

Education researchers as bricoleurs in the creation of sustainable learning environments

Sechaba Mahlomaholo

Higher education has, to date, been unable to provide effective and lasting solutions to challenges of education, because large sections thereof continue to search for knowledge for its own sake. At best, they conduct responsive research, but on a small scale they reduce the complexity that is education to a neat unilinear process which can be studied by individual researchers in isolation. Hence, I propose the adoption of bricolage as the perspective that will better enable us to respond to the challenges mentioned above. I argue for a multi-layered and multi-perspectival research approach, conducted by teams of researchers in collaboration with participants who emerge from the research process as co-researchers. This research approach incorporates aspects of the eight moments in research, namely the traditional qualitative, modernity, blurred genres, crisis of representation, postmodernity, post-experimentalism, methodologically contested representation, and the current fractured futures. Using data from our research team, I show how we have operationalised bricolage. Based on the positive educational outcomes and findings of this project, I come to the conclusion that, as higher-education bricoleurs, we are better able to respond to the complexity of education in a coherent, logical, focused and original manner.

Background

In this paper I argue that, as South Africans in particular, and as humanity in general, we need research which is multi-layered and multi-perspectival, conducted by many collaborating teams of researchers throughout their entire life, if challenges facing the provision of quality education are to be attended to meaningfully. Bricolage conforms to these requirements because it is:

Sechaba Mahlomaholo
University of the Free State,
School of Mathematics, Natural Sciences and Technology Education
E-Mail: mahlomaholomg@ufs.ac.za

not uni-dimensional, it tolerates and mirrors the messiness of lived experiences of the people, is best suited to create sustainable learning environments at any level and/or site of education... it deals with change and transformation of discursive practices and social arrangements. ... bricolage ... enables the researcher/bricoleur to create something out of nothing. It also enables such a researcher to use whatever materials available in one's contexts to re-create anew processes and artefacts necessary for transformatory and emancipatory agenda. Bricolage as research approach is better poised because it thrives paradoxically on making sense of what seems chaotic and contradictory. It also tries to make sense of that which may seem obscure and incomprehensible. Bricolage is multi-layered, multi-perspectival and grounded on one research question being approached from a diversity of theoretical positions (Mahlomaholo, 2013a:4690-4691).

I take it as a given that the debates on whether research should be purely abstract or utilitarian have been resolved in favour of a research that includes both intense conceptualisation which contributes to theory building on the one hand, and practical research which responds to real-life problems on the other. The problems facing the provision of quality education in South Africa are many and very complex (Research on Socio-Economic Policy – ReSEP, 2013), just like it is the case throughout the world, especially in those countries that have been subjected to the injustices of colonisation, oppression and various forms of apartheid (Bereng, 2007; Rolleston & James, 2011; Sheldon, 2006; Spaul, 2011). Thus, to respond to these challenges with the intention of ameliorating and remedying them an equally complex research is required, which in my view is the one proposed, theorised and offered as bricolage (Baker, Miner & Easley, 2003; Denzin & Lincoln, 2005; Duymedjian & Ruling, 2010; Kinchloe, 2005; Mahlomaholo, 2013a).

These challenges, as Dooyeweerd would have quipped, emanate from all the modalities of being human (Basden, 2002). Some of them are *quantitative*, referring to measurement and counting in terms of numbers. Others are *physical* in nature, coming from the spaces and localities which are occupied by stakeholders, who are learners, educators, teachers, parents and all instances of civil society in education. These sometimes include a lack of or poor infrastructure such as the school buildings – leading to overcrowding in a few available ones – a lack of teaching and learning materials, and resources (ReSEP, 2013). Other problems originate from the *physiological* dimension of being human. Here, reference is made to problems such as poor nutritional practices, malnutrition, poor ventilation due to air pollution and a lack of food security, which might be as a result of poverty (ReSEP, 2013; Rolleston & James, 2011; Sheldon, 2006). Dooyeweerd (1975), through his Cosmonomic theory as the conceptual framework, identified 15 such modalities of being human, including the two already mentioned (Basden, 2002). Other modalities are the *kinematic* (movement), the *biotic* (growth and developmental processes), the *psychological*, the *emotional*, the *cultural-historical* (race, traditions, identity, origins, discursive practices, epistemic communities), the *analytical*, (cognition, thinking, intellect),

