unfamiliar words or phrases. The elders were particularly gracious and were willing to explain in English. The decision to foreground isiZulu extended to the stage of writing up findings where quotes from participants were presented in isiZulu—in order to present to the reader the speaker's actual words. I did translate the quotes for meaning—for the benefit of non-Zulu speaking readers.

6. **Research reports or commemorative booklets in local language or English, including photos for distribution to whole community**

Two projects published the story of the research in booklets for the participants and community.

Project 1 (Keane).

The rural Project 1 booklet was mainly in isiZulu with some English translation and included a number of students' photo assignments and drawings.

Project 3 (Seehawer).

"I wish we could publish something together!" One of my coresearchers expressed this wish about two months into the research, after we had started developing the pilot lessons and the team was getting excited about the prospect that our work might have an outcome worth sharing with others. Brainstorming on how to realise our coresearcher's dream, the idea of our coauthored booklet was born. The booklet was launched at the end of our research period and contained lesson plans for the pilot lessons, the team's lessons learnt about the integration of indigenous knowledges and personal lessons learnt from each coresearcher. Besides the personal benefit of having coauthored an aspect of our research, the booklet targeted a local audience, namely, Grahamstown science teachers whom we hoped would benefit from guidance on how to integrate IK into their science teaching.

7. **(Conference) copresentation with community teachers**

Project 1 (Keane) and Project 2 (Khupe).

The collaborating teachers, Mrs Mbhele and Ms Anastasia Ndlovu, became copresenters at conferences with the researchers. This was an especially friendly and enriching experience for all.

Project 3 (Seehawer).

To celebrate the conclusion of our research period, our team organised a presentation during which we launched the coauthored booklet. We had invited academia, the local education authority, my coresearchers' principals and colleagues, and science teachers from other schools in Grahamstown. Unfortunately, due to ongoing exams hardly any teachers came, but our audience included academics with an interest in IK research. Nevertheless, the presentation was a true highlight in our research and my coresearchers presented with pride what they had achieved.

8. **Honouring indigenous culture and creating a different space for engagement**

Project 2 (Khupe).

Every homestead in Mqatsheni includes a grass-thatched hut built from local materials. One student described the hut as *insika yomuzi* [the pillar or mainstay of a home]. The elders made it clear that without the hut the home was not complete. I discovered later in the study that the hut is the point of communication with departed ancestors—the meeting point between the living and the once living.

Considering the significance of a traditional hut for the community, and considering this research study's focus on the integration of indigenous knowledge systems and school science, I consulted with the elders, the school principal, and district management of the Department of Education to consider constructing such a hut at the school. The hut would be a "museum" where a collection of valued artefacts and knowledge would be kept—in appreciation of culture and spaces for place-based learning. The hut would symbolise space for the integration of school and community knowledge.

The idea of the museum hut was received with enthusiasm, and funds were made available for its construction. The elders took responsibility for the construction of the hut. In an unexpected turn of events, the money provided could not be accounted for, and it became impossible to continue with the project. This was a difficult place to be: in a place of broken trust and perhaps broken hopes. However, with more experience in such an initiative we hope to take up this proposal in future projects.

9. **Publication in community newspapers for lay readers**

Project 3 (Seehawer).

When reflecting on how to promote our research, my coresearchers suggested asking the local newspaper to write an article about it. This was good learning for me: while I had not thought about this possibility myself—in my original home country, Germany, the interest in printed papers is declining—I learnt that in Grahamstown, the local paper would be the most suitable medium to inform the public about our work. Unfortunately, at the time of the launch of our booklet, the paper was understaffed and a reporter could not join in, so the idea about an article could not be realised.

Reflections on "Who benefits?"

> *Research was regarded as a resource to be harnessed for patronage and power play as part of the survival strategies of poor people. (Ramphele, 2002, p. 25)*

In our examples of knowledge sharing we tried to establish ubuntu-oriented resources emanating from our research projects. Each researcher reflects on her own considerations of the quandary, "Who benefits?"

