

## CHAPTER 4. SOCIOSPHERE

*Education is a social process. Education is growth.*

*Education is, not a preparation for life;*

*Education is life itself. — John Dewey*

### 4.1 INTRODUCTION

In the previous chapter the data set and analysis procedures were presented and the reasons for selecting the Straussian Grounded Theory Method were explained. Data gathering considerations, such as the sampling methods employed, were discussed and detail concerning the preparation of data analysis was covered. The various research documents and the key analytical strategies for coding data were also outlined.

In Chapter 1 the research objective for this section was presented as part of the research puzzle (*cf.* Table 1-1) which is briefly revisited in Table 4-1 below.

**Table 4-1: Research puzzle for moral cohesion**

Research Question	Objective	Subsidiary research question
How does tacit knowledge manifest when innovative teachers engage with emerging technologies to achieve pedagogical efficacy?	To investigate personal convictions, social structure and relationships within the wider community that can hold sway over the innovative teacher.	What role does moral cohesion play within the sociosphere of the innovative teacher?

In this chapter the objective is to focus on the first research subsidiary question: What role does moral cohesion play within the sociosphere of the innovative teacher? To answer this question the researcher collected data (*cf.* Table 3-4) and analysed it in order to investigate *personal convictions, social structure* and *relationships* within the wider community that can influence the innovative teachers' pedagogical reasoning. Evidence from the data will be presented in the form of *quotations* and *reflections* to support the interpretation of the researcher.

Where actual direct quotes are used, for the sake of confidentiality, the participants' names will not be revealed. In order to keep track of these participants however, they have been assigned a special *handle* which refers to the type of data instrument used as well as a number for example PL13 refers to the poster and leaflet of participant number 13. These codes are presented in Table 4-2 below. Where the information is available in the public domain, the participant's identity is not concealed. The following list will be used for the purposes of this research:

**Table 4-2: Codes assigned to different data collection instruments during analysis**

Data collection instrument	Code
VCT	VCT
Posters and leaflets	PL
Multimedia artefacts	MA
Video Interviews WWITFA	WI
Unstructured interviews	UI
Innovative teacher workshops	IW
Informal conversation	IC

The collected data analysis was supplemented by instances from literature in a constant comparative method. According to Strauss and Corbin (1998, p. 45), when conducting a Grounded Theory study everything is to be considered data whether it be vague, interpreted or derived from literature. This notion is supported by Glaser as assisted by Holton (2004) and encourages the researcher to be proactive and receptive to literature and regard it as another voice, not only to create theoretical sensitivity but also to provide concrete examples of similar phenomenon that can then enlighten the properties and dimensions of categories once they emerge. This process allows the researcher to *rethink* and *re-examine* the data with a different perspective. Therefore in this study, literature is used as another source of data and integrated into the study as part of the constant comparative analysis once the categories have fully emerged.

## 4.2 SOCIOSPHERE: CRITICAL PHILOSOPHY



Critical philosophy is used within the sociosphere of the innovative teacher to not only reveal the negative power relationships and the issues of concern that exists within a community but also to illuminate the positive aspects and underlying belief systems around teaching and learning with emerging technologies. The cultural-historical context is considered as it situates the participant *within a space* where the technology tools selected for use in an education environment carry the inherent burden of responsibility. The innovative teachers' educational setting includes the relationships between *participant teachers*, their *immediate school environment* which manifests itself through a range of stakeholders including learners, teachers, school leaders and the *wider social setting* encompassing parent and broader community attitudes and values toward education and ICT.

Teachers reflect on curricular changes as influenced by the ideals of the information society (*cf.* Section 2.5.2) and aim to equip their learners with the skills required to make them contributing members of this society.

Before proceeding with a discussion of the data, the first of the emerging themes of the sociosphere is presented below in Table 4-3 along with their sub themes. These emerging themes and sub themes are a result of analysing the data through a process of open coding, concept formation through axial coding and finally concept development through selective coding as previously set out in *Table 3-8: Stages in the analytical process as adapted from Coyne (2009, p. 17) on page 114.*

**Table 4-3: Moral cohesion as the emerging core category with expanded theme *professional burden* highlighted for discussion**

AXIAL CODING (Categories clustered in sub themes)	SELECTIVE CODING (Emerging themes derived from sub themes)	CORE CATEGORY
African renaissance ( <i>cf.</i> Section 4.3.1)	Professional Burden ( <i>cf.</i> Section 4.3)	Moral Cohesion ( <i>cf.</i> Section 4.5)
Stewardship ( <i>cf.</i> Section 4.3.2)		
Ethical considerations ( <i>cf.</i> Section 4.3.3)		
Teacher disposition ( <i>cf.</i> Section 4.4.1)	Teacher as Bricoleur ( <i>cf.</i> Section 4.4)	
Teacher training ( <i>cf.</i> Section 4.4.2)		

In the next section each of the listed themes as highlighted in Table 4-3 above, with their related sub themes, will be discussed in more detail and evidence from the data will be presented to support the interpretation of the researcher. Literature will be visited in a constant comparative process to refine the constructs as they emerged.

### 4.3 PROFESSIONAL BURDEN

The general core duties of teachers are to plan, prepare and execute an instructional program aligned to the national curriculum statements for the subject areas they are responsible for. To this aim they are required to provide learning materials, instruct, assess, keep records updated, manage learner behaviour through a code of conduct, participate in extracurricular activities and interact and communicate with parents and caregivers. Other duties are of a pastoral nature as they not only look after their learners' academic needs but also their social wellbeing. Teachers are also required to invest in themselves and participate in staff development activities so that they can continually review their own methods of teaching and keep abreast of developments in their own subject area (DBE, 2011).

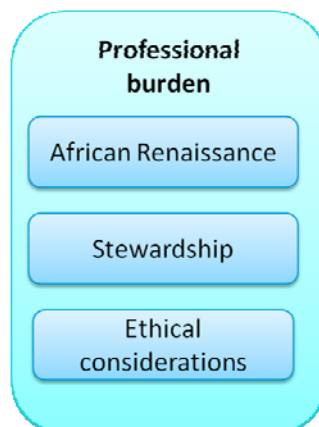
Other than the prescribed traditional teacher duties outlined above, a participating teacher offers a more general version of how he/she views professional duties, as is revealed by UI6:

*I see teaching as team responsibility with the team members being myself, the learners and their parents. I am not only to teach the content; I have a responsibility to myself and my learners to keep things interesting that means to teach in a way they will find relevant and not to force my own agenda too much as there must be room for collaboration in an exchange of ideas. I try to keep abreast of developments within my subject but also to keep pace with technology and what it can do (UI,6).*

Teachers do not lose sight of their own personal convictions. One of the underlying reasons participants give for their innovative spirit, is their answering a personal call to emancipate not only their learners but themselves and in the process restore and rekindle their passion for teaching as expressed below by UI8:

*I want my learners to know what the true value of their education is and how they can make a difference to others through their own learning. It is not about the final score on the report card but about what you are going to do with all the knowledge and skills that you have acquired and how you are going to uplift those that have not had access to the same level of education. Even though teenagers in general are very self-absorbed, they can be made aware of how powerful they are as individuals and they can reach out (UI,8.)*

The theme of *professional burden*, as emerging from the analysed data, consists of the sub themes African renaissance, stewardship and ethical consideration. Each of these as displayed in Figure 4-1: Expanded emerging theme: *Professional burden* below will be discussed in greater detail (cf. Sections 4.3.1 – 4.3.3).



**Figure 4-1: Expanded emerging theme: *Professional burden***

### 4.3.1 African renaissance

The concept of the African Renaissance was placed on the world agenda by the former State President of South Africa, Thabo Mbeki in the mid 1990's. It promotes the notion that the nations and people of Africa, being intimately familiar with their current challenges, can work together to combine African knowledge and values of solidarity towards renewal in economic, scientific, cultural and educational spheres. African ministers of education, from across the continent, met in 1999 and stated:

"We are more convinced than ever, that education is the sine quo non for empowering the people of Africa to participate in and benefit more effectively from the opportunities available in the global economy of the 21st century" (Fleshman, 2000, online).

In addition, the ministers stressed the developing of:

"non-formal strategies for reaching disadvantaged children, including street and working children and refugees; making curricula more relevant to local cultures; promoting use of the mother tongue in the early years of primary education and in adult education; integrating education into the family, community and workplace; and involving teachers and their unions in the development of the teaching profession" (Fleshman, 2000, online).

