

# NAIVETY OF EMPIRICISM VERSUS COMPLEXITY OF BRICOLAGE IN CREATING SUSTAINABLE LEARNING ENVIRONMENTS

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## Abstract

This paper argues that research which is not uni-dimensional, which 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. While not undermining the value of empirical, technician and positivistic research, I have come to realise that we tend to miss the point when operationalising such an approach in the study of human moments, especially those that have to do with change and transformation of discursive practices and social arrangements. I have found bricolage to be that research approach because it enables the researcher/bricoleurs to create something out of nothing. It also enables such a researcher to use whatever materials available are 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. This therefore makes it possible for a plethora of voices to inform its research aim, objectives, literatures, theoretical frameworks, methodologies, etc. In this paper using data from our Sustainable Learning Environments research team comprising 28 PhD and 22 MEd postgraduate students supervised in a cohort by 15 academics at the University of the Free State, I show how we work in 50 school communities comprising at least 200 participants at each to improve teaching, learning, curriculum and governance therein in participatory research approach. As the first layer of the research team we meet on monthly basis to support one another, to debate issues, to share literature, experiences and good research practices. However at the second layer each of us working in the school communities meets almost on fortnightly basis with local stakeholders to formulate practical strategies to improve the practice and theory of education in the respective schools. What is important for this paper therefore is that our students' competencies as researchers seem to improve faster in this approach as they learn to negotiate with respect with the participants in their natural settings, to work with them and their peers as equal partners, to be open minded to listen to the others' point of view and to agree or differ in an acceptable manner. Based on the above, we all are called upon to formulate and assume self-chosen positions as problem solvers and agents of change. Bricolage functions to create sustainable learning environments which resemble, promote and advance democratic real life settings which are not uni-linear, are unpredictable, cannot be quantified, where universal laws about them cannot be formulated, are not objective, reliable, verifiable and repeatable as empiricism would argue. Bricolage as the theoretical framework enables us to understand the complexities of research without reducing any variable for control and determination of causality and prediction, but to allow human participants and researchers to be themselves and understand the power they have in transforming their otherwise transient situation.

Keywords: bricolage, postgraduate supervision, participatory action research, sustainable learning environments.

## 1 INTRODUCTION

In this paper I argue that research which is not uni-dimensional, which 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. This is especially true for us in South Africa who will be celebrating 20 years of democracy in 2014. Our country has been plagued by the most inhuman of social arrangements called apartheid which was intertwined with colonialism for over 361 years since 1652 to date [4], [5], [12], [13], [14], [16]. This horrific arrangement was even declared a crime against humanity by the United Nations [20] because its oppressive effects were almost total on the psyche and the lives of the Black people in general. To describe how almost total the hold of this arrangement was and still is, I find 15 aspects of Dooyeweerd's Cosmonomic theory analysing who we

are as beings in the world very useful [2]. These aspects refer to how the world is constituted in terms of numbers (*Quantitative aspect*) of things (objects, plants, animals and humans) and these occurring in spaces (*spatial aspect*) and where movement from one spatial location to the other is made possible by movement (*kinematic aspect*) of the species [2]. Then each of the 'things' in the world according to the theory are made up of matter and energy which enable them to occupy spaces and to move [2]. However some of these things are also able to grow and develop (*biotic*) into bigger and better things. This applies to mainly plants, animals and humans. Then only animals and humans being capable of feelings and emotions (*psychic aspect*) of say happiness and/or anger among others [2]. Beyond this level of being, only humans occur according to Dooyeweerd because humans are the only ones who can conceptualise and think (*analytical*) [2]. They are the only ones with a history and culture (*formative aspect*) that forms them into who they are, are capable of speech and reflection (linguistic aspect), that make it easy for them to work in communities, groups, and societies. Humans are the only beings, according to this theory, which have to and can manage their resources meaningfully, doing budgeting and accounts of income and expenditure so that they do keep them for posterity (*economic aspect*) [2]. Humans are the only ones who are capable of harmony in poetry, song and all those 'things showing appreciation of beauty (*aesthetic aspect*). Humans are also aware of their rights and responsibilities (*juridical aspect*), can give love and are moral (*ethical aspect*) in their conduct [2]. They also are capable of having faith, commitment and belief in the existence of a higher being (*pistic aspect*) [2]. These formed bases on which oppression and marginalisation occurred and was almost complete.