Keane:

I came to my research project (Keane, 2006) by invitation from a school principal and an NGO in a rural area. I came in from nowhere, it seemed. Certainly, I could not speak isiZulu and lived a 7-hour drive away in Johannesburg. I did however have a great deal of varied teaching experience and was keen to learn. I had previously carried out research in rural schools. While I completed a doctoral degree, my actual learning went far beyond the thesis document (another benefit for me). I wrestled with challenges, internal and external, for three years and developed a profound interest in, and appreciation for, indigenous ways of knowing and being even though this was not initially the main focus of my research, which was in "relevant science education." Obviously, this became too narrow for the uncompartmentalised knowing in the community. I was continually asked about the research benefit to the community: from the Chief of the area, Education Department officials, students, parents, teachers, elders, and coresearchers. At the same time a National Research Foundation representative (at a conference) told me I was not doing research, I was just engaging with a community. This dilemma brought to the fore the question: "Whose research is it anyway?" Certainly I could not lay claim to it. Along with the community, we explored ways to make the research relevant and to find immediate benefits for community well-being and knowledge sharing. At the end of it all, I handed in the thesis. The dilemma continues.

Khupe:

I brought into my study (Khupe, 2014) my own life experiences and, many times, I drew on those experiences to guide my relationships with different participant groups. I considered language an important factor for developing relationships.

The benefits for me went beyond achieving a doctoral degree. I had the privilege of being accepted into a community who had no obligations to do so. Relationships lasted beyond fieldwork. The study provided me an opportunity for professional and personal growth—preparing me for studies in similar contexts. I learnt patience and flexibility. I learnt to respect local ethical protocols. In communities with oral cultures such as Mqatsheni, verbal agreements carry greater weight than written documents. Long after university ethics documents had been signed and filed, the secretary of the Traditional Council continued to seek the elders' collective verbal consent at each meeting.

Community participants are not always silent about their expectations of indigenous knowledge research. The elders asked, "*Uzosisiza ngan*i? [How are you going to help us?]" Representatives from government departments asked, "How will this study benefit the community?" If there was any way in which this study benefitted the community, I was definitely not doing them a favour. They had more rights than I did to benefit.

The students had the opportunity to practice research skills through interviewing elders. They learnt how to take pictures using disposable cameras and they visited a history museum in the nearby town. The teachers appreciated the exposure to new possibilities of learning outside the classroom, including community-based learning. The teacher who attended a research conference had practical experience of knowledge dissemination. The benefit for elders was perhaps more emancipatory than practical. The study gave them an opportunity to speak about educational, sociocultural, and other issues of importance to their community in ways that are not possible in a tightly framed education research project. As the custodians of indigenous knowledge, the elders were, throughout the study, in a position of knowledge authority as they shared what they loved and valued regarding their land and their customs.

Seehawer:

Reflecting on my research project (Seehawer, 2016), I find it fair to conclude that my coresearchers benefitted from our collaboratively undertaken IK research on different levels: there was academic benefit such as intellectual stimulation, thematic and methodological learning. There was professional benefit through mutual support and exchanging teaching materials, developing and piloting new teaching strategies that were directly relevant for my coresearchers' teaching. On a personal level, we benefitted from the personal relationships that formed through the course of the research and learning about each other's cultures. In addition, through our booklet, other teachers in the area might benefit from the outcome of the research.

My coresearchers participated in the project for different reasons. Three were interested in the subject of indigenous knowledge–science integration. One wished to challenge herself academically and one came because her professor had asked her to, but then stayed because she saw the benefit for her own studies. The participatory and flexible nature of the research enabled us to accommodate the different research interests of my coresearchers as well as ideas that emerged along the way such as coauthoring and presenting together. I like to think that in our research we managed to even out some of the usual skewedness of who benefits from indigenous knowledge research. However, while the above reads as a nice list of coresearcher/community/research participant benefit, I maintain that the main beneficiary is still me, the academic. I entered the scene with a research question that I wished to explore and, while having their own motivation for joining the project, my coresearchers conformed

to my—albeit participatory—research agenda and enabled me to solve my research problem. It is important to remember this.