the *economic* (social-class, socio-economic status, poverty, unemployment, inequality), the *aesthetic* (art, music, appreciation of beauty), the *ethical*, the *social* (community, belonging, neighbourhood, country, affiliation), the *linguistic* (language, communication, inter-subjectivity) the *juridical* (legal, fairness, justice), and the *pistical* (faith, religion, beliefs). These are the basic modalities, because in between them lie relationships between human beings and many other modes of being that have an impact on who we are and how we function as stakeholders in education, among other things.

The point I want to make is that individuals, be they learners or whoever, present themselves as complete beings or as individuals, thus, those who cannot be divided any further without destroying who they are. The individual or the undividable consists of these 15 and more modalities but, to date, research has attempted to dis-member him/her for the sake of convenience and expediency. Many studies informed by their respective disciplinary boundaries have focused on one or other of these 15 modalities, but never on all of them at the same time. I argue in this paper that this reductionism is the undoing of the good intentions of research to respond to the challenges facing the provision of quality education. Margaret Archer (1985a; 1985b; 1995) and Roy Bhaskar (1993; 2000; 2002) support this view of the human being/stakeholder in education as “an undividable” because privileging one dimension or modality over others ensures that, as researchers, we miss the point and the target for change and provision of quality education totally. As humans, our agency is constructed not only in the interstices between the social and the individual (Archer, 1985a; 1985b; 1995; Bhaskar, 1993; 2000; 2002), but more so within the coming together of all the modalities to constitute who we are in totality.

The resolution of human problems, including those in education, has occupied the development of human enquiry from ancient times to date. For example, Auguste Comte said that, initially, human enquiry centred on faith only (the pistical) as the basis for understanding human nature, the whole of reality, and its problems, as well as for formulating meaningful and long-lasting solutions thereto (Comte & Bridges, 2009; Comte & Congrev, 2009; Mahlomaholo & Netshandama, 2012). For centuries, the power of the shaman, the medicine people, the priest and the diviners were uncontested until metaphysics emerged, questioning the validity of claims informed by religious and faith-based research procedures (Comte & Bridges, 2009; Comte & Congrev, 2009; Mahlomaholo & Netshandama, 2012). The main issue was that, if reasoning and logical argumentation (the analytic) did not couch and inform any research, then it was bound to err because the argument would be illogical and flawed. When the limitations of the purely faith-based research approaches had been exposed, philosophical argumentation informed by syllogistic reasoning came to the fore and reasoning became the new religion to which all research had to bow (Comte & Bridges, 2009; Comte & Congrev, 2009; Mahlomaholo & Netshandama, 2012). This ushered in the birth of positivism which has informed almost all research to date.

Positivism covers well what Denzin and Lincoln refer to as the **Traditional Period** among the eight moments in the development of qualitative enquiry (Baker *et al.*, 2003; Denzin & Lincoln, 2005; Duymedjian & Ruling, 2010; Kinchloe, 2005; Mahlomaholo, 2013a). It became the new religion around the beginning of the 20th century. This approach to researching human and social issues, including education, advocated for the use of natural scientific procedures. This meant that, instead of studying the learner in totality, focus was to be on one aspect, such as cognition or behaviour or any one of the modalities referred to earlier (Archer, 1995; Bhaskar, 2002; Denzin & Lincoln, 2005; Kinchloe, 2005; Mahlomaholo, 2013a). Other modes of being or aspects thereof were to be controlled for, isolated and taken out of the equation totally. Research was to focus on that which remained constant across contexts, that which was universal and immutable (Archer, 1995; Bhaskar, 2002; Denzin & Lincoln, 2005; Kinchloe, 2005; Mahlomaholo, 2013a). Denzin and Lincoln talk about this as monumentalisation, thus, holding the fluid, the dynamic and changing dimensions of the human being static as if it were finite and incontestable (Denzin & Lincoln, 2005; Kinchloe, 2005). The aim of doing so was that research could be able to determine the relations between cause and effect and then be able to predict future behaviour based on past patterns of functioning. The researcher conducting such research was viewed as an isolated genius who went into foreign territories/other people's being to understand the "other's" ways of doing things and to analyse those using the researcher's tools and frames of reference, just like the colonialist would do (Denzin & Lincoln, 2005). Quality in this kind of research was determined by objectivity, reliability, validity, predictability and formulation of general laws, among other things. The significant marker of this epoch was that the social sciences were kept separate and distinct from literature, because the former was regarded a science and the latter as an art form (Denzin & Lincoln, 2005).