Apartheid neatly blended with colonialism, looked at the Black majority in South Africa as a threat to the existence of the White minority and as such every effort possible was to be embarked upon to divide the majority so as to rule them easily and effectively [4], [5], [12], [13], [14], [16]. Laws of the White minority government were passed through which the 11 language groups of Black people making up the South African nation were to see themselves as different, independent and in competition to one another [4], [5], [12], [13], [14], [16]. Numbers became the central feature of the Apartheid state because once Zulus could see themselves as different and in competition to the Basotho, the amaXhosa, the Bapedi, the Batswana, the amaTsonga, the amaSwazi, the VhaVhenda and so on then South Africa could be seen as a country of minorities, with the Whites being the overall majority [12], [13], [14]. This then would give the sense of a distorted democracy where the majority would then be White and entitled to rule the whole country without necessarily including the minority as in many democracies where the majority took all. Race, ethnicity and one's pigmentation became the markers on the basis of which privilege and opportunities were either given or denied [12], [13], [14]. This is how Dooyeweerd's *quantitative* aspect assists to show how apartheid-colonialism split the nation asunder. It was also on the basis of these numbers that Black people were pushed out of the fertile and mineral rich areas of South Africa, which were being industrialised, and forcibly relocated into Bantustans which were euphemistically called homelands [12], [13], [14]. These homelands were barren areas in the most inhospitable areas of the country. Black people were to be *spatially* separated among themselves as distinct 11 language groups, but they also were to be spatially separated from their White country people. Black people were denied citizenship in the industrialised and rich South Africa [12], [13], [14]. They were made to believe that they were mere sojourners who only provided labour to their White masters but who would go back to their respective ethnic homelands once they were no longer of value to their employers [12], [13], [14]. This understanding led to the infamous migrant labour system where Black people became labour migrants moving from their Bantustans going into the so-called White South Africa provide labour. While in White South Africa they were allowed to stay in temporary townships, but which were still spatially separated from their White counterparts [12], [13], [14]. Physically apartheid meant that White people and Black could not stay in the same place, they could not attend the same schools, and they could not be given the same privileges and opportunities [12], [13], [14]. Black people were regarded as inferior and thus their pigmentation implied that they could only do menial manual labour and as such certain levels of employment were out of bounds for them [12], [13], [14].

Their inferiority was assumed to be, inherent and inherited. They were regarded to be good at only those activities which required physical exertion and not intellectual abilities (*analytic aspect*) which in anyway were regarded as extremely inferior [12], [13], [14]. They could not study subjects like mathematics successfully at school and as such they were discouraged even to take it as an area of study because that would be a waste of time and precious resources [12], [13], [14]. Their emotions (*psychic aspect*) were seen as too immature and unstable and at times they were not taken into consideration because they did not matter as they were regarded as non-existence. The apartheid state also dictated that the Black majority were to be socially separated (*social aspect*) from their

White counterparts because their cultures and history were different and bringing them together would contaminate the superior white [12], [13], 14]. Black people's art (*aesthetic aspect*) is seen as not art at all. It was not intellectual at all and was not able to express those deep and sophisticated emotional and aesthetic moments [12], [13], 14]. They also were not as human enough and as such not deserving of the same treatment in law as the White people (*juridical aspect*). Their morality (*ethical aspect*) was always in doubt and even their faith (*pistic aspect*) was barbaric as it did not reach out to the God as conceptualised in the Bible [12], [13], 14].