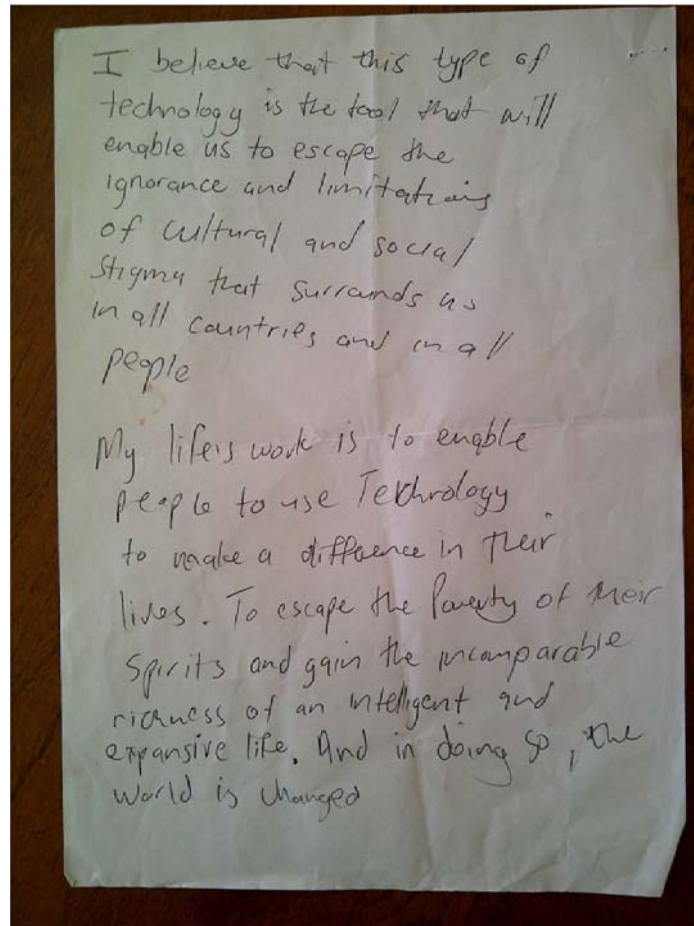
To achieve these ambitious priorities within the closed educational system, requires investing in the development of human capital in the form of administrators, teachers and learners. Increasing the self-esteem and their wellbeing through a consciousness to inspire free inquiry; to inspire free criticism; and to inspire a new confidence in the possibilities of human thought and creation (Mogale, 2011; Xulu, 2004).

The increased esteem in which the school is held is intrinsically linked to the availability of technology and in this specific case to the establishment of the school computer room. A section extracted from the VCT of Abdullah Sujee reflects sentiments of pride and expressions of hope:

*Furthermore, the establishment of the school's computer rooms saw to the school offering computer classes and the ICDL course. When South Africa celebrated its 10 years of democracy and the 200 years of the un-banning of Islam, the school unveiled its own flag and began hoisting the national and school flag daily side by side commemorating the Freedom Charter of South Africa. The school stands as a beacon of hope for South Africa in its pursuit of educational excellence as the school has a history of*

*100% pass rates at grade 12 level for the past 18 years of its blessed existence (Abdullah Sujee, VCT 2007).*

Figure 4-2 below contains an image of a discarded document that was picked up after one of the workshops conducted during the 2009 Microsoft Innovative Teachers Forum Awards.



**Figure 4-2: Handwritten reflection from a workshop participant in the 2009 Microsoft Innovative Teachers Forum Awards.**

*I believe that this type of technology is the tool that will enable us to escape the ignorance and limitations of cultural and social stigma that surrounds us in all countries and in all people. My life's work is to enable people to use technology to make a difference in their lives. To escape the poverty of their spirits and gain incomparable richness of an intelligent and expansive life, and in doing so, the world is changed (Finalist Teacher at the ITFA 2009).*

These sentiments are echoed in policy documents generated by the African education ministers as they remained optimistic that Africa's educational systems can be significantly improved, given "the recent political progress and increased investment in education in parts of Africa and



the opportunities offered by new information and communications technologies" (Fleshman, 2000, online). The general mindset of optimism has garnered a patriotic display towards the country as displayed below in Figure 4-3: *Classroom on the outskirts of a rural village painted in the colours of the South African flag* after they received a computer centre.



**Figure 4-3: Classroom on the outskirts of a rural village painted in the colours of the South African flag**

Gruner (2008, p. 16) captures the positive sentiment that is encapsulated within the technology package: "South Africa is still maintaining an astonishing spirit of hope, optimism, perhaps even euphoria, as far as the idea of overcoming poverty and misery by means of technology is concerned." A more recent sentiment from a participant teacher in the Pretoria workshop explains this further by saying that:

*We as a people know how to fix this country and for that matter Africa. We just need more dedicated teachers that are not afraid to work with technology. If they do not engage with technology they are letting themselves and their learners down. At the moment the expectations of ICT in a community are very high. It is expected to solve all social problems which we know it cannot (UI,3).*

This comment suggests that the naïve perspective of viewing technology as the vehicle which will alleviate all social problems is still prevalent amongst teachers as members of society. The sense of optimism also prevails in schools (as in the example below) which claim that a

functioning computer centre is a *major breakthrough*. The statement below contains descriptions of the rural setting.

*Rotterdam Secondary is in Rotterdam Village in the Limpopo Province of South Africa. It is a public school that came into existence in 1992 but only ten years later (i.e. in 2002) it was inducted, along with 102 other schools, into the government's Maths and Science Project called Dinaledi (Sotho translated to Stars). It is found in a predominantly subsistence agricultural setting of the Mopani District some 70 km from either of the following towns: Tzaneen, Giyani and Louis Trichardt. It is a school attended by over 820 Black African learners of mixed abilities, with Xitsonga as their mother tongue and English the medium of instruction. A major breakthrough in the history of the school was the donation of 20 networked computers with server in 2003 by the Telkom foundation. These computers also have internet connection via satellite (Victor Ngobenj, VCT 2007).*

However, only a fraction of the schools in South Africa was included in the original Dinaledi program mentioned above, with thousands still lacking basic services. An ambitious program was launched in 2001 to equip each school in the Gauteng province, the most heavily populated province of South Africa, with a fully functional computer centre. The program known as *Gauteng online* was soon dubbed *Gauteng offline* (UI,3). Miscommunications between vendors resulted in computer hardware being installed without the supporting software being delivered and thus many computer centres were rendered useless. The concerns of teachers and schools are addressed on an ongoing basis.



**Figure 4-4: Unused school computer centre**

The particular school computer centre shown in Figure 4-4: *Unused school computer centre* above, has been unused for two years. The chairs still have their original plastic coverings and the screens and keyboards are covered with blue dustcovers. All the hardware was installed but no software has been made available, as per original agreement, to operate the computers. Other schools, which have functional computer centres, keep them locked as there are no trained teachers to facilitate the classes and staff fear that the computers might be stolen. More recently schools with operational computer centres have had their modems suspended and connectivity severed due to a lack of funds. A sense of disillusionment has set in amongst schools that were originally provided with computer centres. Yolande Peters shares her experience:

*In developing countries such as South Africa, it often happens that international donors and local corporations make inappropriate donations to schools in impoverished areas. These donations, in many instances, take the form of computer hardware, and they are given, sometimes, without establishing whether the school has access to electricity, or (more often) without establishing whether the school has the necessary expertise and capacity to initiate computer literacy lessons at the school, and whether the school can even afford the extra monetary expense that the computers will generate as a result of their use. As a result, many computers, given with the best intentions, gather dust in a forgotten corner of a rural school. However, this is not the norm, and the context in the paragraph above serves to highlight the need for full back-up service by large corporate wishing to fulfill their social investment. Such was the case at Byletts Combined School where a donation of computers came together with the added expertise for capacity building (Volunteer Africa, Mr. Mike Denison) as well as the support of an environmental education support service (Wildlife and Environment Society of South Africa, Mr. Phillip Wilkinson). Together with the educator Ms. Peters, the project "The cost of Learning" for computer literacy was integrated to all learning areas and to all lifestyle ethics for the full benefit of South African learners (Yolande Peters, VCT 2008).*

As explained in the quote above, there are schools that in spite of the challenges, have managed to deliver teachers that are innovative in their practice and determined to overcome the obstacles. These teachers do not only rely on the technology provided within the centres, but exploit other technologies as well in the community to achieve their objectives.

At the start of this section *African Renaissance* as a sub theme and as part of the emerging theme *professional burden* revealed the widespread conviction amongst teachers and policy makers that the integration of technology into the education system will solve other social problems and catapult the African people into the information society. The disconnect between policy and practice and the largely unsuccessful efforts to implement large scale solutions is well documented, however, the innovative teacher as individual within the education system stays

true to the ideals of the *African Renaissance* and finds unique ways to harness resources from within the community to achieve their objective of emancipating learners through the use of emerging technologies.

In the next section the sub theme of *stewardship*, as part of the emerging theme of *professional burden*, is presented.

### 4.3.2 Stewardship

The general understanding of the idea *stewardship* is *to be held responsible for something or to tend to the needs of someone or a cause that has been entrusted to one's care*. Within the confines of this thesis, the concept of stewardship means that innovative teachers feel responsible for and tend to the needs of the learners in their care to develop them to their full potential so that they can contribute to their own communities. The concept of stewardship can be expanded to include expert members of the community in an effort to include their indigenous knowledge systems, so increasing community involvement in teaching and learning. One project which displays similarities with the innovative teachers is the School at the Centre of Community (S@CC) Project. Moolman (2011, online) articulates their goal to “ignite active citizenship around the school (to engage parents and other members of the community so that the burden of responsibility for raising and educating our children is shared by more people than a small group of teaching staff.”