The next phase, according to Denzin and Lincoln, was called the Modernist Phase and tended to deepen the achievements of the Traditional Mode (Denzin & Lincoln, 2005; Kinchloe, 2005). Attempts were now made to make qualitative studies "more rigorous" where principles of internal and external validity were applied. Establishing the relationship between cause and outcome with the aim of prediction was pursued with more rigour in the belief that human experiences can be subjected to the same processes of quantifiability as the objects of study in the natural sciences. There was still the greatest confidence that this kind of method would reveal the truth. But by the 1970s, researchers began questioning the value of adhering to only one theoretical framing, because it proved difficult to subject all human behaviour to the rule and procedures of positivism. Many ways of doing research came to the fore because the methods of positivism could no longer guarantee the uncovering of the truth.

Then emerged a plethora of theoretical frameworks all covered under the ambit of Blurred Genres (Denzin & Lincoln, 2005; Kinchloe, 2005). The role of the single researcher who was omnipotent and omniscient was questioned because it became

clear that the truth was no longer one thing, but an ever-increasing complexity. Participants in research were also found to have a great deal to contribute to the research process, and their voices were valued. Emphasis was placed on the multiplicity of perspectives that would yield thick descriptions of the research process, interpretations and findings, more than what positivism had made possible till then (Denzin & Lincoln, 2005; Kinchloe, 2005). There was even greater interaction between the social and the human sciences as the boundaries between them became porous (Denzin & Lincoln, 2005; Kinchloe, 2005).

The above led directly to the Crises in Representation (Denzin & Lincoln, 2005; Kinchloe, 2005). Objectivity and the possibility of one truth emerging from research were contested. Participants who were in the margins demanded attention and space in the centre of the discussions of research; their truth also had to be told. They could no longer rely on the “expertise” of the sole researcher who could have inserted his/her own understanding into the interpretation of their own experiences and thus destabilised what they had wanted to bring to the fore in the first instance. At the same time, a variety of new interpretive, qualitative perspectives emerged, including hermeneutics, structuralism, semiotics, phenomenology, cultural studies, and feminism. The above views then problematised the whole notion of objective, the truth, validity and reliability as it became apparent that all participants in research had their own ways of making sense of the research process as well as the findings that emerge from it.

This led to the fifth moment, namely the Postmodern (Denzin & Lincoln, 2005; Kinchloe, 2005) in research where the small narratives of the local were preferred above the grand narratives of the positivists and post-positivists. When doing research, the researcher had to get closer to the research participants so as to understand their stories and ways of making sense better. The participants were to be elevated from the status of mere research subjects to that of participants who influenced the agenda for research from its conceptualisation, data collection and interpretation phases.

Then came the Post-Experimental moment (Denzin & Lincoln, 2005; Kinchloe, 2005), which was defined in part by a concern for storytelling and composing ethnographies in new ways which gave back the participants of research their voices. Their experiences, fears and aspirations became central to the research project. They could present these in whatever manner they felt comfortable with, for example, through photo voice, visuals or pictures.

The above discussion has demonstrated what the seventh and eighth moments were all about the Methodological Contestation and the Fractured Futures (Denzin & Lincoln, 2005; Kinchloe, 2005). The eighth moment also asks that the social sciences and the humanities become sites for critical conversations about democracy, race, gender, class, nation-states, globalisation, freedom and community (Denzin & Lincoln, 2005; Kinchloe, 2005), as well as about equity, social justice, freedom, peace

and hope (Mahlomaholo, 2013a), and not only about objectivity, reliability, validity, prediction, causality, generalisability, etc.