The cruelty of the oppression and marginalisation of Black people were much deeper and horrific than I have described above as they involved imprisonment, lynching, killing and feeding them to wild animals whenever there was any deviation of some kind as well as to ensure compliance by all to the above [4], [5]. The liberation effort which was waged by the people of South Africa with the support of the international community was aimed at removing the above discriminatory practices in favour of a united nation which was equitable, socially just, free, peaceful and full of hope. Research has however shown that many of the problems describe above are still in place because the shadows of our past are very long and they refuse to go away [11] in spite of 20 years of democracy coupled with a democratic Constitution, buttressed by legislative imperatives and policy directives as well as massive funding in order to ensure a more egalitarian South African society. Some argue that as a country we are not able to achieve the envisaged society because the material base onto which the new democratic South Africa is mounted still remains skewed [14]. The White people still own over 80% of the land [11], [18]. The same goes for control of the economy and all the other aspects of life which matter (please see Dooyeweerd's 15 modalities above). While I do not contest the above, my view in this paper is that ensuring that all people have access to good education might make a contribution to the final transformation of the South African society where there will be equal ownership of the land and means of production irrespective of one's background or pigmentation. I still make this argument in spite of the fact that there are views that there is no direct relationship between education and material prosperity. However what research has shown is that better education will ensure that one is able to at least survive in the competitive context of modern day demands [14]. It is because of this view that even the South African democratic government noting that it is unable to wrestle economic power from the minority in favour of all, that it has identified the provision of education as one of the priorities and pillars of the new democratic state (which may have all the political power but does not have economic power) in order to create a better life for all [13], [14]. The performance of our education system has become a barometer of how well are we doing as a nation towards the creation of a better life for all which is understood to be the antithesis of what I described above.

## **2 TOWARDS SUSTAINABLE LEARNING ENVIRONMENTS**

Postgraduate education thus becomes a very important point where changes for the better can be effected because this is where knowledge is produced. My view is that our oppression as a nation is very complex as it affects at least the 15 modes of being as described by Dooyeweerd. This implies that we need an equally complex and sophisticated postgraduate education and other means to respond to the complexities as described above. It is because of this observation that our research team has chosen bricolage as our approach for preparing cohorts of postgraduates for the future that will produce that knowledge which will contribute towards social transformation of the country for the better. A context where this preparation occurs is the one which we refer to as the sustainable learning environments which is in tandem with what the South African Department of Higher Education and Training envisages with their level descriptors of the PhD graduate competencies and graduateness [21].

The first of these deals with the scope of knowledge where the PhD graduate is expected to "demonstrate expertise and critical knowledge..., and the ability to conceptualise new research initiatives and create new knowledge or practice" [21]. The current knowledge is the one which privileges the hegemonic interests of one group at the expense of the whole nation. This is the knowledge which emphasises superiority of one group/race and the inferiority of the rest. In the place thereof we understand that sustainable learning environments will be those contexts for learning which make it possible for the postgraduate cohort to be pushed to the limits of knowledge where they are able to see and understand that there are other counterhegemonic ways of knowing which emphasise equity, social justice, freedom, peace and hope. The new knowledge being produced should thus be that which critiques the current state of inequality based on race or any marker. That kind of knowledge should understand what is currently happening, critique it and be able to suggest the alternative based on a thorough analysis of what is happening elsewhere because one cannot be

creative if one has not pushed oneself to the limits of knowledge and has not explored extensively what others are doing to respond to the same or similar challenges. Sustainable learning environments are also those contexts where knowledge literacy is striven for and postgraduate students are enabled to “demonstrate the ability to contribute to scholarly debates around theories of knowledge and processes of knowledge production [21].” Such contexts are the ones where the students are exposed to a number of theories and methodologies some of which might even be contradicting. Exposing the student to such will enable her/him to assume a number of positions and perspectives when it comes to issues of exclusion and marginalisation as described earlier. This means that the student is enabled to understand the world and the challenges we face in their real and complex state without they being oversimplified. Such a student will thus be enabled to relate the complex theories to equally complex methods and procedure and in the end be able to, “demonstrate the ability to develop new methods, techniques, processes, systems or technologies in original, creative and innovative ways appropriate to specialised and complex contexts [21].” The main focus in as far as this competence is concerned is about understanding that life is not uni-linear and that it requires equally multidimensional approaches in analysis, description and understanding.