Innovative teachers extend their traditional teaching duties to address problematic issues within their community and henceforth reach out to its members in a joint effort to build a cohesive society as demonstrated below:

*The topic deals with the environment in which our pupils live. The area of Umzinto and the surrounding areas have been seriously damaged by the floods and no repairs have been done yet. Since our topic for this term was on a healthy environment I decided to get the pupils to research these problems and involve their community so that amicable solutions can be found. At the same time pupils needed to learn the skills and become aware of their rights to a safe environment so that as future residents they take care of their areas of residence (Annie Behari, VCT2009).*

Community experts are approached and strategies to harness their capability and know-how are devised in an effort to incorporate their knowledge into learning projects. This gives recognition

to the elders and community leaders and so indigenous knowledge is treated as a valuably rich resource. Indigenous Knowledge Systems (IKS) can be defined as knowledge that is unique to a given culture or society. Decisions are based on local knowledge which in turn is “dynamic and continually influenced by internal creativity and experimentation as well as contact with external systems” (Flavier, 1995, p. 479). The value of IKS is also expressed by the following quote of Yolande Peters below:

*Our rural communities are rich in Science and they do not know that, it is the responsibility of the young generation to keep science in our cultures alive. They have to reach out to our communities make them proud of their culture and keep it for them for the next generations. Old people are our great resources, let us use them, they enjoy it with the help of technology (Yolande Peters, VCT 2009).*

Innovative teachers and their learners are also confronting their internal creativity. Because of their exposure to a variety of technologies, and the world outside their community, they continually amend their personal knowledge systems but still rely on their community for input and support as the quote below indicates:

*Learners realized that social problems are not just for researchers or community leaders, but there they found themselves conducting studies and that was a great experience. They saw mathematics in action and hence realized that, some of the issues can be resolved and consensus being reached if there could be intensive research activities in all societies using statistics. They were delighted to see their results and also overwhelmed to have them published for the broader school community. My learners were very happy and I wish the projects were published in the whole country (Thamsanqa Makhlatini -Let's fix it, VCT 2007).*

At the same time community involvement allows learners to develop a healthy respect for their neighbourhood and a sense of inclusiveness. This process leads to a strengthening of the social fabric of a particular society as is illustrated in Simphiwe Njoko's words:

*My feeling about the whole project is, it was great and unexplainable because it was good work and good experience to do this project. It was challenging to learner and the main thing is they benefited from it. Their business plans were then invited by the local counsellor in the ward to have more training on entrepreneurship skills (Simphiwe Njoko, VCT 2007).*

The resurrection of indigenous knowledge systems is high on the social agenda as teachers encourage learners to take ownership of their culture and value their place within the community. The objective of teachers to engage their learners in projects that target their communities' indigenous knowledge resonates with the University of the Free State research focus area 3.5:

Indigenous Knowledge Systems for People's Transformation Development. The scope of enquiry includes research into local communities (peoples), organisations and institutions which are made up of social and political structures of society, identities, legal practices and jurisprudence, traditional governance and decision processes, conflict resolution, taboos, community controls, communal services, the role of community cohesion pillars (e.g. chiefs, sangomas) and gender roles (UFS, 2011). A project which places value on the indigenous knowledge systems is illustrated below:

*Time is ripe to consider the reinstatement of the most important cultural values in indigenous knowledge system such as indigenous trees and herbs. Seeing that the school is having wonderful indigenous tree and herbal gardens, the learners are constantly taken in the garden to learn.. . consult the adult members of the community to research the significance of the plants. Community involvement in this project was the most interesting as the community is highly involved in the project. They voluntary look after the two gardens, purchase herbs and indigenous trees for diabetes, high blood pressure, headaches, body sores, appetite, perfume, as well as for insecticides. Learners are found to be more interested in finding out from their parents and grand- parents about the usefulness of the indigenous trees and herbs (Mmipe Mokghele, VCT 2008).*

This focus on community issues was initiated by Jaramillo (2010, p. 51) when he states that “teachers are encouraged to facilitate, to create, and to see themselves as participants within the community.” Because innovative teachers are members of a community, they share the burden of localised problems in the area. These teachers use their position in society to mobilise action, as indicated by Mfeka Hlengiwe below:

*Knowing that the school is a micro society, we have seen that what affects learners from their society is carried over to the school. So in order to deal with problems affecting learners in schools, we had to go out and look at the root cause of the problem in the community (Mfeka Hlengiwe ,VCT 2009).*

The responsibility to mobilise learners does not only extend to the community members but to governmental structures as well. The *Zero tolerance for bribery campaign* poster by Chris Gatsi, presented in Figure 4-5 below, demonstrates this issue. The project is an anti-bribery campaign which was later brought to the attention of the Department of Home Affairs. The learners had to produce a media campaign, publish articles on a website and produce a DVD to raise community awareness on the effects of bribery and ways to stop it. With this project the teacher aimed to make learners aware of positive citizenry.



**Figure 4-5: Zero tolerance for bribery - poster by Chris Gatsi, 2010**

It is also important that learners think about their broader role within the community. Learners that cannot rely on their care-givers for support in their projects will actively seek it from other members of the community.

*By involving leaders and experts from the community my learners get a sense of where they fit into a community and what their responsibilities are towards safekeeping its values or what needs to be set right (Murphy Mugabi, VCT 2007).*

Jaramillo (2010, p. 48) also support Murphy Mugabi's statement by saying that "it is imperative for teacher educators to gain knowledge of and insight into a wide array of educational philosophies and to ground their teaching practice historically and socially in the communities they serve". This is further alluded to by Annie Behari in her statement below:

*My project "Recreational games for rural South Africa" is innovative as I do not only intend to achieve learning outcomes, assessment standards or 21<sup>st</sup> century skills. I believe that our youth need to learn to create a violence free society, they need to live in a society where family structures which are harmonious thereby leading to emotionally, physically, mentally and socially well balanced members of their community who are able to make decisions to create better environment for the future generations via sport. Via recreational games I intend to bring family members to play together thereby encouraging*

*togetherness, teamwork, team spirit, communication between child and parent and caring for the elderly as they are the fountains of morals and values (Annie Behari, VCT 2008).*

Participant teachers' expressed feelings connected to the people of greater Africa as they all share similar burdens. However they saw it fit to make a start within their own communities with the hope that their ideas and interventions would stretch across to other schools and communities. In the case below, the teacher advocated the promotion of local business through engaging youth from both the rural and urban areas in an exchange of lifestyle reflections. A short description of his objective is contained below:

*The concept "Bright lights or Dust Bowl" carries symbolic inferences. Young men and women (learners included) from the rural areas are the ones who are particularly attracted to the city. They think everything in the city is beautiful and lovely. Most of them view the city as "beautiful Bright Lights" and the rural area as dull and boring, in fact, nothing but a "Dust Bowl. One of the possible solutions to this problem is to promote businesses in rural areas. In order to make this project successful we had to expose learners to the nearest cities. We had to time our trip in such a way that we arrived in the city in the early morning, and left in the late afternoon. This was deliberately done to expose the students to one of the pressures of city life, which is traffic congestion. They made contact with other youth in town and subsequently communicated and were encouraged to share their life experiences in an exchange of poems, essays and ideas reflecting on the pressures they have to cope with in their own environments (Victor Ngobeni, VCT 2007).*

At the start of this section the sub theme *stewardship*, as part of the theme *professional burden*, was described as *to be held responsible for something or to tend to the needs of someone or a cause that has been entrusted to one's care*. Subsequent to the review of data and literature, the concept of indigenous knowledge systems surfaces as a strong influence on stewardship. Indigenous knowledge guides the innovative teacher and the learners to make sense of their own place within the community and also the particular value they are capable of adding through their more modern approach. They examine their use of new technology to harvest knowledge from members of their community and contribute their ideas and solutions to uplift their own society.

The next section will look at the ethical dilemmas innovative teachers face within their practice of teaching and learning with emerging technologies.



### 4.3.3 Ethical considerations

In the statements below Gruner indicates the importance of ethics for innovative teachers:

“Innovation in Technology has triggered Innovation in Ethics, because the “old” ethics was not sufficient to cope with the moral problems of a “new” world created by the advent of new technology” (Gruner, 2009, p. 18).

Ethics, in relation to this research, include determining codes of conduct, rules, policies and procedures in the formal learning environment and, in an increasing fashion, to the informal learning environment.

Pressures brought on by the information society are directed from three differing perspectives (*cf.* Table 2-4: *Three approaches to the information society* on page 72). Teachers are influenced from within the theoretical, political and the everyday prosaic perspectives. When considering all three perspectives, the political narrative is currently the strongest as reflected in policy documents articulating the South African vision for ICT in 2015. The development narrative continues with the emphasis on entrepreneurial and research skills to build capacity and address local and global challenges (Maredi & Neethling, 2010). In contrast to the governmental organisational structure and its agenda, innovative teachers are ensnared within the everyday prosaic, unstructured and utopian perspective. In this space there is an onslaught of technologies bringing with it a range of ethical concerns. At the same time teachers struggle to come to terms with the ethical choices they are forced to make in the execution of additional obligations.