The discussion of the eight moments above has led me to the conclusion that no single theoretical framework, method or interpretative style is adequate to yield results that can bring about change and transformation in as far as education is concerned. The eight moments show how the certainty of positivism alone can no longer hold because there is no way that one researcher can understand the challenges of learners and other stakeholders in education adequately, research the solutions thereto alone, and even suggest possible strategies to ameliorate them in isolation.

Creating sustainable learning environment (Sule) using bricolage as frame

Being aware of the complexity of the challenges facing the provision of quality education in South Africa, but more specifically in the Free State province, we came together as a multi- and inter-disciplinary team of 15 academics at the University of the Free State (UFS), at both its QwaQwa and Bloemfontein Campuses, under the theme of Sustainable Learning Environments (SuLE) (Mahlomaholo, 2012a; 2012b; 2013a; 2013b). This theme was informed by various theories of learning describing how quality of education can be improved. These theories recognise that good performance is a result of both environmental factors and individual capabilities working together (Mahlomaholo, 2012b; 2013b). For example, from Piagetian genetic epistemology we learnt about accommodation and assimilation of images of objects from the environment in the construction of intrapsychic cognitive schema with innate potentialities serving as bases (Mahlomaholo, 2012a; 2013b). Nikita Basov (2012) made us aware of how structural autonomy, which comprises the inherited innate potentialities of individuals, improved functioning through structural coupling with other people from one's social context to produce structural congruence at a higher socio-intellectual level. Teun van Dijk (2007; 2009) provided us with the concepts of "socio-cognition" and "epistemic communities," which implied that our sociality in conjunction with our innate potentialities played a significant role in the construction of who we are and how we make sense of the world. The concept of "learning environment" thus seemed to make sense when theorised in this way as marking the coming together of nature and nurture to produce identities, academic performances, etc. Eric de Corte, et al. (2003) and Barry Fraser's (2002) idea of learning environments complemented our understanding and enabled us to talk about the possibility of improving the quality of education through positive adjustments in the environment where learning took place to such an extent that the whole person/learner could perform better.

Then we linked the notion of the learning environments to the United Nation's ideas of sustainable development and sustainable education, because sustainability was the ultimate intention of improving the learning environments. In fact, in 2015, the UN's Sustainable Development Goals will drive processes and actions across the globe in order to complement the achievements of the Millennium Development Goals. These development goals seem to be centred on economic development, environmental sustainability and social inclusivity (United Nations Conference on the Sustainable Development Goals – UNCSDG, 2014). These capture very aptly what our research team intends to do, which is to improve education in a sustainable manner in such a way that economic development for all is enhanced in a manner that respects and protects the environment and advances the agenda for equity, social justice, freedom, peace and hope for all. Sustainability thus theorised implies that, for the performance of a learner (as an example) to be enhanced and sustained, there has to be involvement of all who could support, because the collective ensures inclusivity beyond one generation and one setting or one individual.

Couched in the abovementioned theorisation, we then used our work in the cohort supervision of 15 PhD and 16 MEd students enrolled with our institution as the centrepiece of the efforts to create SuLE (Mahlomaholo, 2013a; 2013b). These students came from the following provinces: KwaZulu-Natal, Free State, Eastern, Northern and Western Cape, North West and Gauteng. All these students are mature people working on full-time as teachers, principals of schools and officials in the provincial department of education, among other places. Their common concern was to acquire competencies that would enable them to do research with the aim to improve their practices in their respective places of employment. Our SuLE team responded to their needs by refocusing all our research on the improvement of teaching, learning, curriculum and governance in schools. As a team of 15 academics and 31 postgraduate students, we met monthly either in QwaQwa or Bloemfontein alternately to present progress of our research from the different sites. During these monthly meetings, each of us would be allocated 45 minutes to present our work and members of the team would critique with the aim of improving on the research practice and the intended theorisation thereof. This would normally be preceded by a two-hour workshop on any relevant aspect of the research process.