The sustainable learning environments should thus engender the acute attitude of “problem solving”, which enables the student to demonstrate “the ability to apply specialist knowledge and theory in critically reflexive, creative and novel ways to address complex practical and theoretical problems [21].” To date, the dominant approach has not been about problem solving, but rather about pure abstract knowledge for its own sake. The gravity of the situation now demands that postgraduate education should enable the students to lead the nation in solving practical and real life problems without losing the value of basic research. They are required to develop the requisite disciplinary depth but that should enable them to put their superior knowledge in real life context and in the service of the nation in solving its problems which are multidisciplinary and requires multi-perspectival approaches. They are no longer able to stand aside and remain neutral researchers who are interested in merely describing the problem. At the same time they are required to be ethical and professional in their “practice of knowledge production, demonstrating the ability to identify, address and manage emerging ethical issues and to advance processes of ethical decision-making” [21]. This competence requires that the students are aware of their power as researchers and that in interacting with communities and other people who are less privileged than themselves they have to be cautious, depower themselves and continuously be critical of themselves and ways in which they might be harming other people who participate in their research. They have to create contexts for example, where the communities or participants can inform and give direction to their studies and as such, not feel like they are being abused as mere research ‘subjects.’ Such competence implies that the student has to have the ability to communicate effectively and to treat other people as his/her equals.

Postgraduates who have been prepared through sustainable learning environments are also expected to access, process and manage information such that they are able to make “independent judgements about managing incomplete or inconsistent information or data in an iterative process of analysis and synthesis, for the development of significant original insights into new, complex and abstract ideas, information or issues [21].” This says that sustainable learning environments should enable students to be able to tolerate contradictions and messiness. They should not always expect their aims to be achieved at one go. They have to be patient and be able to go back to their drawing boards and to conceptualise the study afresh, maybe with the assistance of other people, doing thorough re-planning informed by data already collected. This again implies research that goes forwards and backwards, that takes into consideration all factors in the environment for making new and better decisions. It also implies team approach which is intra- and multi-disciplinary in approach. Linked to the above is the ability of the student to produce and disseminate information to diverse audiences which might find it useful. Such a student should be versatile enough to be able to appeal to both the academically sophisticated audience who will expect all research steps and procedures to be respected and applied, as well as to the community members and participants who are concerned not so much with the jargon but with the extent to which the findings are practical and valuable in addressing a given problem.

Sustainable learning environments is therefore about students who understand the totality of the contexts and systems within which their research is conducted wherein they “demonstrate an understanding of the theoretical underpinnings in the management of complex systems to achieve systemic change; and the ability to independently design, sustain and manage change within a system or systems” [21]. The critical aspect of this competence is that the student should not reduce the situation or the context to any one singular factor or variable, but that the whole context in its totality and complexity is analysed and understood in terms of the interactions and relationships that occur

within it. The overriding aim is that if change has to occur, it has to be systemic for it to be meaningful and useful and not merely be about tinkering with some small aspects which may not lead to any significant change(s). Throughout all these competencies defining sustainable learning environments, emphasis is on the complexity of the situation where research is taking place. This is where the student has to be able to make decisions as a leader and manager, who has to understand and to effect change from where we were in the past to the ideal of a democratic setting which we aspire for. The student is expected to be able to defend his/her chosen line of argument to a diverse number of audiences, argue his/her position meaning fully.

In short, sustainable learning environments can thus be understood to be logical spaces where high levels of cognitive functioning are created based on the interaction between the student and the contexts/systems where this learning takes place. Sustainable learning environments are an affirmation of notion of learning environments where to learn is not a purely individual and/or intrapsychic process but that it always involves the contexts containing other people and other objects and all [13], [14]. A transformative postgraduate student can thus not work in isolation, she/he has to be located in those contexts which she/he intends to change and transform and his/her preparation has to be similar to the situations he/she will be working within. She/he will have to be aware of real life challenges in such contexts as the starting point, but his/her approach her to be multi-layered and multi-perspectival for her to get to the required depth of understanding and analysis. In fact what make these learning environments to be sustainable are their respect for the environment and their aim for equitable distribution of privileges and resources, but most importantly to the respect for the other(s) in search of social inclusivity as envisaged in the Social Development Goals.