Discussion

> *The notion of redescription: "a talent for speaking differently rather than arguing well, is the chief instrument of cultural change." (Rorty, 1989, as cited in Reason, 2004, p. 7)*

How may research speak differently? Lavallée explained: "Indigenous epistemology acknowledges the interconnectedness of the physical, mental, emotional, and spiritual aspects of individuals with all living things and with the earth, the star world, and the universe" (2009, p. 23). Such an inclusion of holistic ways of knowing into research processes and reporting is still rare in Southern Africa (with some notable exceptions, see Mpofu, 2016). There is a logical link to the indigenous epistemologies noted by Lavallée and appropriate indigenous-aligned research methodologies. Getty (2010) suggested that conducting research in an indigenous paradigm is in itself a benefit to community because of the promotion of cultural protocols and recentring of marginalised knowledge in respectful ways as well as, of course, relating according to indigenous ethical codes. Lavallée's promotion of the interconnectivities in such research also needs to be taken into account as noted in the following formalisation of ethical ways of engaging.

The University of South Australia (2009) required research involving Aboriginal people to have an ethical review by the College of Indigenous Education and Research. Ethics guidelines included: reciprocity, respect, equality, responsibility, survival and protection, and spirit and integrity (National Health and Medical Research Council, 2003, as cited in Lavallée, 2009). It is perhaps on these qualities and commitments rather than (or in addition to) the bureaucratic requirements of institutions that research dissemination and sharing should stand. Ultimately, in indigenous research, researchers are accountable to community elders and to their coresearchers.

All of our nine examples of knowledge sharing for community benefit were suggested by, or negotiated with, community participants. Louis (2007) acknowledged that it is difficult to write for both an indigenous community and for academia but it is incumbent on us to do so in order to ensure reciprocity as well as to decolonise entrenchment of knowledge products. We take this argument further by arguing for the promotion of other culturally relevant knowledge expressions.

We acknowledge the difficulty of representing knowledge in a way that may authentically draw on indigenous wisdom. Any innovative contribution may be problematic because it is likely to be in a different trans-paradigm form, not in the way that IK is passed on through traditional teachings, initiations, or revelations. While indigenous knowledge encompasses three processes: empirical observation, traditional teachings, and revelation, the examples given here are, rather, an attempt to acknowledge community contributions to research, to forge a hybrid of knowledge representations across school and community, to open up ways for young people to live in two worlds, and to offer teachers alternative expressions of curricula that include the life worlds of their students.

Conclusion

> *Research outcomes should be "disseminated back to the people in culturally appropriate ways and in a language that can be understood." (Smith, 1999, p. 15)*

We concur with Smith (above) and Chilisa's (2012) condemnation of academic imperialism and suggest practical ways to engage respectfully, holistically, and to ensure that knowledge and processes arising from research be shared and disseminated or enacted in ways that benefit the community. In this paper we have provided examples to suggest how this may be done in South Africa.

Research into IK needs to demonstrate in itself what it calls for and what it is attempting to redress. Knowledge and cultural manifestations change but the values and worldview need to be recognised and appreciated so that they can be re-expressed in creative and relevant ways for our 21st century spaces. We cannot keep mentioning iron smelting in Africa thousands of years ago (yet, establishing IK heritage and its global contributions is not to be dismissed); but as the world moves we move with it in ways that connect us meaningfully—with each other and with nature. We dream into a future that rests in ancient wisdom—but rearticulated by bright young people; not for self-promotion, consumerism, personal gain, and greed—but for community well-being and the respect and preservation of nature in all its manifestations. If our research is not doing this, we could ask, "What are we doing?"

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