Each of the students was also to create teams of co-researchers in their respective schools where they would collectively attempt to improve the quality of education regarding the specific focus of their studies. Examples are titles such as: "Using service learning to improve the teaching of physical science", "Formulating a strategy to enhance parental engagement at schools", and "A frameworks to improve on the implementation of quality learning and teaching campaign". Invariably we found that the respective teams were constituted by teachers, learners, parents, the representatives of various instances of civil society, for instance, small business people in the given locality, faith-based organisations, the community based organisations,

non-governmental organisations, and the different government departments at various sites.

It took a great deal of effort on the part of the students to establish these teams respectively and to ensure that they were functional. But once they were formed and working, there was a buzz of excitement and activity. The teams at different stages of their development started with information and brainstorming sessions where the student researchers played an important role initially. They shared turns and responsibilities with other team members to study and report on the relevant legislative imperatives and policy directives pertaining to a particular issue, and what previous research and theory have to say about the issue. Each participant was expected to make their own contributions to the discussions through the medium they were most comfortable with. Some used different languages, others used pictures, various art forms and so on to express their views. This plethora and multiplicity of voices were valued and validated as they brought into the conversations on improving quality of education different ways of knowing and being which, in many cases, were not readily available in the literature.

After the brain-storming sessions had been conducted democratically and successfully, the sessions followed where each of the teams formulated their own vision and mission statements on those issues they were collectively investigating. These were followed by sessions where the teams reflected on their strengths, weaknesses, opportunities and threats (SWOT analysis) as individuals and collectively with the aim to operationalise their respective vision and mission statements. The SWOT analysis was followed by another set of sessions where the teams identified five priorities each from the data generated by the SWOT analysis. These priorities were used to design the strategic plans to actualise them. Each priority was linked to another five relevant activities that the teams discussed as being important to achieve their respective priority. Each activity was linked to a person and/or task team that would help them organise and ensure that it would take place. Particular resources and time frames were also identified and linked to each of the activities and responsible people. Finally, the team designed the tools and the instruments that they would use monthly in order to monitor and reflect on their progress towards improving an aspect of education based on the plan described. The various plans were then operationalised by the respective teams. The student researchers' role was to facilitate and lead those sections of the plan assigned to them by the various teams respectively.

The supervisors would be with the teams at their research sites to support and encourage, and to contribute as members of those teams. Every meeting, every session, every activity was either audio- or video-recorded and were later transcribed to constitute data to be analysed. This information was shared during monthly meetings of students and their supervisors. Peers and supervisors to the respective researcher provided further guidance and advice. Workshops were conducted on the methods and strategies to analyse data during the abovementioned monthly

meetings. The student researchers also read and participated in the debates that led to their taking ownership of a method or combination of methods for analysis and reporting of the findings in their dissertation, thesis or article. The collective accompanied each of the students from the beginning until the end of their studies, which is reflected in their theses.

Discussion and conclusion and conclusion: Education researcher as bricoleur

A multiplicity of strategies that were also multilayered from the beginning of the studies through to the end were used, and this constituted a bricolage that ensured that performance improved. Irrespective of the focus of the research, we found that participation of this wide spectrum of stakeholders brought many advantages with it. The research students, like all other stakeholders, were exposed to many theoretical positions and perspectives beyond what they could have learnt from reading the literature only. They had to dig deep into their own abilities to network with participants from a wide range of backgrounds and interests. Furthermore, they had to employ a multiplicity of strategies to generate and analyse an infinite amount of data. Making sense of it all, proved to be a big challenge, but with the help of the rest of the team this problem was also overcome. The greatest benefit was for the local community that started to take the education of their children seriously and to discover the power they had in themselves to ensure their success. This kind of participation enhanced the performance of the schools directly as teachers started to learn from one another. Confidence was built among them as they began to open themselves up to the constructive critiques of their peers and parent communities. The parents and the community became the integral part of the schools, and their voices became stronger as they also became knowledgeable about the various acts of parliament, policies, theories and strategies employed elsewhere to improve the quality of education. All participants graduated from being mere research subjects and research respondents to becoming co-researchers who even determined the research agenda with our research students on an equal basis.