### **3 EMPIRICISM OR BRICOLAGE TOWARDS SUSTAINABLE LEARNING ENVIRONMENTS**

In the study reported herein, we decided to adopt bricolage as the theoretical framework informing how we were going to create sustainable learning environments as described above where our students and we could cultivate the competencies described under paragraph 2. This framework informed how we interacted with our students and how we all conducted our research at the 50 school communities which constituted our sites of research. Our research could have adopted positivistic empiricist approaches, but we found them inadequate to achieve the transformational objectives which we set for ourselves.

In this paper I understand Empiricism as an approach to research which includes and is best described by Auguste Comte's notion of positivism [1], [15], [17]. I thus make no distinction between the two because of their emphasis on empirical and observable data as the basis for true knowledge. Comte noted how the process of research or knowledge production developed from what he referred to as the theological stage which according to him represented the most primitive stage because true knowledge at this stage was acquired only through faith and belief. This stage of research was primitive because here the observable empirical facts and objects did not matter as evidence of true knowledge. According to him faith and belief cannot be trusted because of their subjective nature [1], [15], [17]. It depends on how a person feels towards what he/she considers to be the Supreme Being. The truth at this stage is derived from scriptures which are open to multiple interpretations which are not fixed and can change any time. From this theological stage Comte says that the mode of enquiry then develops to the metaphysical stage whether the principal mode of knowledge production is pure reasoning as in philosophy [1],[15], [17]. Comte saw this as an improvement on the previous stage but not scientific enough because it too did not affirm the role and power of observation in the production of true knowledge. It is only when a discipline or subject adopts the empirical method that Comte considers it to be a science.

A science according to him has to be based entirely on empirical objects/facts which can be observed through the senses of perception [1], [17]. The question of logic does come into the picture to support and substantiate what observable objects reveal as true knowledge. It is on the basis of this observation that empiricism is about quantification, measurement and counting of that which is being observed that true knowledge can be produced. However one has to be able to focus on one variable at a time so as to be able to describe what one sees accurately. This implies that other confounding factors have to be controlled for or bracketed so that only the variable which is being observed can come into focus undisturbed by others. Empiricism is about establishing the relationship between the cause and effect with the aim of formulating general laws and being able to predict the outcome once the cause is known [1], [17]. High up on Empiricism's agenda is the idea of objectivity which implies

that reality can be known directly independent of the knower's perception [1], [17]. Reality is fixed and does not vary dependent on the knower's perception. Because of the possibility of objectivity, the findings of such a research can and have to be reliable and valid across contexts [1], [17]. In order to enhance the achievement of these, the researcher is not allowed to get close to the subjects of research. She/he has to maintain the distance which will allow him to see the object of study untainted by his proximity to it [1], [17]. This approach looks at the 'subjects' of research in the same manner as the natural scientists look at the object of their study. There has to be no emotional engagement with the subjects.

In direct contrast to the above, bricolage is an approach which is multidimensional because it wants to be closer to real life as much as possible. When Claude Levi Strauss conceptualised it he had in mind the notion of a handyman who unlike the empiricist did not have appropriately designed tools and instruments to deal fix a problem but used whatever was at hand to achieve the objective of his work at any given moment [3], [6], [7], [8], [9], [10]. According to Levi Strauss, a bricoleurs did not even have a well-defined plan but the solution emerged as he/she was in the process of fixing a problem. This metaphor has survived to this day through the work of Lincoln, Guba and Kinchloe to mention a few of the prominent theorists within this framework [3], [6], [7], [8], [9], [10]. Their greatest contributions though are with regard to the fact that bricolage uses left over materials to respond to new questions. Those very discarded materials become reused and given new meaning by a bricoleurs who talks to the materials to give them new life and new meaning [3], [6], [7], [8], [9], [10]. He not only talks to the materials but talks through them to create new meaning and understanding. The greatest assets of bricolage are that it is multi-perspectival, multilayered and multidimensional to mention a few. In the resolution of a problem it relies on many theories and ideas to find out from them as to what can work under the given circumstances [3], [6], [7], [8]. Sometimes it uses contradictory theories as long as the goal can be achieved. Bricolage brings together and stitches diverse perspectives into a coherent and logical story that can best explain the situation under consideration for its resolution [7], [8], [9]. Bricolage thrives on complexity and in this way mirrors the messiness of real life situations. It is actually the science of making something out of nothing. It is action oriented and it is hands on.