The full impact of using emerging technology for the purposes of teaching and learning can never be fully predicted. There are *unintended consequences* as each emerging technology reshapes previous parameters.

One field of applied ethics that resonate with this study is the *ethics of responsibility* as articulated by Ströker in Gruner (2009, p. 19). Ethics of responsibility is divided into four categories:

- *Future Ethics.* Modern technology has far-reaching consequences not only for today but future generations.
- *Social Ethics.* It is acknowledged that the most difficult and moral problems of our time are the result of complex structures of collective behaviour rather than the result of individual activities.
- *Ethics of Nature.* Modern technology does not only affect humans but also natural resources on which human living and survival depends.
- *Ethics of Democracy.* Political, power and scientific expertise are ambivalent as regards whom to serve.

When engaged in the art of teaching and learning with technology, teachers are required to be responsible in carrying out their duties and in turn they cultivate this notion of *acceptable behaviour* in their learners. The act of being responsible in the use of emerging technologies inherently include the ethics of the future, social, nature and democracy in an attempt to mitigate the unintended consequences that could transpire in the unfolding of the innovative project. In every situation where *responsibility* is demanded, it must also be clarified *who* is liable, for *what*, and to *whom*. Thus the issue of power re-arises in the question: What means of sanctions are available against those who have not honoured their responsibilities?

Thus considerations are given to the personal and learner owned devices selected for voluntary use in the classroom. Teachers grapple with issues such as availability of such devices, whether they can reflect on their practice in open forums and have an open opinion on events taking place within and outside of the classroom. In the case of learners they lament the lack of guidance from authorities as most responses seem to be knee-jerk reaction in response to a controversial issue that involves the inappropriate use of mobile phones by learners. Authorities offer little proactive guidance and therefore no real support. The following compilation of issues was taken from a variety of sources including VCT's, workshop discussions and interviews. Teachers seek answers to the following recurring questions:

*Should I be available to my learners 24/7? What is a reasonable response time to their queries? Should formative learner work be made available to a larger audience? How do I instil in my learners aspects of digital safety for they tend to share too much? What do I do if they share too much with me as their*

*teacher that is of a personal nature? We make the rules up as we go along but when are they going to be standardised? Learners are generally more available through technology especially on their phones but where is the limit? Who carries the cost for the use of learner owned devices? Not all learners have equal access to technology and even if they did they have limited amount of airtime – how do I not waste their money? How do I design tasks allowing for collaborative group work when the capabilities of their devices determine the level of their participation? Is it proper for parents and learners to contact me on my own personal technology? How do I separate my personal from my work online profile? When learners create digital artefacts, should their names be included in the work to be displayed for all to see? Learners sometimes include photographs of themselves in their created resources – can they be shared online?*

The lack of guidelines, which should help teachers through the difficulties of dealing with new technologies and the ethics they raise, is corroborated to some extent in a documented case study about managing unrealistic expectations as regards the availability of lecturers at an institution of higher learning. This case is equally relevant to teachers in secondary schools. Hodgkinson-Williams and Ngambi (2009, p. 17) state that: “. . . lecturers and tutors are not as available as students would like. DFAQ certainly extends the availability of lecturers, tutors and other students during non-teaching times . . . clearly there is a danger that – unless clear guidelines are set about reasonable response times – lecturers and tutors will not be able to meet the unrealistic 24/7 expectation that they feel some students have.”

Another concern that needs to be dealt with is how to manage the parents' expectation, especially with regard to the use of their child's mobile phone for teaching and learning purposes. A participant in the Innovative Workshop held in Pretoria states the following:

*Parents often misunderstand the implications of using new technologies. They react with fear and there is little trust. Where in the past they have trusted us with the education of their children, they now frown on the use of mobile technologies especially their children's' own mobile phones to further their education. They don't trust it and view it as a threat. Because of the negative association we have a lot of push back to conform to what parents conceive as the normal way of teaching. It therefore becomes a problem not to only get the learners on board, that is the easy part. It requires a lot more work to get parents behind you. That is why you need to do everything in a transparent manner (IW,Pretoria).*

Parental concerns are real and Wishart (2010, p. 17) writes about the ethical implications of mobile learning in secondary schools commenting that "(w)e have ever more fantastic learning opportunities to look forward to as handheld devices gain acceptance, reliable and affordable connectivity and even the ability to project images on nearby walls or screens. Yet we are in danger of losing such opportunities through collective fear of cyber-bullying and irresponsible

use by pupils of a technology whose potential their teachers haven't been given time to fully explore." To prevent the potential loss of using new devices in teaching and learning, innovative teachers are going to great lengths to manage the fears of parents and the school community and put mechanisms in place to educate their learners in the responsible use of their own and other connected devices. The following is a brief description of the project titled *Cyber Crisis. Can I make a difference?* extracted from Lyneth Crighton's, VCT, 2008 that focused on digital safety:

#### The Challenge

*Research a danger of the Internet to children and develop a PSA that will create a public awareness about that problem.*

*Learners have to create a Public Service Announcement (PSA) on an Internet danger to children that they have identified.*

#### Subject area

*In Computer Applications Technology the learners are required to learn a presentation package; Microsoft Photo Story 3 gives the learners an alternative to the usual presentation packages of Microsoft PowerPoint or FrontPage and are easily converted to play on any mobile phone.*

#### General comments

*The learners were excited to do something different, and use a program which they could use for recreational purposes too. They liked the ability to share their creations via cell phone technology and were proud of what they had learnt and what they had achieved. Learners could warn friends about relevant dangers in a fun and innovative way.*

### Project Brief

*Too many children surf the Internet without being aware of the dangers? There has been a lot in the media, lately, about the dangers in "Cyber Space". Happy Slapping; Cyber-Bullies; Child Pornography are all Cyber crimes that are on the rise with increasing Internet bandwidth and access to the Internet on a variety of device that learners own. Educating children, parents and teachers of the dangers, while not reducing the education value of the information that can be found on the Internet creates an interesting debate. How do you communicate the seriousness of the situation and make all the stakeholders aware of the dangers?*

Key Thought: *In many areas of the Internet, children can be exposed to numerous dangers! How do you get through to them?*

Tone & Style: *Emotional*

The *Cyber Crisis* project featured above, offers some insight into the response of a proactive and innovative teacher who was able to manage fears regarding digital safety in the school community. The very devices which are feared most namely mobile phones were used to bring the message across.

The universal standard which currently guides members' ethical conduct hails from the Association for Educational Communications and Technologies (ACET, 2007). Points relevant to innovative teachers in the execution of their duties and their practice of using emerging technologies have been selected and are presented in Table 4-4 below.

**Table 4-4: Code of professional ethics (ACET, 2007, online)**

Sections of responsibility	In fulfilling obligations teachers:
<b>Commitment to the individual</b>	1. Shall encourage independent action in an individual's pursuit of learning and shall provide access to varying points of view. 2. Shall protect the individual's right to access materials which contain varying points of view. 3. Shall guarantee each individual the opportunity to participate in any appropriate program. 4. Shall promote current and sound professional practices in the use of technology in education. 5. Shall, in the design and selection of any educational program or media, seek to avoid content that reinforces or promotes gender, ethnic, racial, or religious stereotypes. 6. Shall seek to encourage the development of programs and media that emphasize

Sections of responsibility	In fulfilling obligations teachers:
<b>Commitment to society</b>	<p>the diversity of our society as a multicultural community.</p> <ol style="list-style-type: none"> <li>1. Shall honestly represent the institution or organization with which that person is affiliated, and shall take adequate precautions to distinguish between personal and institutional or organizational views.</li> <li>2. Shall represent accurately and truthfully the facts concerning educational matters in direct and indirect public expressions.</li> <li>3. Shall engage in fair and equitable practices with those rendering service to the profession.</li> <li>4. Shall promote positive and minimize negative environmental impacts of educational technologies.</li> </ol>
<b>Commitment to the profession</b>	<ol style="list-style-type: none"> <li>1. Shall accord just and equitable treatment to all members of the profession in terms of professional rights and responsibilities, including being actively committed to providing opportunities for culturally and intellectually diverse points of view in publications and conferences.</li> <li>2. Shall not use coercive means or promise special treatment in order to influence professional decisions of colleagues.</li> <li>3. Shall inform users of the stipulations and interpretations of the copyright law and other laws affecting the profession and encourage compliance.</li> <li>4. Shall observe all laws relating to or affecting the profession; shall report, without hesitation, illegal or unethical conduct of fellow members of the profession to the AECT Professional Ethics Committee; shall participate in professional inquiry when requested by the Association.</li> </ol>

Before using technology in the classroom attention should be given to issues relating to social and ethical issues:

“Identifying and addressing safety and ethical issues as an integral part of a teacher's role in preparing digitally literate citizens to use technology within the networked global community in a safe and socially appropriate manner, must be viewed as a keystone supporting wise and thoughtful practice in the networked classrooms of the 21st century. Promoting responsible practices will occur only through the explicit preparation of teachers who are aware of what they are doing, as opposed to those who are not” (Hicks, Sears, Gao, Goodmans, & Manning, 2004, p. 480).