Based on the above, it would seem that enhancing the understanding and responding to the challenges of the complexities of education are better served when investigated by an inter- and multi-disciplinary team of researchers, using a multiplicity of interpretative strategies at multiple layers of meaning. Any one problem is linked to many others and requires specialised attention from many perspectives. For example, in order to understand the learners' poor performance at school, such a research focuses on at least all the 15 modalities as described by Dooyeweerd, because the root cause might lie in any one or a combination of them. The team in this case would ensure a dialectical relationship among the disciplinary, the interdisciplinary and the multidisciplinary, thus creating synergy. In other words, the challenge is analysed fully from the perspective of a specialised knowledge discipline,

but while that is happening, knowledge is brought in from other disciplines in order to yield a richer understanding thereof. Bricolage as described above provided ample opportunities for this in our case. Academics and students used their own areas of specialisms as the point of entry in understanding and resolving the problem. This was not only enriched by the inputs of peers and supervisors, but was taken to greater heights by the inputs from non-university co-researchers who brought their experiences and tacit knowledges which were shaped by years of trial and error in other sectors of society.

Bringing teams of researchers together also implies bringing together a diversity of philosophical and theoretical positions, as well as methods of enquiry, as suggested by Kinchloe (2005). The discussion earlier has indicated that using a single method is limiting, that one discipline approach is problematic, that there is no longer any certainty about the established modes of knowledge production, that traditional practices of validity no longer hold and that the knower can no longer be separated from the known. Bringing teams and all about them together, becomes the first step in the right direction. This move recognises that any one aspect of reality (for example, education or poor academic performance) is a part of a unified universal process. Learner performance, as an example, cannot be studied alone; it has to be located in the totality of the learner's experiences, aspirations and fears. When this contextualisation is made, the interconnected and implicate orders of reality which include the explicate ones (separateness), are revealed, discovered and capitalised upon for the good of the learner (Kinchloe, 2005). Performance, whatever it is, becomes meaningful when understood in such a setting. In fact, construction of meaning, which is what research is about, is always local, particular and context bound. Furthermore, research always involves multiplicity of meanings. Research that valorises these is bound to bring the participants' understanding to the table without blurring it with the researcher's monolithic interpretation. It is in this way that processes of empowering the participants can be engendered.

The approach described above constitutes the complexity of what Claude Lévi-Strauss (Denzin & Lincoln, 2005; Kinchloe, 2005) calls bricolage because it starts by taking the living process in which cultural entities are situated as the contexts for understanding and transforming them. The context exists outside of that which is being studied but, at the same time, it operates from the inside (that is, from within that which is being studied). For example, a learner's intrapsychic cognitive functioning is also a reflection of his/her concrete material social context (although not limited to it) because the images and signals that ultimately constitutes the schema through which she/he makes sense of the world come from that setting. Approaching research in this manner problematises the ideas of the truth and objectivity even further because, in actual fact, they are always context bound and not absolute as previously imagined. Bringing the context into the process of interpretation and meaning making brings with it:

... the hidden rules that define what a researcher can and cannot say, who possesses the power to speak/write about particular topics and who must listen/read, and whose constructions of reality are valid and whose are unlearned and unimportant (Kinchloe, 2005:356).

This is the primary concern of a bricoleur: to interpret and to analyse reality, such that “more complex ways of producing knowledge that are conscious of the many tacit ways cultural assumptions wander unnoticed within the act of searching” (Kinchloe, 2005: 356) are formulated and validated.

Participation of the parent communities, as well as all the instances of civil society in the research team, made us aware of multiple forms of knowledge and criteria of quality of research. Cultural assumptions have embedded within them footprints of power (Kinchloe, 2005), which the bricoleur has to uncover and understand because no fact is self-evident or pure. All of us were exposed to different ways in which power circulates among members of the school communities and among our research team. This circulation of power produced different forms of performance among learners, teachers and the whole team. These power differentials had to be negotiated from the beginning until the end because they informed what constituted knowledge worth capturing in the research reports. We became aware of how, as researchers in other modes of doing research, we have come to be invested with power that makes us oblivious of many assets which local communities have and which can be capitalised on in order to produce empowering experiences to all.

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