When one compares the two approaches directly, in the process of conducting research, one notes a number of significant differences. For example when an empiricist starts with his/her research she/he identifies and formulates the research question by him/herself mainly informed by his extensive reading and analysis of the situation where the study has to take place. It is a singular process where his/her intellect and reasoning based on observation is the guiding light. Based on this research question the Empiricist will define the aim and the objectives of the study in response to the research question. Then he/she will review the literature in search of possible and plausible responses to the research question, aim and objectives he/she shall have formulated. However his/her literature review will be guided by the theoretical framework chosen to enable her/him to provide parameters within which to look in search of meaningful constructs to use to make sense of empirical data at a later stage. This literature review will give the Empiricist bases on which to formulate constructs which will cumulatively unpack the objectives of the study respectively. From here the empiricist moves to formulate hypotheses which will be learned guesses as to what the responses to the respective objectives are. Using these constructs per objective the Empiricist will then describe how she/he will go about collecting empirical data to respond to the objectives respectively. The Empiricist is concerned with coherence and logic from the beginning to the end of his/her research. The methodology is designed such that she/he accounts for all actions and activities which she/he will embark upon in order to collect data as well as how they will be analysed. Everything is neatly planned and packaged for operationalisation once the study has commenced. The Empiricist is very clear about the sample and the population in his/her study. She/he knows how representative of the population the sample is and what should be manipulated in order to enhance that representativeness. The approach is very clear about the characteristics of the population which must be represented in the sample so that the findings on the sample can be generalised on the population. All the time the Empiricist ensures that objectivity is maintained so that the findings on the sample can be generalised on the population. This is his/her main concern as he/she designs and puts together instrumentation for data collection. He/she looks at that which produces objective data, irrespective of contexts. She/he is very meticulous in ensuring that the instrument is standardized and normed for this purpose. The Empiricist thinks of all possible factors that could destroy the objectivity of this study, like the conditions under which the instrument is administered and the preparedness of the respondents or subjects. Even the data are analysed impersonally. No emotions are allowed to enter the scene. The Empiricist is detached even from the people he/she doing research on. They only can speak when

asked or spoken to. What they feel and think are not important. They cannot ask the Empiricist about his intentions because he/she is the expert who is supposed to know what she/he is doing.

On the other hand a bricoleur is never alone she/he does not formulate the research question by him/herself. She/he consults the people for whom the research findings are intended. Her/his role is that of a facilitator who provides space for the beneficiary community or participants to discuss and define for themselves what their research is about [7], [8], [9], [10]. The bricoleur depowers him/herself and becomes one of the team members formulating a research question. The ultimate research question formulated will thus have elements of all the participants' contributions, thus ensuring that it is multi-perspectival and that the multiple voices of the people are integrated therein. The aim of the bricoleur is to get as close to the participants as possible so as to elevate them to the status of co-researchers as well because he/she recognises that; to find a solution to a problem requires the input of all irrespective of their station in life [3], [6], [7], [8], [9], [10]. The involvement of the participants themselves in the formulation of the research question implies that this will be a real life problem which is affecting them directly and for which they have been seeking a solution and the bricoleur has come to merely organise them around it. The participants have a say and they direct the process in this study. They ask questions and also assist in responding to them. Unlike in the Empiricist study who treats the participants as though they were objects in a natural science laboratory, here the bricoleur understands that his research is on and with the speaking people who debate and interpret as he/she does, and that his/her role is that of interpreting other people's interpretation together with them.