One of the stumbling blocks to the explicit preparation of teachers is the problem of *currency* as technology is very dynamic with new solutions and devices continually being released into the market. Guidelines which were appropriate for established practices soon become irrelevant and outdated. The prolific use of social media brings about new habits and therefore new inherent

dangers emerge. Generic guidelines are therefore necessary and they should remain flexible enough to grow with technological capabilities and new practices in the learning interactions. Table 4-5 below contains some strategies that were adopted by innovative teachers in their use of emerging technologies.

**Table 4-5: Coping strategies to address ethics as adopted by innovative teachers in their use of emerging technologies**

Strategies	Description
<b>Communication</b>	Negotiate with learners and governance structures within the school to reach a common understanding of ethical issues that impact collaboration, information sharing and ownership of created artefacts.
<b>Managing expectations</b>	Involve effective communications with managing staff so that there is an effective chain of command ensuring that they stay informed. Guidelines are circulated to parents and caregivers. Boundaries such as teacher availability, adequate response time and level of support are discussed prior to deploying new technologies in the teaching and learning space. Values vs Rules. Govern the social and personal engagement of learners and teachers with new technologies according to a shared value set. These values are widely promoted and shared.
<b>Policies</b>	Draw up guidelines in consultation with learners and management to ensure that they are inclusive. Clearly articulate roles, responsibilities and related sanctions.
<b>Inclusiveness</b>	Design learning events and group activities that allow for the sharing of available technologies to accommodate technological diversity and to avoid exclusion on the basis of owned personal technology or lack thereof. Allow for technology bartering amongst group members ( <i>cf</i> Section 5.3.2).
<b>Licensing of learner and teacher created resources</b>	Teachers and learners are encouraged to licence their work through creative commons to determine the level of copyright before sharing it online. This provides a sense of autonomy.

At the start of this section the sub theme *ethical considerations*, as part of the larger theme *professional burden*, was presented with reference to literature and concrete examples from innovative teachers' reflections and described activities. The data analysis revealed an uncertainty amongst teachers regarding appropriate ethical conduct when allowing new technology into their teaching and learning space which was previously reserved for more traditional and widely accepted forms of educational technology like the interactive whiteboard. Due to a lack of structure and guidelines from governing authorities teachers navigate ethics in their practice by articulating their own set of practical rules to guide themselves and their

learners. They try to keep these guidelines generic and fluid in order to accommodate new technology developments and move from a *rules based system* of governing to a *value based system* (Batchelor & Botha, 2009b). In this way teachers inadvertently include Gruner's Ethics of responsibility (*cf.* Page 131) which emphasises social and future ethics in their course of action.

The next section will focus on the remaining theme to be covered in this chapter. *Teacher as bricoleur* is composed of elements that emerged from the data and were grouped together to form the sub themes of *teacher disposition* (*cf.* Section 4.4.1) and *teacher training* (*cf.* Section 4.4.2) as highlighted in Table 4-6 below.

**Table 4-6: Moral cohesion as the emerging core category and related expanded theme *teacher as bricoleur* highlighted for discussion**

AXIAL CODING (Categories clustered in sub themes)	SELECTIVE CODING (Emerging themes derived from sub themes)	CORE CATEGORY
African renaissance ( <i>cf.</i> Section 4.3.1)	Professional Burden ( <i>cf.</i> Section 4.3)	Moral Cohesion ( <i>cf.</i> Section 4.5.)
Stewardship ( <i>cf.</i> Section 4.3.2)		
Ethical considerations ( <i>cf.</i> Section 4.3.3)		
<b>Teacher disposition</b> ( <i>cf.</i> Section 4.4.1)	<b>Teacher as Bricoleur</b> ( <i>cf.</i> Section 4.4)	
<b>Teacher training</b> ( <i>cf.</i> Section 4.4.2)		

#### 4.4 TEACHER AS BRICOLEUR

Teachers are knowledgeable in the art of using *whatever means* and *whatever is at hand* to reach pre-determined learning outcomes in challenging contexts. As a result they have been described as *bricoleurs* in relation to their craft (Attwell & Hughes, 2010; Pearson & Somekh, 2006; Wiseman, Groves, & Appignanesi, 2000). This behaviour is not new or unique to the teaching



profession but in relation to this study it encapsulates the original ideas of the anthropologist Claude Lévi-Strauss. He described the actions of a *bricoleur* as he begins his work:

“His first practical step is retrospective. He has to turn back to an already existent set made up of tools and materials, to consider or reconsider what it contains and, finally above all, to engage in a sort of dialogue with it and, before choosing between them, to index the possible answers which the whole set can offer to his problem. He interrogates all the heterogeneous objects of which his treasury is composed to discover what of each of them could ‘signify’ .... (Lévi-Strauss, 1966, p. 18).”

When innovative teachers engage in the task of designing projects wherein emerging technologies are to be incorporated, they take into account the repertoire of skills which they have accumulated in the course of their teaching careers. Even though the technology they will be using is new to them and they have not fully anticipated the results of using it in the classroom, they are confident in their ability to solve problems and the challenges they present. This is a skill they do not only require from their learners but also apply to themselves and in collaboration with learners they deliberate the best solution for a given task.

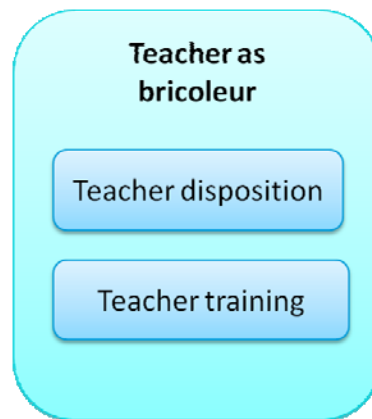
Capra in Kincheloe (2007, p. 12) states: “The social and physical worlds are so complex that they can only be understood like human beings themselves: not machine-like, but unpredictable, dependent upon context, and influenced by minute fluctuations.” Thus bricoleurs focus their attention on addressing the complexity of the lived world and understand the reality that the knowledge they produce should not be viewed as a trans-historical body of truth. In this framework, knowledge produced by bricoleurs is provisional and subject to change. Teachers continually augment their understanding as their access to more diverse technologies increases. Bricoleurs know that tensions will develop in social knowledge as the understandings and insights of individuals change and evolve (Blacker, 1995).

The process of using technology for creation, remixing and sharing is bound together by a set of possible relationships and teachers, in collaboration with their learners, find new ways to benefit themselves and their communities.

Attwell and Hughes (2010, p. 24) believe that the success of the bricoleur, whose ideas and solutions straddle the virtual as well as the physical world, “will depend on their judgments as

well as an element of trust to drive the innovative process forward.” There is little regard for perceived correct procedures but teachers and learners are pragmatic and more focused on the completion of the task. Judgments are made on the premise of pre-existing knowledge as to their learners’ capabilities, their skill levels and the affordances of the emerging technologies they are considering for use. Trust on the other hand is built up over a period of time and it is forged through teachers’ relationships with those involved in the learning event.

The next section will focus on the sub themes of *teacher disposition* and *teacher training* as it emerged through the data analysis. Each of these as displayed in Figure 4-6 below will be discussed in greater detail (*cf.* Sections 4.4.1 – 4.4.2).



**Figure 4-6: Expanded emerging theme: Teacher as Bricoleur**

#### **4.4.1 Teacher disposition**

The definition of *disposition*, within the realm of social foundations in education, should be shaped by John Dewey’s idea which enhances both the intellectual and social growth of teachers and thus helps them to acquire characteristics that support their teaching activities (Dottin, 2010). Teacher disposition has a strong influence on student learning and development. Stronge (2002) puts forward six dispositions displayed by effective teachers that have bearing on learner achievement namely caring, fairness and respect, positive attitude towards teaching and friendly and personal interactions with learners. Van Manen (1991) offers the following as critical characteristics inherently found in teachers: love for children (caring), sense of responsibility, self-critical openness, moral intuitiveness, interpretive intelligence, passion for knowledge and learning, moral fibre, humour and hope in the face of crisis.

All the comments below were extracted from Gaye Pieterse's VCT. She presented a workshop at her school on how to use ICT to develop teacher and learner entrepreneurial skills. The workshop was conducted over a weekend. Teachers travelled from across Kwazulu Natal to attend the workshop. These are some of the comments at the end of the workshop:

*Without a genuine and personal investment in what and how we teach, the job just becomes a mindless set of actions. Teach with the technology that personally inspires you (Gaye Pieterse, VCT 2008).*

*"Such a phat, fab, & fantastic workshop that has opened our eyes & enriched us with more skills on how to make EMS fun. For me, it was my energizer, so I'm refreshed & ready to go out there & make a difference'." - Olga Stima (Nansindlela Combined School - Richard's Bay)*

*"The workshop was so interesting. It empowered us. So now I am going to cascade the information to my learners as well as community. We need more of this!" - Zanele Sithole (Khetindlelenhle – Pietermaritzburg)*

*"A very wonderful and educative workshop. Provided me with confidence and skills to face classroom challenges. Unlocked my potential & will equip me a lot. Workshop also looked at leadership skills & motivates me to do more for my learners." - M.B. Shandu (Inguzegcwensa Primary - Pietermaritzburg).*

*"An excellent workshop. Made me confident again. Thought I'd lost myself forever. Now I can help my kids achieve the dreams/goals cause I believe in myself. Thanks." - Reshma Rajcoomar (Palmview Secondary - Durban)*

*"I feel very inspired to go back to school & assist the boys in becoming 'global entrepreneurs'. I have really enjoyed this workshop and thank Gaye for her inspiration & passion which is very courageous." - Janine Adams (Glenwood High - Durban)*

*Teacher outlook, prior life experiences and beliefs influence their participation in ICT related initiatives as evident in the following quotation taken from Annie Behari's VCT:*

*I love challenges and dare to go against norms of the 1960's teaching methods which still exist at my school . . . I believe that my learners are Y2K kids and they need to be taught in their "language" which is inclusive of technology. Y2K pupils need to be challenged so that we uplift the calibre of the employee in the place of work (Annie Behari, VCT 2009).*

According to Nespor (1987, p. 19) as cited in Li and Hughes-Wilhelm (2008) "Beliefs are far more influential than knowledge in determining how individuals organize and define tasks and problems and are stronger predictors of behaviour." Richardson, Anders, Tidwell and Lloyd (1991), later supported by Webb and Cox (2004), found that a change in beliefs preceded a change in practices. The implication therefore is that studying teachers' practices will give us a

glimpse into their belief systems. The following innovative teacher holds a life philosophy of constant change that heavily influences classroom practice:

*You need to develop a habit of change. A habit of evolution. Maybe Lamarcks theory of evolution “the acquired traits” is perhaps better to use than Darwin’s “the fit will survive”. By that I mean the earlier and more simplistic way of looking at evolution whereby as a teacher I possess the ability to develop and acquire new traits ,specifically in my use of new ways of looking at how I plan and execute my lessons. Therefore, the more I move in a new direction, the better I become in it and the more comfortable I am to keep the momentum going. The same applies to my learners. If we do the same things day in and day out there is never any expectation for change to happen (UI, 7).*

Positive reinforcement from learners in the class and the constant demand for keeping abreast of new developments serve as a powerful motivator to innovative teacher Warren Sparrow. He states:

*Although I am the computer teacher, I also teach in other classes, regardless of subject or grade. Every day is different and keeps me motivated. As technology changes, I am able to change what we do in class. There is always something new that the learners have not seen and it keeps us all on our toes! (Warren Sparrow, VCT 2010).*

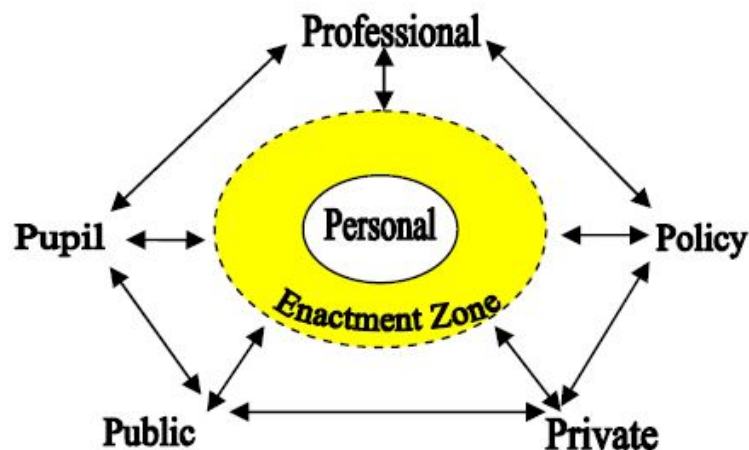
The implementation of innovations in the teaching practice is a comprehensive process, requires continued enthusiasm. Teachers look for support from their learners whose affirmation they highly value (Novotný, 2003). The overall worth of teachers is reinforced by positive comments from their learners. This particular learner, participating in the project *My community my Pride*, explains how his regard for himself and his teacher changed in a positive way. He says that his respect for himself and his teacher has grown in the course of the project:

*It was an interesting and encouraging project, as I’ve learnt many things. This project also helped me to know and identify the class and type in which my community falls. Working with people made me a well known person within my community. It also helped me practice and gain many skills that will help me in the workplace. It was like I’m doing a certain course in which I will be something after it. This took me from being lowest to highest. “God is the first factor that can take you from zero to hero “But” Mrs Mfeka is the second factor (Mfeka Hlengiwe, VCT 2009).*

Activism also plays a role in teacher disposition as it dictates levels of interaction and mobilisation of learners within a community as shown below:

*I carried out this project about indigenous plants as a way of creating awareness about their scarcity among the learners as well as the members of the community across the country. I am also a member of Greenpeace international in Lesotho. With this project, I have realized that to research about the indigenous plants, like any other topic, educators need to be proficient in the use of a technologies such as cell-phone, digital cameras and computers in order to help learners together with the community to collect, manipulate and analyse information (Moliehi Molefe, VCT 2009).*

Spillane (1999) developed a multifaceted model that illustrates the elements which influence a teacher when he/she attempts to initiate change within their practice. He proposed a six P's model to untangle the complexities at play in the personal zone of enactment as depicted in Figure 4-7 below.



**Figure 4-7: Reform of classroom teaching (Spillane, 1999)**

The personal enactment zone is an area of potential development and also the space in which the teacher makes sense of innovations while taking into account the external factors within the outer circle namely professional, policy, private sector, public and pupil. The engagement with the external elements is essentially a social process and each encounter can provide either encouragement or detract teachers from learning about and changing their practice. Each of these factors is elaborated on in Table 4-7 below:

**Table 4-7: External elements influencing the proximal zone of enactment (Spillane, 1999)**

External elements	Description
Professional	Refers to the associations on both the formal level in teaching bodies as well as the informal contact amongst educators in their daily engagement.

External elements	Description
<b>Policy</b>	Encapsulate all the policy initiatives driven by education authorities and school governing bodies.
<b>Private sector</b>	Includes curriculum and resource developers and the business industry.
<b>Public</b>	Includes the interests of parents and community concerns.
<b>Pupil</b>	More specifically teachers' perceptions about their pupils have an important influence on teacher practice in education reforms.
<b>Personal resources</b>	The teachers have for learning about their practice and the opportunities they are bound to notice and exploit to further their practice.

Central to the Spillane model is *the zone of enactment* that is depicted with a dotted line in Figure 4-7 above, demonstrating its dynamic nature as it expands along a continuum from individualistic to social. Teacher initiative and change does not only depend on their own capabilities but also on their interactions with external incentives and opportunities. These outside elements of policy, professional and public are filtered through the teachers' own personal beliefs, knowledge and dispositions before enacted in their reformed practice.

Hansen (2001) cautions that the acquisition of disposition is not an add-on feature of a teacher but rather inherent in the process of education. He states: “. . .the moral quality of knowledge lies not in its ‘possession’ . . . but in how it can foster a widening consciousness and mindfulness” (Hansen, 2001, p. 59). The widening realization stems from the additional life experiences teachers have that impact on their practice as reflected in the thoughts of innovative teachers below:

- *My passions beyond (and within) teaching include environmental concerns based on a deep love of nature and animals; and gender politics. Other interests of mine are complementary healing techniques particularly massage, and Reiki; and Ballroom and Latin American dancing (Nicci Hayes, VCT 2009).*
- *My interests outside of the school provided me with confidence and skills to face classroom challenges (IW, Port Elizabeth).*
- *Because I run small businesses myself, I am able to relate the learning area in a practical way. Most teachers have never been in business and yet are expected to teach how one should become an entrepreneur; surely one needs an entrepreneur to teach entrepreneurship (Merna Meyer, VCT 2007).*

In Table 4-7: *External elements influencing the proximal zone of enactment (Spillane, 1999)* (cf. page 156) Spillane mentions that teachers' perceptions about their learners have an important influence on their practice. Innovative teachers Sunia Dokter, Shireen Persens, Ngaka Ralekoala and Lehentse Seekoei relate how the way they in which they viewed their learners evolved during the course of the project *Children who cares*:

*As teachers we had the opportunity to meet learners at their level – listening to their vulnerabilities and their stories – which will always have an impact on the way we see the learners in our class – this project has changed the way we teach, listen and understand our learners (Sunia Dokter, Shireen Persens, Ngaka Ralekoala & Lehentse Seekoei VCT 2010).*

In the *Children who cares* project, learners from participating schools received training in ethics and research methodology. They then conducted their own research in their local community to determine the needs of vulnerable children. Through this project, learners have been given the opportunity to collaborate with other schools, the University of the Free State as well as experts in the field of social action research from the De Montford University in the United Kingdom via the Internet. Part of the poster as illustrated in Figure 4-8 below, articulates the roles of learners, teachers and vulnerable children in the community.