Once the research question, the aim and objectives have been formulate by all then they all do literature review in response thereto, in the same manner as the Empiricist. The main difference is that the bricoleur engages all in the review of the literature and they read everything that interest the participants irrespective of its immediate relevance as the valuable information will emerge as the study progresses [3], [6], [7], [8]. They collect everything that might have value in the future which may not be apparent at that time. This means that every other person involved in the study also brings their own theories to the study and in whatever manner they feel comfortable with. What results is a pastiche of multiple voices which at times are contradictory [3], [6], [7], [8], [9], [10]. The bricoleur and his/her team work with this mess in order to fine tune it into a coherent theory that can help in the resolution of the real life problem. In the same manner the bricoleur and his/her team the look for appropriate methodologies which are mainly participatory and allows for all kinds of data to be collected sometimes in the form of pictures, interviews, minutes of meetings, personal stories, everything in whatever language and/or media to allow for the multiplicity of perspectives to be accommodated [3], [6], [7], [8], [9], [10]. The analysis of the data is done in line with the methodology used to collect the data. Denzin Lincoln warn us that in the arsenal of the bricoleur there are all kinds of tools which can be used and adapted to the challenges and demands of the work at hand [6]. These tools cover the whole spectrum of the 8 moments in the history of qualitative research from the traditional period, the modernist era, the time of the blurred genre, the crisis of representation epoch, the postmodern period, the post experimental period, the methodologically contested present era and the period of the fractured futures. Space will not allow me to describe each in detail, but suffice to mention that, especially the fractured futures period is distinctly bricolage because this epoch argues that research should reinsert the issues of democracy, equity, social justice, freedom, peace and hope as criteria of quality. These are in stark contrast to issues of objectivity, reliability, trustworthiness, validity and so on which described quality during the traditional period and these tally with Empiricism's notion of quality in research.

#### **4 ACTIONING BRICOLAGE**

In line with the dictates of bricolage, being aware of the dysfunctionality in our education system and the power which postgraduate education holds we convened a research team of 15 academics whose specialisms covers the 15 modalities of Dooyeweerd's Cosmonomic theory. Our intention was to attempt to find resolutions to the many ills plaguing our school system on a very small scale where we could register some success and then build onto that incrementally with time. This aim of our research was based on the many inputs from the communities through the public media, research, informal conversations and so on. There were many students who enquired and indicated their interest to be supervised by us in order to acquire research knowledge skills so as to improve their own classroom practices. In the end 28 PhD and 22 MEd students became part of our research team which we called the *Sustainable Learning Environments* so as to highlight our intention of improving quality in education through research. All these 50 students were employed on full time bases as teachers and principals of schools who in their everyday practices had to provide and improve education. Together

we met to reflect on our common vision as well as the strengths, weaknesses, opportunities and threats we had in advancing the common vision of quality education through research. We identified five priorities which we could achieve within a period of two years which were; to know how to formulate a research problem, how to do literature review effectively, how to choose the relevant theoretical framework as well as appropriate methodologies, how to involve local communities in the improvement of education as well how could we contribute to knowledge in as far as our project was concerned. Based on these priorities we worked out an action plan wherein we had five activities per priority. We identified individuals and sometimes groups of individuals to assist in organising and planning the activities respectively. We tied each activity to specified time frames. Finally we constituted ourselves into a forum which monitored progress on the achievement of our priorities. This forum met on monthly basis and the students including the academics who supervised their research were to present their work in academically acceptable format at these forums, but we went beyond that to provide spaces for reflection on areas which required attention and improvement, as well for planning towards more effective actions.

Then each student at his/her school had to convene another forum respectively which ensured that the voices of the local school community was well represented, was loud and clear and was heard by all. At each local school the students went out to formulate a coordinating team and a forum. The coordinating team consisted of 5 to 8 members who extended on the student's role as the researching team which met on almost daily basis to think and plan and action some immediate decisions. Then there was an even bigger forum which sometimes consisted of 50 to 200 people. The voices of people who were represented in these coordinating teams and forums were those of teachers, of learners, parents and all instances of civil society which had a stake in education and found it important to do so. These forums also met on monthly basis just week before the forum at the university where students met with their supervisors as described earlier in this paper. The forums at schools also helped in formulating the research question for each student and her/her team respectively. These research questions came out of very intensive discussions and debates among members of the respective forum. They represented the inputs of almost everybody who made their presentations in whatever manner possible. The student researchers were merely members of such forum who had provided space for the local community to talk about ways of improving education at their school through collaborative research. The forums went a step further to even formulate strategic plans to operationalise the research at their respective schools in the same manner the reach team at the university had done. They monitored progress on monthly basis. In between the meetings their used Information and Communication Technologies (ICT) like cellular phones and e-mails to communicate their views, suggestions, readings and all. Some of the topics which emerged from these forums were the following;