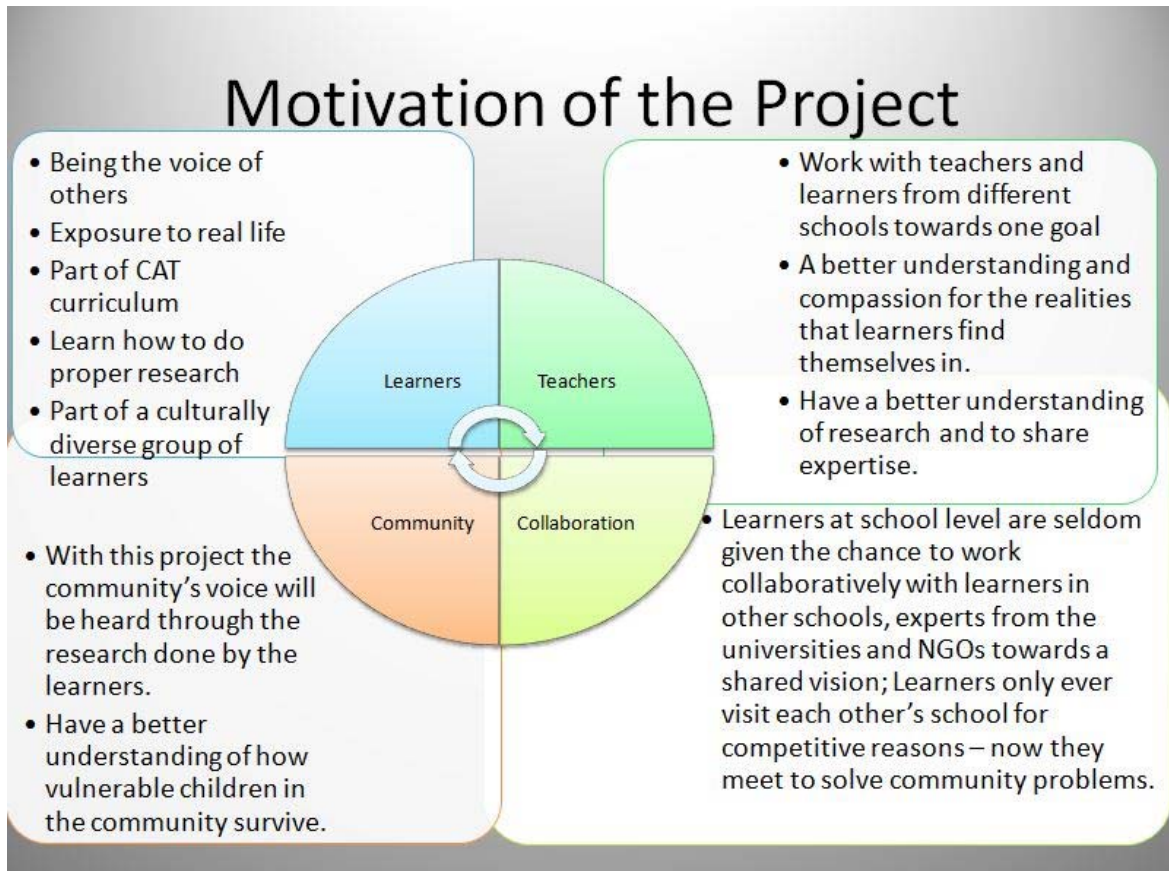


Figure 4-8: Poster section of the *Children who cares* project.

Teacher disposition is a complex construct which Spillane's proximal zone of enactment endeavours to clarify. Unbeknownst to the innovative teachers themselves, they managed to include all external elements in their practice that could possibly influence their personal zone of enactment (*cf.* Figure 4-7).

The section covering the sub theme *teacher disposition* as part of the emerging theme *teacher as bricoleur* revealed the tendency of innovative teachers to hold strong personal convictions around personal fulfilment and the need to continually refresh themselves and thereby increase their personal zone of enactment as articulated by Spillane (*cf.* Table 4-7). To this end the boundaries between personal interests and convictions become indistinct as innovative projects' topics reflect the teacher's stance on social issues.

The next section as part of the emerging theme *teacher as bricoleur* will look at the role that *teacher training* plays in the development of innovative teachers as they grow and develop their practice.



#### 4.4.2 Teacher training

By nature training courses and materials are prepared long in advance to training events and in a fast changing environment, where technology is involved, the struggle to stay current becomes problematic (Siemens, 2006). Teachers that have been in service for a number of years have not had any formal training in computer literacy skills, or for that matter integrating technology into their curriculum. To make up for their lack of skills they avail themselves on a smorgasbord of training opportunities that come their way, however they find it difficult to judge the currency of content or the relevance of training courses as skill levels amongst teachers differ and current training programs do not adequately cater for personalised levels of learning.

Innovative teachers report that they have built their particular skill set over a number of years though a combination of formal ICT training events as well as serendipitous exposure to a number of different training opportunities. Not all of these opportunities were related to ICT but rather inspiring incidences that sparked their creativeness. This is reflected in the following statements below:

*Most applications within the IT domain were self taught through trial and error. Teaching with television and animation DVD's is the closest that I could get to an interactive multi-media approach, as the art room does not have the facilities to accommodate interactive computer programmes, nor an "open" link to the Computer Centre (Merna Meyer, VCT 2007).*

*I am a science teacher with two years experience teaching science and passionate about environment and making my teaching relevant and applicable. I had no formal training on IT training and learned how to use software on a need to know basis (Moliehi Molefe, VCT 2009).*

Prior exposure to ICT in personal and professional life and learning histories influence strategies adopted for utilising technology for teaching and learning, which is indicated by unstructured interview number 5 below (cf. Table 4-2):

*You need to expose yourself and learn from other disciplines eg films, gardening; hobbies for you must remain interesting to yourself to remain inspirational to your learners. You also feed on the creativity that are stimulated by something outside of your work environment and you find it then manifest itself in another ways when it crops up in your teaching. (UI, 5)*

Innovative teachers have exposure to and passions and interests outside of school and use these to build their teaching repertoire and simultaneously increase their technological knowledge. An

example, illustrating this concept, is a teacher who builds a project in which her learners use technology to provide specifically tailored solutions and services to the individuals in the community that have special needs. Her teaching history reveals that she previously taught at a school for learners with special needs (IC, Saretjie Musgrave).

In the formal domain teachers exploit every training opportunity but they choose their events carefully to complete the perceived gaps in their skill set as depicted in the feedback below:

- *This workshop unlocked my potential and will equip me a lot. It motivates me to do more for my learners and increased my confidence. I thought I'd lost myself forever (IC,26).*
- *You only learn how to do these things by being forced to do them I thought it was too hard but now I'm proud of what I've achieved! I didn't think I could do it (IW, Pretoria).*
- *Learners are often ahead of the teachers, especially technologically speaking it was my energizer, so I'm refreshed & ready to go out there & make a difference'. I am no longer scared to use technology in the classroom because now I know that it is OK not to know everything (IW, Port Elizabeth).*
- *My own experience revolves around teaching Art related subjects. I have studied art (BA. ed. Art Hons), received in-house training as a Computer Graphic Artist (SABC), in-house training in Computer Literacy and exposure to animation programmes such as SoftImage Toy Stories (Merna Meyer, VCT 2007).*

If one regards the statements above, it seems as if the main areas of concern is the need for further training and the resultant emancipation of the teachers through increasing their self esteem and minimising the fear of technologies and thereby addressing notions of inadequacy. Teachers that find themselves in this position need access to training opportunities and role models that can guide them in their practice. Vanita Coetzee reflects on her training below:

*I received training to be a facilitator for the RADS peer support group and was also trained by the Education Department to be a lay councilor for the children in need at our school. I had to learn how to bead and do other art and craft projects. I received training in ICT as part of the eLapa project, for which Ikanyegeng was a pilot school and was very fortunate to attend the BETT exhibition in London in 1995. (Vanita Coetzee, VCT 2007).*

Vanita Coetzee's training history alludes to the different roles she fulfils within the school environment. Her additional duties, which include the counselling of vulnerable learners after school hours fall well outside her subject area of Business Economics. She builds on the initial

opportunistic exposure to the BETT exhibition in London in 1995 by opting for formal ICT training that stimulated her professional growth.

Roles can also be reversed in the training with learners assuming the role of the experts conducting a workshop for visiting teachers. They planned the event, determined the contextualised content and tailored training to individual needs. Below is some of the feedback that attending teachers provided at the end of the day.



**“I found the training very informative and rewarding. I felt like having a lecturer next to me, not a learner. It was really wonderful!” -Boitumelo Metoa**



**“The training also adds to the accepting of positive cooperation between the different races of South Africa with regard to teacher and student” – Thato Monyakane**



**“With this type of support I think I can go a distance. For me it must not be the last, but only the beginning.” – Daniel Mokhethi**

---

Sarietjie Musgrave, VCT 2007

Teachers state that they are growing more comfortable with the fact that they do not always have to know everything concerning the technology their learners use. Innovative teacher Kathleen O’Conner, a finalist in the World Innovative Teachers Forum Award 2008 explains in a formal interview her attitude towards providing technical guidance to learners:

*I am certainly no expert, in fact I am probably one of the worst person in the entire project to help them, so they have to work and if they can’t sort it out, they have to find somebody to help them because I may not be able to in fact I know I won’t be able but I am quite happy of them to find somebody else.(WI, Kathleen O’Connor)*

This section revealed that successful teacher training is a combination of access to formal training events with trainers from across the spectrum (including private practice, other teachers and even learners as mentors) and the incidental informal exposure to new knowledge. The

serendipitous exposure to training played a significant role and innovative teachers generally maximised these opportunities.