"A framework for managing human resources in secondary schools for improved educational performance", "Implementation strategy for a Quality Learning and Teaching Campaign: a framework towards a sustainable learning environment", "Transformational learning of physical science through service learning for sustainable learning", "A sustainable learning environment framework for a Foundation Phase multi-grade classroom", "Chronicles of the experiences of orphaned students at Higher Education Institution (HEI) in KwaZulu-Natal Designing", "A framework for effective implementation of School Academic Performance Improvement Plan", "Creating a caring learning environment at a primary school" and "Problem Based Learning towards the creation of sustainable learning environment at a senior phase Social Sciences classroom."

## **5 CONCLUSION AND DISCUSSION**

We all had become bricoleurs. The fact that the research questions were based on real life experiences of people in schools and school communities implied that Empiricism could not have been as useful as bricolage had been because the neat linear approach was not possible in the messiness of debates in forums. The power of the researchers in this project was significantly reduced to allow for the voices of the local communities. Elements of participation by local communities were very high on the agenda of this project and to some extent we contributed to the strengthening and advancement of democracy as we ensured that the voices of the community were heard with regard to the education of their children. We learned to be free and to become citizens of a democracy who made direct inputs into how we wanted problems to be solved.

The project through bricolage as the approach enabled us to talk to the 15 modalities which Dooyeweerd made us aware us of. Although we could not do much about issues of the land



distribution which is critical if we want a more egalitarian society, we were however able to make communities better informed, to question issues and to feel empowered to address the issues that concerned them. We realised that we were much stronger when we worked together towards a common goal and that the success of one of us was the success of all and so was failure which we had to guard against at all cost. We realised that we could change our lives for the better if we conducted research that brought the ideas of all to the table irrespective of their ethnic, race, gender, colour and/or socio-economic status. We also realised that we could make an impact on the transformation of society as we provided spaces for its growth and enabling us all to discover our analytic powers which we were denied and were undermined. We also learned a lot from one another. It was pleasing at some stage to hear for example police in the community talking about learners' performance and ways of improving such based on better support from the parents and their teachers who were continually to be in-served. The local community, irrespective of its primary preoccupations was becoming knowledgeable about education policies and practices and this assisted to put education at the centre of the communities' discourses.

The students and the academics became experts in their respective specialisms, but beyond that they knew what their peers were researching on. They became knowledgeable on their research questions, their theories and methodologies which they operationalised. They thus could bring these new perspectives onto their areas of specialisations. They were multi-perspectival as a result. Their knowledge of what entails broadened as they had to defend their own positions based on the readings of many and diverse theoretical frameworks. The narrow focus of Empiricism was broadened and in its place were the skills of a handy man and jack of all trades who knew everything and mastered all. As bricoleurs the students and the academics could traverse the wide expanse of research from traditional qualitative research to the fractured futures period with great ease. We all knew when to use which approach which tallied with which theory. We knew how to link the research problem with a relevant literature and methodology for data collection and analysis. We could explain and defend their approach we adopted based on the findings we made. We could write narratives of our studies from the beginning to the end. That we collaborated did not remove agency to be independent and focused. While we did not focus on empiricisms per se, we however knew what it entailed because as bricoleurs we were aware of the eight moments in the development of qualitative research which were also part of bricolage at the same time.

While the political agenda was at the heart of our project, this also enabled us to become better informed academic whose work had practical value over and above it being theoretical and abstract. The few challenges with the approach were that not all students found it easy to move between and among theories and methodologies. Sometimes it was difficult to explain one's intentions and keep the academic focus with so many theories and methodologies together at the same time. However Denzin and Lincoln's views that bricolage was like a crystal which was more than triangulation became true as many theories illuminated our understanding from a number of layers and perspective.

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