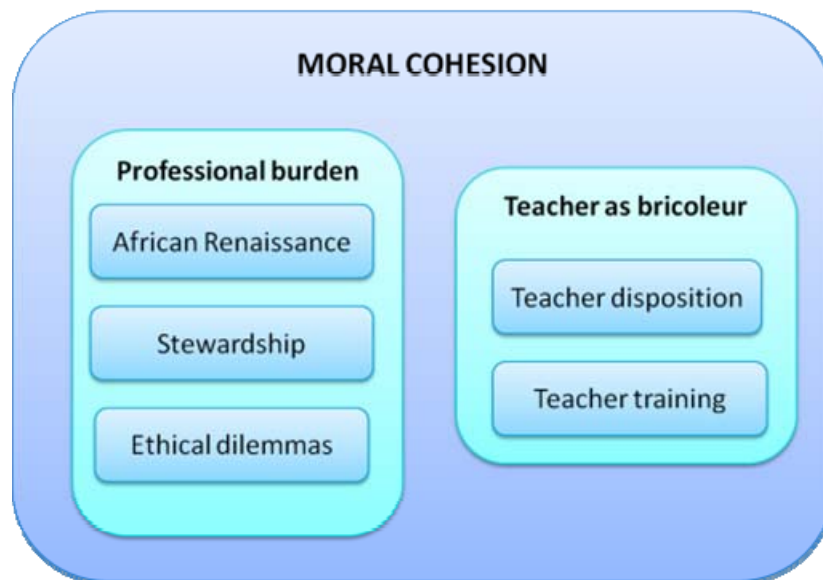
The next section discloses how the emerging themes *professional burden* and *teacher as bricoleur*, along with their related sub themes, combine to form the core category *moral cohesion*. Relationships between the sub themes are presented in an interrelationship map to determine the main drivers directing the *moral cohesion* of innovative teachers in their practice.

## 4.5 MORAL COHESION

*Moral cohesion* is a multidimensional concept that is derived from the term *social cohesion* that supports the concept of an integrated society that shares the same ideals and values. The notion of moral cohesion was borne out of the suggestion that being part of a community pre-supposes that one subscribes to its ideals and belief system which is governed by common values and motivations that guide people in their actions. The idea of moral cohesion is further articulated as “collective well-being, that offers a means to achieve an individual end and not a collective measure to advance solidarity and moral cohesion around the imperatives of creating a just and equitable society (McClaren, 2010, p. xv).” The social foundations of education are also taken into account and contribute to meaningful teacher preparation *if* it helps teachers and other school personnel to:

- Understand and apply disciplinary knowledge from the humanities and social sciences to interpreting the meanings of education and schooling in diverse cultural contexts.
- Understand and apply normative and critical perspectives on education and schooling.
- Understand how moral principles related to democratic institutions can inform and direct schooling practice, leadership and governance.
- Understand the full significance of diversity in a democratic society and how that bears down on instruction, school leadership and governance.
- Understand how philosophical and moral commitments affect the process of evaluation at all levels of schooling practice and leadership (Council of Learned Societies in Education 1996, 18-22).

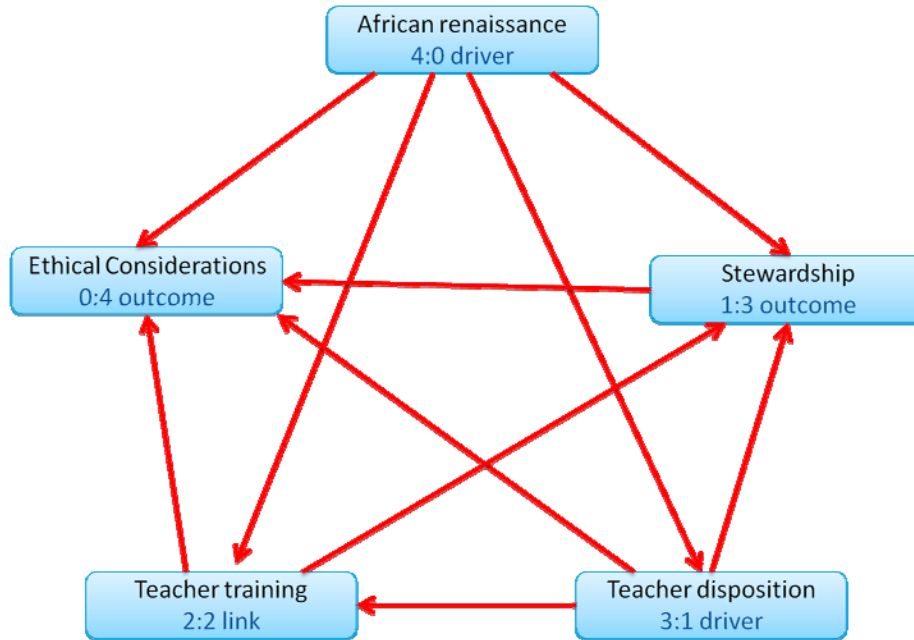
The first core category to emerge from the analysed data was labelled *moral cohesion*. The themes it contains are presented below in Figure 4-9. In this core category teachers expressed a strong sense of kinship with the people of Africa and aligned their ideals with those of the African renaissance movement. Innovative teachers take into consideration their position in society and contemplate their way forward when engaging in teaching and learning activities that involve the use of new technologies. They strive, through their projects, to uplift and enlighten their fellow teachers and the learners in their care by expanding their horizons. Towards this aim they rely on members of their community and activate their own personal network of contacts that stretches beyond the education sector. They gradually build their skills set through the pursuit of formal and informal training opportunities and struggle with difficulties such as personal resources and level of availability and support to their learners after school hours.



**Figure 4-9: Building theory: *Moral cohesion* as emerging core category with expanded themes**

Once the categories emerged an affinity diagram was developed through the use of axial coding.

Through theoretical sampling, interviews with pre-selected finalist in the Microsoft Innovative Teachers Forum competition were conducted to uncover relationships amongst categories. The interrelationships amongst the categories were determined through interviewing pre-selected and the categories were subsequently classified as drivers, links or outputs. Arrows between the categories identify the nature of the relationship and indicate the direction of influence. The resultant diagram, depicting moral cohesion as a core category, is presented in Figure 4-10 below



**Figure 4-10: Interrelationship diagram of Moral cohesion**

An affinity diagram presents cause-and-effect relationships between different concepts. Directional arrows indicate the nature of relationship pointing from the cause to the effect. The influence of concepts on each other was determined through interviews. The causal interrelationships were visually presented with arrows pointing towards or away from each concept. The ratio of arrows flowing in or out of sub themes determines the strength in relation to other categories and is therefore identified as a *driver*, *link* or an *outcome*. Table 4-8 below provides clarification as to the different types of relationships and identifies the categories *African Renaissance* and *teacher disposition* as the strongest drivers. *Teacher training* forms the link between the strong drivers and the outcomes manifest as *Stewardship* and *ethical considerations*.

**Table 4-8: Type of relationships between sub themes of Moral Cohesion**

Type of relationship	Ratio of arrows	Categories
<b>driver</b>	many out : few in	African Renaissance Teacher disposition
<b>link</b>	even in : out	Teacher training
<b>outcome</b>	few out : many in	Stewardship Ethical considerations

Over time, the ideas of social pragmatists such as Dewey, have garnered greater attention and have been adapted into various teacher education efforts to make the classroom more experiential, less teacher centred and more sensitive to the realities and experiences of students. In short, greater focus has been given to the creation of cooperative communities where students come together to problem solve, experiment and develop both moral and academic reasoning as Molefe indicates:

*As a teacher and environmental activist I am passionate about the use of technology in teaching; especially teaching of subjects related to environment and i believe that learning is a three legged pot (the learners, the community and Technology) and that efficient learning requires the involvement of the three in order for learners to achieve (Moliehi Molefe, VCT 2009).*

In conclusion, the following statement captures the sentiments of moral cohesion:

“It cannot be only self-interest that motivates teacher educators, but a moral and ethical imperative to provide service to a citizenry in addition to the knowledge and technical skills that make education possible” (Jaramillo, 2010, p. 45).

#### **4.6 SUMMARY**

This chapter covered the components of *moral cohesion* which became evident through analysing data delivered through various data instruments as illustrated *Table 3-4: Data gathering and instruments used during the research process* on page 92. The themes of *professional burden* and *teachers as bricoleurs* were presented and expanded upon in the form of quotes and references from literature. The interrelationship between the sub themes was investigated and the *African renaissance* was prioritised as a key driver with *teacher disposition* as a partial driver. *Teacher training* was seen as the enabling mechanism resulting in sense of *stewardship* and the resultant *ethical considerations* that needs to be taken into account when engaging with emerging technologies within the pedagogical space.

The discussion of the results will continue in the next section where aspects of the technosphere will be presented.